

Travis Review

Increasing the capacity of the Victorian public hospital system for better patient outcomes

Final report, June 2015

July 2015

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Transmittal letter

The Hon. Jill Hennessy

Minister for Health

30 June 2015

Dear Minister,

I am pleased to present my final report for your consideration.

This report covers both the initial period of the Travis Review, from December 2014 to March 2015, and the final period of the review from March to June 2015.

The final report that I present today is in two parts. The first part is essentially the interim report and the second part mounts the argument for innovation as the preferred method of increasing capacity in healthcare delivery. In addition to mounting the argument the second part provides a clear path forward to achieve increased capacity through innovation. The path is encapsulated in my recommendations.

Part 1: Increasing the capacity of the Victorian public hospital system through infrastructure and planning

The report includes the results of my investigations into the number of beds, operating theatres and other key patient facilities in the Victorian public hospital system. The results are categorised as points of care (POC) that are generally available for patients and the total POC that exist, including those that are closed but could be re-opened subject to demand and availability of funding. The survey is one of the most comprehensive ever performed in Victoria and will provide a basis to consider how capacity in Victorian hospitals can be enhanced now and in the future.

As detailed in my report, Victoria currently has 13,981 inpatient beds (acute and subacute beds, excluding mental health beds), of which 12,545 are generally available for use. In addition, there are 1,284 patient treatment spaces in public hospital emergency departments, urgent care and primary care services, of which 1,190 are generally available. I have also measured operating theatres and other specifically dedicated facilities. There are 290 operating theatres, of which approximately 237 are generally available for use. In addition there are 61 procedure rooms, of which 52 are generally available for use. Mental health beds are not included in this report; to get an accurate assessment of mental health POC it would have been necessary to survey the various community services as well as hospitals, which was outside the terms of reference.

I have drawn the following key conclusions from my investigation:

- The Victorian public hospital system is well equipped in terms of the physical capacity of facilities to meet the immediate challenges of a growing population with increasing demand for health services. However, not all facilities meet community expectations and contemporary standards for hospital facilities.
- In some areas there is a mismatch between facilities, funding and demand.
- It would be helpful if there was a statewide service and infrastructure plan to guide the future allocation of resources.

While Victoria has a considerable stock of existing hospital beds and other patient treatment facilities that could be commissioned, it is important that investment in capital funding in public hospitals continues in order to ensure: facilities are kept in fit-for-purpose condition (renewal); additional facilities are provided in areas with growing and ageing populations; and hospitals can accommodate changing clinical practice.

A good example of the need to adapt facilities to accommodate changing clinical practice has been the development over the last 15 years of short-stay inpatient units located adjacent to emergency departments. These units provide a better location for treating patients who can be seen within 24 hours than either an extended stay in an emergency department cubicle or a transfer to a separate inpatient ward. This is one element of how the public hospital system can reduce emergency department delays.

The number of hospital beds and, more particularly, the change in the number of beds over time is no longer a good measure of a hospital's ability to treat increasing numbers of patients. This fundamental shift in thinking is because of changes in technology and practice that enable care to be delivered with less time in hospital – either at home or in an alternative community setting. For this reason, I recommend that, when you are considering capacity issues, there should be a greater focus on reporting the proportion of patients who fail to be treated within clinically recommended timeframes, outpatient appointment waiting times and the time it takes to clear a waiting list. These metrics are already collected (with the exception of outpatient appointment waiting time) and better answer the public's key questions: *Will I get treatment? and How long will it take?* In addition I recommend the collection and publishing of waiting times for an initial outpatient appointment.

I also examined a range of proposals from public health services and made recommendations for your consideration in the allocation of the Beds Rescue Fund. While there were many worthy proposals put forward for consideration, I selected the proposals I consider will provide best value for Victoria.

Part 2: Increasing the capacity of the Victorian public hospital system through innovation

The final phase of the review commenced with widespread consultation on two key areas: how to improve health innovation in Victoria; and examples of innovative models of care that enable more patients to be treated within existing funding.

Demand for public hospitals will continue to increase at a faster rate than funding for additional capacity. In addition, we need to reshape the paradigm from 'more efficiency' to 'better outcomes for patients'. The report presents the argument that the best way to sustainably increase the capacity of the health system in Victoria is through innovation, rather than just simply building bigger hospitals and doing more of the same.

Innovation as the way forward is not new. Many other jurisdictions both in the Commonwealth and overseas have committed significant resources to develop innovation programs that have a whole-of-health-system focus. Innovation is alive and well in Victoria but seems to be marooned in individual health services, lacks a system-wide strategy focus and has little scaling up capacity. The report details the current state of innovation in Victoria.

I have laid out a vision of the path ahead to achieve a whole-of-system outcome and that vision is encapsulated in my recommendations.

At this point in time there are two external changes that should encourage you to proceed with the vision. First, the conjunction of the creation of Primary Care Networks with an apparent shift in attitude in the federal department makes the time ripe for innovation to help patients that crosses traditional physical and jurisdictional boundaries. The second external change is the National Health and Medical Research Council funding of two translational research institutes in Victoria, one either side of the Yarra.

The government should take advantage of this window of opportunity to drive better health outcomes for Victorians. I believe the plan I have articulated will provide the best method for achieving maximum success from these new opportunities. The vehicle for that success is Innovative Health: Victoria.

Innovative Health: Victoria will cost money; however, most of the operational resources required can be found within the current Department of Health & Human Services resource envelope. The big ask is the Innovative Health: Victoria Fund. This is new money, but money is the vital ingredient to lubricate the wheel of change. A significant block to innovation is the lack of the initial seed money to pay the start-up costs of change. The fund would help reduce the entry barrier to change and stands as an encouraging reminder that the government wants to make change happen. Innovation means trials of new models cannot be funded out of current resources, which are needed for managing the current health services. The Innovation Fund is an investment in the future sustainability of public health services in Victoria. I believe this innovation initiative is key to a more sustainable health system in Victoria.

I wish to thank the public health services, health departments in other states and key experts who have contributed to the Travis Review. Their contributions have provided firstly a valuable stocktake of hospital capacity that will provide the department and government with a basis for planning and delivering services into the future. Secondly they have helped shape the advice I have presented to you on how to better align the resources and effort currently applied to innovation in Victoria to have more impact.

In addition, I acknowledge the contribution of Dr Katherine McGrath as an independent advisor, and the professional support of the department in providing an expert and excellent review secretariat.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'D Travis', written in a cursive style.

Douglas G Travis, MBBS FRACS (UROL)

Chair, Travis Review

Executive summary

The Travis Review was commissioned by the Victorian Minister for Health to conduct an independent statewide census of bed and theatre capacity, and to provide recommendations about how to increase the capacity of Victorian hospitals.

Measuring hospital capacity

In 2014, despite 1.6 million admissions and almost 1.5 million emergency department presentations, some nationwide benchmark targets for access were not met.

Historically bed numbers have been used as a surrogate measure for capacity, hence bed numbers have been used to measure government investment in capacity building and community access to public hospital services. However, beds are no longer a useful measure of hospital capacity. This is due to the changes in technology and clinical care pathways that have dramatically reduced the length of inpatient stays and the increasing use of alternative care settings including people's homes. The term 'bed' historically referred to a single-use, same capacity item; however, today it refers to many different kinds of inpatient facilities (such as chairs for same-day treatment, ward beds, trolleys, rehabilitation beds or intensive care unit (ICU) beds). These points of care (POC) are markedly different physically and have widely different capacity to treat patients. They are not readily substitutable for each other and certainly they should no longer be lumped together as a single unit of measure called 'beds'. The review uses the umbrella term 'POC' rather than beds for all these various items in which patients come to recover.

Capacity measures need to answer the two fundamental questions the public constantly asks: *Will I be able to get treatment if I am sick?* and *How long will it take to get treatment?* 'Beds' no longer answers these questions. Better answers to these questions are: the average time to clear waiting lists, the percentage of people treated within clinically appropriate times and the average waiting time for a first consultation in an outpatient clinic.

Methodology

The major data collection was done by survey, validated against external datasets and selected targeted hospital visits. Data was collected on a variety of POC.

The survey collected information on the total (maximum) existing fully functional and equipped physical capacity for inpatient POC and selected acute facilities in public health services by site and care type. It also collected information on the generally available capacity that is fully functional, equipped and usually resourced for use during the year, in-hours¹ on a typical weekday on ordinary working days.

The total existing fully functional and equipped POC, whether open or not, is a relatively static number; however, the generally available number can vary dramatically due to the time of day, the day of the week and even the time of year. Demand variation is often predictable and under-utilisation is inefficient, so health services vary the availability of POC during the year to manage demand effectively. This creates a challenge in measuring the number of available POC. A single point-in-time measurement would be misleading given these planned variations, hence an average weekday in-hours concept has been adopted.

The survey also sought proposals from health services for allocating the Beds Rescue Fund.

¹ In most hospitals, the 'in-hours' operating period is between 7 am and approximately 7 pm Monday to Friday.

The other major data collection that is detailed in the report relates to care delivered outside the hospital but still under the direct supervision of the hospital such as Hospital in the Home.

The second part of the final report was conducted separately to the work that informed the first part. The information that formed the basis of the work and recommendations was obtained by:

- desktop review of available information
- interviews with stakeholders and experts in health service innovation
- visits to other jurisdictions
- evaluation of written submissions from stakeholders (see Appendix 6 for a list of written submissions received)
- internal review of Department of Health & Human Services structures and functions relevant to innovation.

Key results

In Victoria there are 86 health services treating more than 1.4 million inpatients each year. The review has grouped the health services into five like groupings for data analysis; Table 1 includes the inpatients treated by each group of health services in 2013–14 so that the relative size of each group can be compared.

The review identified there were 1,436 inpatient POC that could be used immediately if there was sufficient funding, staff and local demand (see Table 1). The reality is the available unused capacity is not uniform across all health services and does not necessarily line up with demand – that is, the services that have unused capacity are not necessarily those with the highest unmet demand.

Table 1: Existing total and generally available capacity in Victorian health services

| Health service groups | Inpatients treated in 2013–14 | Total POC | Generally available POC | Usable but not in use POC |
|---------------------------------|--------------------------------------|------------------|--------------------------------|----------------------------------|
| Major metropolitan | 1,039,772 | 9,492 | 8,491 | 1,001 |
| Specialist metropolitan | 66,085 | 515 | 480 | 35 |
| Regional and subregional | 264,006 | 2,580 | 2,373 | 207 |
| Local and small rural | 89,388 | 1,272 | 1,085 | 187 |
| Multipurpose services | 6,148 | 122 | 116 | 6 |
| Statewide | 1,465,399 | 13,981 | 12,545 | 1,436 |

Operating theatre utilisation at the statewide level was 82 per cent (237 notional theatres in use daily) of the 290 that exist in Victoria.

The survey also measured the care that is able to be safely delivered on an in-home basis under the supervision of hospital staff that in the past was delivered on an inpatient basis. It is estimated that, for 2014–15, home-based services will deliver care to patients who would have otherwise used the equivalent of more than 900 inpatient beds – inpatient beds that are now available for other patients. This is an expanding model of care that allows hospitals to treat more patients safely with almost the same resources.

Statewide strategic service and infrastructure plan

In the longer term, a better solution to enable more Victorians to be treated in a timely manner is the formulation of a statewide strategic service and infrastructure plan. Resources should then be allocated against this plan to enable implementation, including operational and capital funding for new and replacement infrastructure.

Beds Rescue Fund recommendations

The Victorian Government has committed to providing \$200 million (\$50 million a year over four years) in the Beds Rescue Fund to start tackling the problem of using unused capacity in our hospitals to treat people. The first money is to flow from 1 July 2015. This provides a good start to enable more Victorians to be treated in a timely manner.

Current status of health system innovation in Victoria

The review team identified the following key elements of health system innovation in Victoria:

- Redesigning Hospital Care Program
- Commission for Hospital Improvement
- Health Innovation and Reform Council
- Clinical networks.

Descriptions of these elements are contained in the body of the report. The four elements are spread across the department and of themselves do good work but there is a lack of overall coordination and focus of activities. The process of innovation seems to have a small profile across the health system and it is difficult to identify an easy pathway for scaling up innovation.

Health system innovation in other jurisdictions

The current innovation systems in other states and in some overseas jurisdictions are summarised in the body of the report.

This illustrates that other governments have committed significant resources in developing whole-of-system innovation programs that attempt to harness and focus the need to change health delivery in order to make it sustainable. The success of these programs is variable, but that is to be expected if innovation is to make improvements.

The case for changing how we do innovation

Victoria has invested significant resources in improving healthcare and there have been many excellent individual projects that have achieved significant productivity and capacity enhancements in their local environment. If these achievements were replicated across the state there would have been major health system improvements that would translate into benefits for patients in reduced waiting times. However, there is currently no effective mechanism to align the efforts of many clinicians and experts to deliver benefits across the system.

The proposals that were put forward by health services demonstrate that there is no shortage of good ideas. What is missing is the capacity to harness these ideas and amplify the potential to achieve better patient outcomes through a whole-of-system focus on delivering these outcomes. This was a consistent and strongly held view in the submissions and consultations.

Demand for public hospital services is expected to increase at a faster rate than funding for additional capacity. We need to treat 65 per cent more patients over the next 20 years with real revenue growth of only 40 per cent at best. The heavy lifting in capacity building must be through innovation: doing things better, differently and more effectively than today.

Proposed program for increased capacity through innovation

To meet this challenge Victoria will need to have a recognisable, vibrant and active innovation program to identify, encourage and facilitate the dissemination of innovation with the goal of increasing health system capacity. The program will identify the best local innovations that could be implemented across the system as well as identifying new models in other jurisdictions and countries that could be adapted to the local Victorian health system. The innovation program needs four key elements to drive this:

- analysis of best practice innovations from elsewhere that could be tailored for implementation in Victoria
- local experience in developing and piloting innovations
- data analysis to provide an evidence base for determining priorities
- implementation capability so good ideas can be scaled up and implemented for system-wide impact.

The program would align itself with the statewide health strategy.

Discussion of elements and governance models for a statewide program

Successful innovation programs have common elements. They are:

- Human factors: This is the most important element of success. Success is tied to the creation and harnessing of the goodwill of all stakeholders in the health system to enable change.
- Performance linkage: Successful programs have strong linkage to performance data results to create and evaluate innovation.
- Implementation: Large-scale innovation programs have the skill set to implement the role out of change. In the Victorian context this will mean a heavy bias towards the skills of promoting cooperation and trust between the stakeholders.

There are three common governance models for an innovation program:

- an independent statutory body
- a ministerial committee supported by the Department of Health & Human Services
- a division within the department.

The governing board should have a broad mix of skills and people.

The skill set would include:

- respected leadership across the sector
- varied clinical skills in health
- health management
- change management
- data analysis
- patient focus perspective
- implementation science
- communication skills.

By necessity this will lead to a diverse group of people.

The recommended model for Victoria – Innovative Health: Victoria

The preferred model is to establish Innovative Health: Victoria (IHV) with three key components:

- The Minister appoints a board that creates and oversees the statewide program. The board would be composed of approximately nine people including a separately appointed executive chair. In addition the relevant Deputy Secretary should be an ex-officio of the board.
- The board is closely supported by the department, with a dedicated secretariat embedded in the department. The secretariat would be approximately 30 EFT including a director. The majority of the resources to achieve this outcome should be able to be found by repurposing current resource allocation within the department.
- The IHV board appoints initially 10 clinical networks. They will provide a key source of engagement not just with health services but with the wider Victorian health system and the community. The clinical networks would be a workhorse for idea creation and problem solving.

The following eight operating principles for IHV will guide the program:

- Focus on specific measurable outcomes and performance in the areas of:
 - patient outcomes
 - patient experience
 - access
 - adverse events
 - prevention
 - cost.
- Focus across the whole health system including the interfaces between hospital services and primary healthcare, aged care and community-based care.
- Actively seek out and be receptive to innovation and ideas that would increase health system capacity in Victoria, from Victorian health services, national/international programs and other health stakeholders.
- Promote the value and role of innovation as an essential part of everyday business for health services.
- Foster a permissive culture that encourages health service attempts to innovate.

- Include all Victorian health services, with a statewide focus on implementing innovation.
- Ensure the new approaches are feasible and sustainable over the long term. IHV needs to be very strong on the principle of sustainability and practicality if it is to successfully implement new models of care across the health system. It needs to operate on the principle that there is no new funding other than seed funding to sustain the change.
- Drive innovation through evidence and by sharing knowledge and expertise.

Communication

The most important function of IHV will be communication. The ability to create and move concepts and ideas around the system, to garner support and to implement change will define the outcome. It is the communication pathways and relationships that will drive change. The key people will be the executive chair and the director of IHV. They will need to drive by example, policy transparency and enthusiasm to bring together the elements of healthcare to achieve outcomes. Given this critical function the executive chair would need to devote significant time to operational matters.

Focus areas

The extensive consultations threw up one consistent theme: the new innovation program should focus its efforts on a few areas and not try to tackle everything at once. Given that, it was decided to focus on four areas that have large potential gains:

- chronic complex medical patients
- outpatients
- care outside the walls of the hospital performed by hospital staff or by partnering with other providers
- variance of practice in the delivery of defined areas of care.

Examples of potential innovation

Examples of innovation activities were sought from stakeholders. Ten illustrative examples across the four focus areas have been included in the body of the report and are briefly described below. Their listing does not imply formal support for the projects, rather they are included to give the reader an idea of the genre of activities that IHV would support.

The selected examples included in this report are:

- An integrated complex care service developed as a joint initiative by a health service and Medicare Local. The total estimated net benefit is \$2.1 million, over five years, for 280 enrolled patients, based on reduced emergency department presentations and acute hospital admissions. In addition, there will be significant benefits to patients resulting from maintenance of their health and wellbeing.
- A program to support children with medical complexity developed by The Royal Children's Hospital. A six month pilot program demonstrated a reduction of 45 per cent of admitted bed days, 43 per cent of emergency department presentations and 7 per cent of outpatient attendances. A family survey tool measured a 30 per cent improvement in the quality of care. A new funding model is needed to support the rollout of the program.

- A standardised approach to accessing outpatient services was proposed as a key initiative to improve system capacity and reduce avoidable hospital usage. Standardisation of practices and pathways also provides the opportunity to define optimal and alternative models for effective and efficient service delivery including nurse-led clinics and telehealth based models.
- A back pain assessment clinic in primary care, established through collaboration between a health service and a community health service, has reduced waiting times from two years to six weeks and achieved high patient satisfaction ratings. There is merit in expanding this model to other health services and conditions.
- Geriatric Evaluation and Management (GEM) at home, is a relatively new model in Victoria. Multiple proposals were submitted on the value of this model, either as an admitted Hospital in the Home (HITH) type service or as a non-admitted service. The potential benefits in patient outcomes and cost-effectiveness support further development of these models across the system.
- One submission recommended further expansion of HITH services across Victoria in a way that would develop scale and scope through a 'centre of excellence' model. The review supports the expansion of HITH services and notes that further consideration is needed of the most appropriate model.
- The introduction of a seven-day model of care to general medicine wards was described by one health service as a model that ensures that, regardless of the day of the week, the same services are provided in the same way: senior consultant ward rounds, multidisciplinary team meetings, care planning and allied health and pharmacy services. The program resulted in a reduction in average length of stay of 0.9 days, releasing capacity to enable more timely treatment of other patients. In addition, there was an 18 per cent reduction in mortality. This is an example of a program that could be scaled up for implementation across Victoria to improve patient experience and outcomes and provide more timely treatment through better patient flow.
- The review was informed of a Health Roundtable analysis that suggested that 160,000 bed days could be saved by implementing across the state best practices in regard to length of stay for acute care episodes. This indicates the scale of the potential improvement that could be achieved by an innovation program that enables statewide improvement in focused areas.
- Analysis of geographic variation in the use of diagnostic tests, interventions and procedures, can highlight either under- or over-utilisation of care, which raises questions about the efficiency of the health system and overall performance. The review was informed of a recent analysis by the Department of Health & Human Services with expert advice from one of the clinical networks. At a system level, publishing meaningful geographic-level data provides a significant opportunity to improve the capacity of the health system.
- A proposal for a health service alliance in the Upper Hume was presented as a way to increase clinical capacity through integrated operational planning, to the benefit of five health services and their communities. This would see a move from reactive locally focused day-to-day management of services to a proactive, planned, integrated regional and rural response that manages demand and ensures patients are treated in a timely way in the appropriate setting.

Data

Data is the lifeblood of innovation both in identifying areas ripe for innovation and in evaluating the outcome of change. Victoria lags behind other states in having readily accessible analytics of system-wide information. This problem is in the process of being rectified with the creation of the department's System Intelligence and Analytics Branch. This vital work needs to continue.

IHV will need a steady flow of high-level analytical information to inform its functions. This will need a strong relationship between IHV and the department.

Barriers to innovation

There are two system barriers to innovation in Victoria:

- *Funding*: The disjunct between activity-based funding models and the funding of community/primary care often create impediments to innovate models of care that cross the traditional boundaries of hospitals and the community. IHV will need to be alive to these issues and play an active role in crafting solutions that will enhance the care of patients at the expense of traditional boundaries.
- *Governance*: The existing governance model for Victorian health services, namely 86 independent organisations, creates a unique environment that means that IHV must work in a sensitive and cooperative manner to create the solutions for whole-of-health-system innovation.

Innovative Health: Victoria Fund

A recurring theme from the consultations was that huge results can be achieved if there is a small amount of seed money or even 'reward' money – money that is disbursed on achievement of key performance indicators. Funded activities could fall into three main streams:

- health-service-initiated proposals
- IHV-suggested activities that result from observed data or scaling up activities
- IHV-auspiced activities that cross the state–federal government funding domains.

The money for the fund should be new money to demonstrate that the government has serious intent to make innovation happen.

It is anticipated that funding would be provided to 30 or so of the largest health services, or groupings of health services where this is necessary to achieve scale, to enable them to undertake one project in each of the four focus areas each year. Projects, however, may last for more than a year. The funding would be in the order of \$250,000 per project and would be incentive money to participate rather than tied to individual project expenses such as salaries for project officers.

Smaller health services, the majority of which are rural, will be encouraged to collaborate with other local health services to ensure that innovations have system-wide impact.

This funding would be separate from, and additional to, the already allocated funding for health services under the Redesigning Hospital Care Program. This program has been critical to building capability for innovation in health services and should be continued.

Next steps

Subject to acceptance of the recommendations, the two key next steps are for the Minister to appoint the IHV board and for the Department of Health & Human Services to develop an implementation plan.

Recommendations

I recommend to the Minister for Health that:

Part 1: Increasing the capacity of the Victorian public hospital system through infrastructure and planning

Recommendation 1. Reporting of hospital capacity on a statewide basis should focus on:

- a. the average time to clear waiting lists – that is, the number of patients on the waiting list divided by the number of patients removed from the waiting list, expressed in months
- b. the percentage of people treated within a clinically appropriate time
- c. the average waiting time from referral to first consultation in outpatient clinics.

Recommendation 2. Reporting of capacity measures in recommendation 1 should also be readily available to the public and detailed to the level of health service and service type.

Recommendation 3. Collection and reporting of waiting times for first consultations in outpatient clinics, detailed to the level of health service and type of service, should commence within six months.

Recommendation 4. Health services with theatre capacity problems that are unable to be solved in-house should be encouraged and facilitated to form partnerships with neighbouring health services to enhance treatment options for patients.

Recommendation 5. The capacity survey should be repeated every four years, using similar methodology, to allow comparison of levels of infrastructure.

Recommendation 6. The capacity survey should occur in the spring quarter as this better suits the operational planning cycle of health services.

Recommendation 7. A strategic statewide service and infrastructure plan ('the plan') should be developed.

Recommendation 8. The plan should aim to align health service demand with both recurrent and infrastructure (replacement and new) funding.

Recommendation 9. The plan should take a 20-year forward view but have a sharper focus on the first five years.

Recommendation 10. The plan should be reviewed every four years.

Recommendation 11. The first plan should be completed by the middle of 2017, recognising this is a major undertaking and will require extensive consultation and analysis.

Recommendation 12. An independent expert panel should be appointed to help guide the Department of Health & Human Services in preparation of the plan and provide independent advice to the Minister for Health about the plan.

Recommendation 13. The plan should be published.

Recommendation 14. Systems should be put in place to encourage and facilitate the expansion of appropriate home-based care supervised from health services.

Recommendation 15. Consideration is given to the best value proposals for the Beds Rescue Fund.

Part 2: Increasing the capacity of the Victorian public hospital system through innovation

Recommendation 16. The Minister establishes a statewide program to increase health service capacity through relevant innovation, and that the program includes amalgamating the current innovative health capabilities associated with the government.

Recommendation 17. The purpose of the program is to identify, encourage and facilitate the dissemination of relevant innovation across the Victorian health sector.

Recommendation 18. The Minister establishes Innovative Health: Victoria (IHV) as the statewide program for innovation.

Recommendation 19. The Minister appoints a skills-based board with approximately nine members to govern IHV.

Recommendation 20. The relevant Department of Health & Human Services Deputy Secretary is an ex-officio member of the IHV board.

Recommendation 21. The executive chair of IHV is directly appointed by the Minister for Health.

Recommendation 22. IHV establishes multiple clinical networks to facilitate clinical innovation.

Recommendation 23. The Department of Health & Human Services ensures that IHV is adequately resourced to deliver its functions including the appointment of a suitable director.

Recommendation 24. The Department of Health & Human Services provides an implementation plan for establishing and operating IHV.

Recommendation 25. The Department of Health & Human Services continues to provide annual funding to health services under the Redesigning Hospital Care Program in order to build health service capability for innovation.

Recommendation 26. The executive chair of IHV commits to allocating sufficient time to the role to lead communication and stakeholder engagement for IHV.

Recommendation 27. IHV initially focuses its activities on four areas:

- chronic complex medical patients
- outpatients
- care outside the walls of the hospital supervised or performed by hospital staff
- variance of practice in the delivery of care in defined areas.

Recommendation 28. The Department of Health & Human Services be encouraged to further develop the scope and expertise of the System Intelligence and Analytics Branch to enhance an evidence-based approach to innovation.

Recommendation 29. The System Intelligence and Analytics Branch works closely with and supports IHV, and this should be supported by an annual written agreement.

Recommendation 30. Evaluation of the success of innovations sponsored by IHV should take into account international benchmark data.

Recommendation 31. IHV brokers dialogue between the multiple healthcare-related organisations to facilitate new models of care that cross traditional boundaries of care.

Recommendation 32. An Innovative Health: Victoria Fund be established and its funds be used to encourage innovation by (i) testing innovation opportunities and (ii) scaling up proven innovations for tailored local implementation across the system.

Introduction

Purpose

The Travis Review was commissioned by the Minister for Health to conduct an independent statewide census of bed and theatre capacity, and to provide recommendations on how to increase the capacity of Victorian hospitals.

Terms of reference

The terms of reference for the Travis Review are to:

1. Perform a statewide census of hospital capacity including bed, theatre and emergency department capacity and other services that may be substitutes for traditional inpatient care.
2. Consider issues, opportunities and challenges to measuring existing capacity, drawing on local, national and international policy perspectives.
3. Develop recommendations on how to optimise Victoria's health system capacity in the short term (specifically through allocating additional recurrent funding and minor capital expenditure as required) that can be actioned in the 2015–16 State Budget.
4. Consider the current progress in implementing process redesign methodologies across the Victorian public hospital system and make recommendations on how this can be strengthened to optimise the capacity of hospitals to treat the Victorian community into the future.
5. Call for public submissions from stakeholders for redesign projects or other innovative models of care that increase hospital capacity and make recommendations on their suitability to optimise the capacity of hospitals to treat the Victorian community into the future.
6. Provide an interim report on the census results by the end of March 2015 and a final report by the end of June 2015 to the Minister for Health.

The interim report

The interim report covered the first three of the above terms of reference and was presented to the Minister for Health on 1 April 2015. Part 1 of this report contains the material covered in the interim report and the recommendations for application of the Bed Rescue Fund that were presented separately to the Minister for Health so that these could be considered in the May 2015 State Budget.

The final report

Part 2 of this report completes the remaining terms of reference and focuses on how innovation can contribute to increasing the capacity of Victorian hospitals. It will be presented to the Minister for Health by the end of June 2015.

Part 1: Increasing the capacity of the Victorian hospital system through infrastructure and planning

1.1 Context

1.1.1 Victorian public hospital system

The Victorian public hospital system consists of 86 entities,² variously described as ‘public health services’ and ‘public hospitals’ in the *Health Services Act 1988*. The 12 metropolitan health services, six regional health services and Dental Health Services Victoria are defined as ‘public health services’ and are governed by boards of directors as set out under s. 65S of the Act. The nine subregional health services, 11 local health services and 36 small rural health services are defined as ‘public hospitals’ and are governed by boards of management as set out under ss. 115E and 33 (1, 2, 2A). The seven multipurpose services are subject to a set of governance provisions similar to public hospitals and are governed by boards of management. Mildura Base Hospital and the three denominational health services are subject to similar governance provisions to public hospitals. The umbrella term ‘health service’ is used in this report to refer to public hospitals as well as public health services.

For the purposes of this review, the 86 health services have been grouped into five classifications (see Appendix 1 for details):

- Major metropolitan health services (12 in total). This group includes major public hospitals such as The Alfred, Austin Hospital, The Northern Hospital, Frankston Hospital, The Royal Children’s Hospital and University Hospital Geelong. The major metropolitan health services provide 71 per cent of the total admissions to public hospitals in Victoria.³
- Specialist metropolitan health services (five in total). This group includes the specialist metropolitan hospitals such as the Peter MacCallum Cancer Centre, The Royal Victorian Eye and Ear Hospital and The Royal Women’s Hospital. The specialist metropolitan health services provide five per cent of the total admissions to public hospitals in Victoria.
- Regional and subregional health services (15 in total). This group includes the major regional health services such as Ballarat Health Services, Bendigo Health and Albury Wodonga Health, and the subregional health services such as Bairnsdale Regional Health Service, Northeast Health Wangaratta and Western District Health Service. The regional and subregional health services provide 18 per cent of the total admissions to public hospitals in Victoria.
- Local and small rural health services (47 in total). This group makes up the largest group numerically and includes Bass Coast Health, Djerriwarrh Health Services, Maryborough District Health Service, Portland District Health and West Wimmera Health Service. Local and small rural public hospitals provide six per cent of the total admissions to public hospitals in Victoria.

2 Note the Australian Institute of Health and Welfare refers to 87 ‘Local Hospital Networks’, which includes the Thomas Embling Hospital run by Forensicare (the Victorian Institute of Forensic Mental Health). This review has focused on acute hospital beds and as a result does not include Forensicare or the Thomas Embling Hospital.

3 VAED data for 2013–14 for acute and subacute separations.

- Multipurpose services (seven in total). Multipurpose services are small rural health services that operate under simplified funding arrangements that pool Commonwealth and state funds for health and aged care services to provide a flexible and coordinated service delivery framework. This group includes Alpine Health, Orbost Regional Health and Upper Murray Health and Community Services. Multipurpose services provide 0.4 per cent of the total admissions to public hospitals in Victoria.

Many of the health services in Victoria have more than one site; for example, Monash Health has six sites with public hospital beds. The most recent national publication on hospital statistics identified that Victoria has 150 public hospital sites with a total of 13,449 average available beds (note this figure includes mental health beds) at an average of 2.4 beds per 1,000 population.⁴

In 2012–13 health services in Victoria provided more than 1.4 million admissions,⁵ 1.6 million emergency presentations, 3.6 million outpatient occasions of service and 2.6 million other non-admitted occasions of service (including pathology, radiology, pharmacy and community health services).⁶

The most recent health services performance report released in Victoria is for the December 2014 quarter.⁷ This report covers all Victorian health services that report activity to the Victorian Admitted Episodes Dataset (VAED), which includes all health services in the first three categories listed above, some of the health services in the fourth category and none of the multipurpose services. This report shows that just over 1.6 million patients were admitted to hospital in the 2014 calendar year (the most recent four quarters for which data was available). Just over half of these patients were admitted for same-day treatment. There were just under 1.5 million patients treated in emergency departments in 2014.⁸

From a patient perspective, what is important is not the total number of services but access to services. The recent *Report on government services*⁹ outlined that significant numbers of patients in Victoria are not getting access to services within clinically recommended timeframes:

- 25 per cent of patients in emergency departments in 2013–14 were not seen within triage category timeframes.
- 31 per cent of patients spent more than four hours in emergency departments against a national benchmark of no more than 10 per cent.
- 31.4 per cent of category 2 elective surgery patients waited more than 90 days for treatment.
- 9.9 per cent of category 3 elective surgery patients waited more than 365 days for treatment.

4 Australian Institute of Health and Welfare 2014, Australian hospital statistics 2012–13, Table 4.1, p. 51.

5 Data from the 2013–14 VAED shows there were 1,465,399 separations (acute and subacute).

6 Australian Institute of Health and Welfare 2014, Australian hospital statistics 2012–13, Table 5.6, p. 95 and Table 6.2, p. 109.

7 Victorian Health Services Performance for December 2014 quarter, from the Victorian Health Service Performance website, <http://performance.health.vic.gov.au/Home.aspx>.

8 All Victorian health services that report data to the Victorian Emergency Minimum Dataset (VEMD).

9 Productivity Commission, Report on government services (2015).

The Victorian December 2014 quarterly performance report shows that:

- 26 per cent of patients in emergency departments in 2013–14 were not seen within triage category timeframes.
- 30 per cent of patients spent more than four hours in emergency departments against a national benchmark of no more than 10 per cent.
- No category 1 elective surgery patients waited more than 30 days for treatment.
- 21 per cent of category 2 elective surgery patients waited more than 90 days for treatment.
- Six per cent of category 3 elective surgery patients waited more than 365 days for treatment.

There is little publicly reported performance data on waiting times for patients referred to outpatient clinics. The only report published to date was for the September 2012 quarter and covered only a limited range of health services and specialties.¹⁰

1.1.2 Capacity measurement¹¹

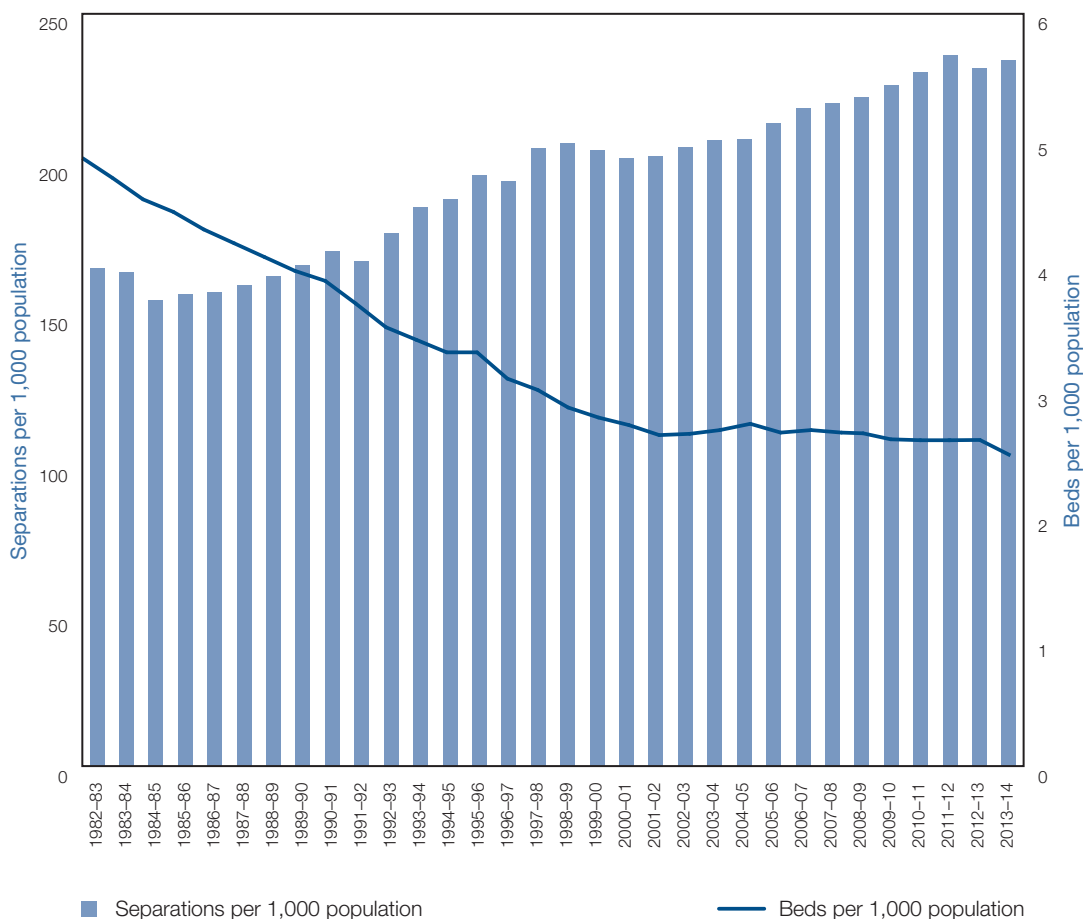
Changes in the number of public hospital beds have historically been used as a surrogate measure of capacity to assess government investment in the capacity and accessibility of public hospitals. However, over time there have been two dramatic changes that have diminished the utility of the number of beds or the change in bed numbers as a measure of capacity.

First, there have been significant improvements in public hospital productivity. More patients are able to be treated and length of stay has reduced due to improvements in technology and changes in clinical care pathways. Figure 1 shows that while the supply of public hospital beds has almost halved since the early 1980s (a 46 per cent per capita reduction), the number of patients admitted to public hospitals is not only keeping pace with population growth but is outstripping it (a 43 per cent per capita increase in public hospital inpatient separations).

¹⁰ Specialist clinics quarterly activity and wait time report – September 2012 quarter, from <http://performance.health.vic.gov.au/Home/Resources/Publications.aspx>.

¹¹ This section of the report draws on an unpublished report by Health Policy Solutions produced for the Victorian Department of Health in 2014: Hospital capacity recording in contemporary healthcare.

Figure 1: Public hospital separations and public hospital beds per capita, Australia, 1982–83 to 2013–14



Sources: Duckett S, Willcox S 2011, *The Australian health care system*, 4th edn, Oxford University Press, Melbourne, and Australian Institute of Health and Welfare, *Australian hospital statistics*, viewed 24 June 2015, <www.aihw.gov.au/hospitals/australian-hospital-statistics/>.

Second, many services that used to be provided in hospital beds are now delivered in alternative settings, including in the community and in people’s homes. Hospital in the Home (HITH) services substitute for acute inpatient beds; rehabilitation and other subacute services are now provided on a non-admitted basis outside the hospital walls; and dialysis is provided in many community settings and even in people’s homes. This move to treatment at home has many benefits for patients. For example, the benefits of home dialysis include:

- allowing people to manage their own dialysis at the time of their choosing, whether during the day or overnight, so dialysis can be more frequent or performed for longer periods of time
- fewer visits to hospital for dialysis
- improved health outcomes where longer, more frequent dialysis is able to be undertaken, especially overnight
- maintenance of personal independence, enhanced quality of life and social and economic advantages, with increased opportunity for employment
- no need for regular travel to dialysis centres or hospitals, which is of particular value to patients for whom independent travel is difficult.

Another change over time that has greatly diminished the validity of using a simple measure of 'beds' as a comparator or absolute measure of hospital capacity is that not all 'beds' are equal. Beds for day-case patients (same-day treatment), multiday ward beds, ICU beds, subacute beds, dialysis chairs and day oncology chairs all have vastly different capacity to treat patients, yet the age-old concept of 'beds' lumps them together and assumes they are of equal value. This is no longer true.

The concept of 'grossed-up beds' or the change of number of 'beds' as a concept that accurately reflects the capacity or can be used as a surrogate to compare capacities has reached its use-by date.

Capacity measures need to answer the two fundamental questions that the public constantly asks: *Will I be able to get treatment if I am sick? and How long will it take to get treatment?*

These are valid, core questions. However, 'beds' no longer answer these questions. Better measures to answer these questions are:

- the average time to clear waiting lists
- the percentage of people treated within clinically appropriate times
- the average waiting time for a first consultation in outpatient clinics.

Victoria has systems that collect and report the first two but not the third. As a result, patients and their general practitioners (GPs) have no indication of how long a patient needs to wait between referral and the initial consultation in outpatient clinics. This can be a significant barrier to timely access to care. By contrast, in the United Kingdom (UK), patients are guaranteed a wait of no more than 18 weeks for non-urgent conditions and no more than two weeks for urgent referrals where cancer is suspected.¹² Waiting time to first consultation is a key component of the answer to the core patient question, how long will it take to get treatment. This is the key information to inform patients about the capacity to treat as opposed to the number of beds in a building.

While system-wide grossed-up measures are useful to hold the government and public hospitals to account, they are of relatively little use to an individual seeking care. To be of use to individuals the information also needs to be reported to the level of the health service and the type of service.

¹² National Health Service England, *The Handbook to the NHS Constitution*, March 2013, p 27.

Recommendation 1. Reporting of hospital capacity on a statewide basis should focus on:

1. the average time to clear waiting lists – that is, the number of patients on the waiting list divided by the number of patients removed from the waiting list, expressed in months
2. the percentage of people treated within a clinically appropriate time
3. the average waiting time from referral to first consultation in specialist clinics.

Recommendation 2. Reporting of capacity measures in recommendation 1 should also be readily available to the public and detailed to the level of health service and service type.

Recommendation 3. Collection and reporting of waiting times for first consultations in outpatient clinics, detailed to the level of health service and type of service, should commence within six months.

1.2 Methodology and analysis

1.2.1 Methodology

A survey was the principal tool used to collect data. The survey measured points of care (POC) and other selected infrastructure used to deliver care.

POC are categorised into two main capacity types:

- inpatient services – fully functional and equipped POC that provide accommodation for admitted patients
 - beds
 - chairs (for example, renal chair, oncology chair)
 - cots (neonatal intensive care (NICU) or special care nursery (SCN))
 - procedure trolleys/recliners used in specialist same-day units
- selected infrastructure used to deliver care – fully functional and equipped POC for providing specialist health procedures and interventions such as
 - emergency departments
 - theatres
 - birthing rooms.

The counted POC for the selected infrastructure includes emergency department cubicles, many of which on any given day may be occupied by patients who are not admitted.

A survey tool was developed and sent out to health services in December 2014. Health services had four weeks to complete their submissions. The information collected on the survey was reviewed and verified by a range of means as detailed below.

Part 1 of the survey collected information on:

- the total (maximum) existing fully functional and equipped POC and selected infrastructure used to deliver care by campus (site) and care type whether they are in use or not, funded or not
- the average generally available equipped POC and selected infrastructure used to deliver care by campus (site) and care type for use during the year on a normal, in-hours¹³ weekday basis.

Part 2 of the survey sought information on potential capacity – that is, any infrastructure within existing buildings that may be feasibly commissioned or converted for use as a POC through either minor or major capital works and/or purchase of additional equipment. This information was requested to inform the validation of Part 1 of the survey and the context for proposals. It has not been compiled for this report.

Part 3 of the survey sought funding proposals to inform the Beds Rescue Fund. The full list of proposals is not reproduced in the report.

Part 4a of the survey collected information on selected services provided in the home to people who would have otherwise been admitted to a hospital – that is, bed substitution type services rather than diversion type services. The review has also accessed other datasets to validate and confirm the data collection including the VAED, Victorian Renal Dialysis Registry and Victorian Integrated Non-Admitted Health data collection.

Part 4b of the survey collected information on health services that have contracts with private providers (including bush nursing hospitals) for the regular provision of public acute or subacute admitted services.

The completed surveys were reviewed by both Dr Travis and the review secretariat. As part of this review, health services were provided with the opportunity to correct any errors identified and clarify any ambiguous information. The desktop review then validated the survey results for each health service against a range of data sources, including the monthly Average available beds report from the Agency Information Management System, the POC review undertaken in 2011 by the department, statements of priorities and activity reported through the VAED. The survey was also analysed for internal consistency of reporting.

The average utilisation of operating theatres was calculated from the monthly operating theatre schedule submitted by relevant health services.

A schedule of visits was arranged and took place from 27 January to 3 March 2015 (see Appendix 2). These visits were conducted by Dr Travis and by Dr Katherine McGrath, with the aim of confirming the survey information and discussing the proposals submitted by the health service. A total of 35 visits were made to 34 health services, with one health service visited twice.

¹³ In most hospitals, the 'in-hours' operating period is between 7 am and approximately 7 pm Monday to Friday.

1.2.2 Variance in available points of care

The total existing fully functional and equipped POC is a relatively static number; however, the generally available number is highly variable.

The generally available POC can vary dramatically due to the time of day, the day of the week and even the time of year. Demand variation is often predictable and under-utilisation is inefficient, so health services proactively vary the availability of POC to manage demand cost-effectively. This creates a challenge in measuring the number of available POC. A single point in time measurement would be misleading given these planned variations.

The generally available POC measured by this survey were the estimated average available in-hours on a normal weekday over a year. It is hoped this approach would smooth out the planned variations and give a representative figure of average available resources. This of course means it is unlikely if you walked into a given hospital on a given day and physically counted the available POC, that the result would exactly match the results reported in this review.

1.2.3 Analysis

The review examined hospital capacity on a statewide basis, as detailed in section 1.2.1, to identify the difference between the total capacity and the capacity generally available for use.

The review identified the number of POC in Victorian public hospitals disaggregated into classifications of adult acute multiday/overnight beds (ward beds), same-day acute beds/chairs, paediatric beds, critical care beds and short-stay beds in emergency departments.

Dedicated inpatient mental health beds were not included in the analysis. Information about the number of inpatient mental health beds was collected in order to allow validation of the survey results with other external datasets. However, to get an accurate assessment of mental health POC it would have been necessary to survey the various community services as well as the hospital beds; that was outside the terms of reference.

The review also considered key patient treatment facilities such as patient treatment spaces in emergency departments, operating theatres and other specialist suites and facilities.

1.3 Survey results

1.3.1 Total and generally available inpatient capacity

Statewide

The review identified 13,981 total inpatient POC at 164 hospital sites in Victorian health services (see Table 2). Of these, 12,545 (90 per cent) were generally available for use. These figures are consistent with the average available beds reported by the Australian Institute of Health and Welfare when mental health beds are excluded from the count. Further detail by health service on the total and generally available inpatient POC is available in Appendix 3.

Table 2: Existing total and generally available capacity in Victorian health services (statewide)

| Capacity types | Total POC | Generally available POC |
|---|------------------|--------------------------------|
| Acute same-day only | | |
| Renal dialysis | 696 | 646 |
| Surgery | 841 | 803 |
| Other | 779 | 702 |
| Acute multiday/overnight | | |
| Adult | 7,198 | 6,310 |
| Emergency department short-stay | 325 | 308 |
| Paediatric | 547 | 472 |
| Critical care | | |
| Neonatal (NICU and SCN) | 477 | 396 |
| Adult and paediatric intensive care (including combined ICU/CCU/HDU) | 400 | 322 |
| Coronary care unit (stand-alone) | 185 | 175 |
| Subacute | 2,533 | 2,411 |
| Total inpatient POC¹⁴ | 13,981 | 12,545 |
| Emergency department, urgent care and primary care¹⁵ patient treatment spaces | 1,284 | 1,190 |
| Specialist suites and facilities | | |
| Operating theatres | 290 | 237.1 |
| Procedures/endoscopy | 61 | 52 |
| Other | 1,075 | 974 |

Note that, as described above, all data is as collected from the survey and verified, other than the generally available operating theatres, which were calculated from theatre schedules (see section 1.3.2 for details).
CCU = coronary care unit; HDU = high dependency unit

The largest group of POC in Victorian health services were adult acute ward beds – that is, beds for overnight or multiday stays. The review found there were a total of 7,198 beds. Of these, 6,310 (88 per cent) were generally available for use.

14 POC include additional capacity (new infrastructure) planned to be completed by early 2015–16 and reflect some major reconfigurations between campuses of the one health service due to take effect on or before July 2015. Data excludes mental health POC located on public health service sites, transition care and other non-acute patient accommodation and any off-site POC.

15 Health services without designated emergency departments were grouped as urgent care services or primary care services according to their designation under the trauma system as published in Trauma towards 2014: Review and future directions of the Victorian State Trauma System (Department of Human Services 2009).

The next largest group of POC were adult subacute ward beds. The inpatient services provided in subacute ward beds include palliative care, rehabilitation, geriatric evaluation and management (GEM) and maintenance care. These include the specialist rehabilitation services for acquired brain injuries, amputees and spinal conditions. The review found there were a total of 2,533 beds, of which 2,411 (95 per cent) were generally available for use.

There are two other types of general acute ward beds: paediatric beds and emergency department short-stay beds. Paediatric beds – beds designated for paediatric care (child and adolescent) – accounted for 547 beds, of which 472 (86 per cent) were generally available for use. The other type of acute ward bed was associated with emergency departments. Many emergency departments now have an adjacent short-stay ward to provide for the rapid admission of those patients requiring a short stay (typically no more than 24 hours). Typically the patients are co-managed by emergency department doctors and doctors from inpatient units. This growing model of care is an alternative to an extended stay in an emergency department cubicle or a much longer stay in a traditional ward bed. The review found there were 325 of these beds, of which 308 (95 per cent) were generally available for use.

Same-day POC comprised 2,316 total POC, of which 2,151 were generally in use (93 per cent). These POC cater for patients who are admitted and discharged on the same date and receive treatment without needing to use a traditional inpatient bed. These POC may be used by multiple patients in one day.

The largest group within this category were POC used for day-case surgery patients. The large number of POC is driven by the fact that just over 50 per cent of surgery in public hospitals is now delivered on a same-day basis.¹⁶ There were 841 same-day surgery beds, with 803 (95 per cent) generally available for use.

Renal dialysis, a treatment predominantly delivered on a same-day basis and increasingly at home, comprised 696 of the total POC, of which 646 (93 per cent) were generally available for use.

The remaining same-day POC cater for other treatments including same-day oncology; there were 779 of these POC, of which 702 (90 per cent) were generally available for use.

Critical care beds make up the final group of inpatient beds. The review found there were 1,062 critical care beds, including cots for very sick newborn babies treated in NICUs or SCNs, of which 893 (84 per cent) were generally available for use.

The review examined the number of patient treatment spaces (including cubicles, consulting rooms and procedure rooms) in emergency departments and urgent care services. There were 1,284 patient treatment spaces, of which 1,190 (93 per cent) were generally available for use. Further detail by health service on the total and generally available patient treatment spaces in emergency departments and urgent care centres is available in Appendix 4.

¹⁶ Victorian Health Services Performance for December 2014 quarter, from the Victorian Health Service Performance website, <<http://performance.health.vic.gov.au/Home.aspx>>.

The review identified there were 290 operating theatres and a further 61 procedure rooms statewide. However, many of these operating theatres and procedure rooms are not fully utilised and the review has further analysed the actual utilisation of operating theatres in section 1.3.2. The figure of 237.1 generally available operating theatres shown in Table 2 has been calculated by reviewing the staffed in-hours operating theatre schedules. The figure shown in Table 2 of 52 generally available procedure rooms has been taken from the survey responses.

Health services have many other types of specialist suites and facilities including birthing rooms, cardiovascular laboratories and radiotherapy facilities. The review found there were 1,075 of these specialist POC, of which 974 (91 per cent) were generally in use.

It is noted that 'generally available' is not a measure of occupancy. The hospital occupancy rate is the percentage of generally available POC actually occupied by a patient on any given day. Occupancy information was not collected, hence no comment can be made concerning occupancy rates.

Major metropolitan health services

The review identified that major metropolitan health services had a total of 9,492 inpatient POC (see Table 3) on 60 hospital sites. Of these, 8,491 (89 per cent) were generally available for use. Further detail by health service on the total and generally available inpatient POC is available in Appendix 3.

Table 3: Existing total and generally available capacity in major metropolitan health services

| Capacity types | Total POC | Generally available POC |
|--|------------------|--------------------------------|
| Acute same-day only | | |
| Renal dialysis | 482 | 444 |
| Surgery | 448 | 421 |
| Other | 472 | 424 |
| Acute multiday/overnight | | |
| Adult | 4,701 | 4,098 |
| Emergency department short-stay | 266 | 264 |
| Paediatric | 424 | 373 |
| Critical care | | |
| Neonatal (NICU and SCN) | 329 | 267 |
| Adult and paediatric intensive care (including combined ICU/CCU/HDU) | 295 | 231 |
| Coronary care unit (stand-alone) | 185 | 175 |
| Subacute | 1,890 | 1,794 |
| Total inpatient POC | 9,492 | 8,491 |
| Emergency department patient treatment spaces | 742 | 662 |
| Specialist suites and facilities | | |
| Operating theatres | 179 | 159.1 |
| Procedures/endoscopy | 37 | 32 |
| Other | 688 | 617 |

The largest group of POC in the major metropolitan health services were adult acute ward beds – that is, beds for overnight or multiday stays. The review found there were a total of 4,701 beds. Of these, 4,098 (87 per cent) were generally available for use.

The next largest group of POC were adult subacute ward beds. The review found there were a total of 1,890 beds, of which 1,794 (95 per cent) were generally available for use.

There are two other types of general acute ward beds: paediatric beds and emergency department short-stay beds. Paediatric beds accounted for 424 beds, of which 373 (88 per cent) were generally available for use. The second type of beds were 266 emergency department short-stay beds, of which 264 (99 per cent) were generally available for use.

Same-day POC comprised 1,402 total beds, of which 1,289 were generally in use (92 per cent). There were 448 same-day surgery POC, with 421 (94 per cent) generally available for use. Renal dialysis comprised 482 of the total same-day POC, of which 444 (92 per cent) were generally available for use. The remaining same-day POC catered for other treatments including same-day oncology; there were 472 of these POC, of which 424 (90 per cent) were generally available for use.

Critical care beds make up the final group of inpatient beds. The review found there were 809 critical care beds, of which 673 (83 per cent) were generally available for use. The major metropolitan health services are the only group of Victorian health services that have the category of stand-alone coronary care units.

There were 742 patient treatment spaces in emergency departments, of which 662 (89 per cent) were generally available for use. Further detail by health service on the total and generally available patient treatment spaces in emergency departments is available in Appendix 4.

The review identified 179 operating theatres and a further 37 procedure rooms in major metropolitan health services. However, many of these operating theatres and procedure rooms are not fully utilised, and the review has further analysed the actual utilisation of operating theatres in section 1.3.2. The figure of 159.1 generally available operating theatres shown in Table 3 has been calculated from a review of the staffed in-hours operating theatre schedules. The figure shown in Table 3 of 32 generally available procedure rooms has been taken from the survey responses.

The major metropolitan health services have many other types of specialist suites and facilities including birthing rooms, cardiovascular laboratories and radiotherapy facilities. The review found there were 688 of these specialist POC, of which 617 (90 per cent) were generally in use.

Specialist metropolitan health services

The review identified that the specialist metropolitan health services had a total of 515 inpatient POC (see Table 4) on six hospital sites. Of these, 480 (93 per cent) were generally available for use. Further detail by health service on the total and generally available inpatient POC is available in Appendix 3.

Table 4: Existing total and generally available capacity in specialist metropolitan health services

| Capacity types | Total POC | Generally available POC |
|--|------------------|--------------------------------|
| Acute same-day only | | |
| Surgery | 58 | 58 |
| Other | 76 | 71 |
| Acute multiday/overnight | | |
| Adult | 254 | 230 |
| Critical care | | |
| Neonatal (NICU and SCN) | 60 | 58 |
| Adult and paediatric intensive care (including combined ICU/CCU/HDU) | 7 | 3 |
| Subacute | 60 | 60 |
| Total inpatient POC | 515 | 480 |
| Emergency department and urgent care service patient treatment spaces | 36 | 36 |
| Specialist suites and facilities | 185 | 175 |
| Operating theatres | 21 | 18.5 |
| Procedures/endoscopy | 3 | 3 |
| Other | 71 | 71 |

The specialist metropolitan health services generally treat adults, with the exception of critically ill newborn babies at The Royal Women's Hospital and small numbers of children at The Royal Victorian Eye and Ear Hospital and Dental Health Services Victoria. The review found there were 254 multiday adult inpatient beds; of these, 230 (91 per cent) were generally available for use.

Same-day POC were the next largest group and comprised 134 total POC, of which 129 were generally in use (96 per cent). Fifty-eight of these POC were for surgery and all were generally in use. There were 76 POC for other treatments including same-day oncology, of which 71 (93 per cent) were generally available for use.

The review found there were 60 subacute inpatient beds in the specialist metropolitan health services, of which all were generally available for use.

Critical care beds make up the final group of inpatient beds. The review found there were seven adult critical care beds, with three (43 per cent) generally available for use. In addition there were 60 critical care cots for very sick newborn babies, of which 58 (97 per cent) were generally available for use.

There were 36 emergency department and urgent care patient treatment spaces in the specialist metropolitan health services, all of which were generally available for use. Further detail by health service on the total and generally available patient treatment spaces in emergency departments and urgent care centres is available in Appendix 4.

The review identified 21 operating theatres and a further three procedure rooms in the specialist metropolitan health services. However, many of these operating theatres and procedure rooms were not fully utilised, and the review has further analysed the actual utilisation of operating theatres in section 1.3.2. The figure of 18.5 generally available operating theatres shown in Table 4 has been calculated by reviewing the staffed in-hours operating theatre schedules. The figure shown in Table 4 of three generally available procedure rooms has been taken from the survey responses.

The specialist metropolitan health services have many other types of specialist suites and facilities including birthing rooms, cardiovascular laboratories and radiotherapy facilities. The review found there were 71 of these specialist POC, all of which were generally in use.

Regional and subregional health services

The review identified that regional and subregional health services had a total of 2,580 inpatient POC on 26 hospital sites (see Table 5). Of these, 2,373 (92 per cent) were generally available for use. Further detail by health service on the total and generally available inpatient POC is available in Appendix 3.

Table 5: Existing total and generally available capacity in regional and subregional health services

| Capacity types | Total POC | Generally available POC |
|--|------------------|--------------------------------|
| Acute same-day only | | |
| Renal dialysis | 122 | 116 |
| Surgery | 207 | 203 |
| Other | 184 | 166 |
| Acute multiday/overnight | | |
| Adult | 1,212 | 1,116 |
| Emergency department short-stay | 56 | 41 |
| Paediatric | 123 | 99 |
| Critical care | | |
| Neonatal (NICU and SCN) | 88 | 71 |
| Adult and paediatric intensive care (including combined ICU/CCU/HDU) | 98 | 88 |
| Subacute | 490 | 473 |
| Total inpatient POC | 2,580 | 2,373 |
| Emergency department, urgent care and primary care service patient treatment spaces | 267 | 257 |
| Specialist suites and facilities | | |
| Operating theatres | 50 | 41.2 |
| Procedures/endoscopy | 12 | 11 |
| Other | 188 | 167 |

The largest number of POC in regional and subregional health services were adult acute ward beds – that is, beds for overnight or multiday stays. The review found there were 1,212 beds. Of these, 1,116 (92 per cent) were generally available for use.

The next largest group of POC were same-day POC. There were 513 POC, of which 485 were generally in use (95 per cent). In the regional and subregional health services, the largest group of same-day POC were for surgery, with 207 POC, of which 203 (98 per cent) were generally available for use. There were 122 chairs for renal dialysis, of which 116 (95 per cent) were generally available for use. The remaining same-day POC cater for other treatments including same-day oncology; there were 184 of these POC, of which 166 (90 per cent) were generally available for use.

The review found there were 490 subacute ward beds, of which 473 (97 per cent) were generally available for use.

There are two other types of general acute ward beds. First, there were 123 beds designated for paediatric care (child and adolescent), of which 99 (80 per cent) were generally available for use. Second, there were 56 emergency department short-stay beds, of which 41 (73 per cent) were generally available for use.

Critical care beds make up the final group of inpatient POC. The review found there were 186 critical care beds (including SCN cots for very sick newborn babies), of which 159 (85 per cent) were generally available for use.

In emergency departments, urgent care and primary care services there were 267 patient treatment spaces, of which 257 (96 per cent) were generally available for use. Further detail by health service on the total and generally available patient treatment spaces in emergency departments, urgent care and primary care services is available in Appendix 4.

The review identified 50 operating theatres and a further 12 procedure rooms in regional and subregional health services. However, some of these operating theatres and procedure rooms are not fully utilised, and the review has further analysed the actual utilisation of operating theatres in section 1.3.2. The figure of 41.2 generally available operating theatres shown in Table 5 has been calculated by reviewing the staffed in-hours operating theatre schedules. The figure shown in Table 5 of 11 generally available procedure rooms has been taken from the survey responses.

Regional and subregional health services have many other types of specialist suites and facilities including birthing rooms, cardiovascular laboratories and radiotherapy facilities. There were 188 of these in the regional and rural health services, of which 167 (89 per cent) were generally in use.

Local and small rural health services

Local and small rural health services comprise 8.6 per cent of the beds available in Victorian public hospitals, which is about one in every 12 beds. These beds are typically found in smaller rural communities without local access to private hospitals and generally have a less acute and longer stay type of patient. The review identified local and small rural health services had a total of 1,272 inpatient POC on 61 hospital sites (see Table 6). Of these, 1,085 (85 per cent) were generally available for use. Further detail by health service on the total and generally available inpatient POC is available in Appendix 3.

Table 6: Existing total and generally available capacity in local and small rural health services

| Capacity types | Total POC | Generally available POC |
|--|------------------|--------------------------------|
| Acute same-day only | | |
| Renal dialysis | 80 | 74 |
| Surgery | 123 | 116 |
| Other | 45 | 39 |
| Acute multiday/overnight | | |
| Adult | 930 | 771 |
| Emergency department short-stay | 3 | 3 |
| Subacute | 91 | 82 |
| Total inpatient POC | 1,272 | 1,085 |
| Emergency department, urgent care and primary care service patient treatment spaces | 211 | 207 |
| Specialist suites and facilities | | |
| Operating theatres | 38 | 18.1 |
| Procedures/endoscopy | 6 | 4 |
| Other | 120 | 111 |

The largest number of POC were adult acute ward beds – that is, beds for overnight or multiday stays. The review found there were a total of 930 beds, of which 771 (83 per cent) were generally available for use.

The next largest group were same-day POC. The review found a total of 248 POC, of which 229 were generally in use (92 per cent). In local and small rural health services, the largest group of same-day POC were for surgery, with 123 POC, of which 116 (94 per cent) were generally available for use. There were 80 chairs for renal dialysis, of which 74 (93 per cent) were generally available for use. The remaining same-day POC cater for other treatments including same-day oncology; there were 45 POC in total, of which 39 (87 per cent) were generally available for use.

The review found there were 91 subacute ward beds (specialist and non-specialist subacute services), of which 82 (90 per cent) were generally available for use.

The local and small rural health services do not have dedicated paediatric beds or critical care beds.

Bass Coast Regional Health is the only hospital of this group to have a designated emergency department, although a number of other local and small rural health services have designated urgent care services or primary care services.¹⁷ There were 211 patient treatment spaces, of which 207 (98 per cent) were generally available for use. Further detail by health service on the total and generally available patient treatment spaces in emergency departments, urgent care and primary care services is available in Appendix 4.

The review identified 38 operating theatres and a further six procedure rooms in local and small rural health services. However, many of these operating theatres and procedure rooms are not fully utilised, and the review has further analysed the actual utilisation of operating theatres in section 1.3.2. The figure of 18.1 generally available operating theatres shown in Table 6 has been calculated by reviewing the staffed in-hours operating theatre schedules. The figure shown in Table 6 of four generally available procedure rooms has been taken from the survey responses.

There were other types of specialist facilities including birthing rooms and recovery areas in operating theatres. There were 120 of these in the local and small rural health services, of which 111 (93 per cent) were generally in use.

Multipurpose services

The multipurpose service model supports flexible use of facilities between acute and aged care. The POC referred to in the survey are facilities used to treat acute patients and do not include any residential aged care beds located on these sites. The review identified that multipurpose services had a total of 122 inpatient POC on 11 hospital sites (see Table 7). Of these, 116 (95 per cent) were generally available for use. Further detail by health service on the total and generally available inpatient POC is available in Appendix 3.

¹⁷ Urgent care and primary care services as designated in Department of Human Services 2009, Trauma towards 2014 – Review and future directions of the Victorian State Trauma System, State Government of Victoria, Melbourne.

Table 7: Existing total and generally available capacity in multipurpose services

| Capacity types | Total POC | Generally available POC |
|---|------------------|--------------------------------|
| Acute same-day only | | |
| Renal dialysis | 12 | 12 |
| Surgery | 5 | 5 |
| Other | 2 | 2 |
| Acute multiday/overnight | | |
| Adult | 101 | 95 |
| Subacute | | |
| | 2 | 2 |
| Total inpatient POC | | |
| | 122 | 116 |
| Urgent and primary care service patient treatment spaces | | |
| | 28 | 28 |
| Specialist suites and facilities | | |
| Operating theatres | 2 | 0.2 |
| Procedures/endoscopy | 3 | 3 |
| Other | 8 | 8 |

Most of the POC in multipurpose services were adult acute ward beds – that is, beds for overnight or multiday stays. The review found a total of 101 beds and, of these, 95 (94 per cent) were generally available for use. There were a further two subacute beds, both generally available for use.

There were 19 same-day POC including 12 for renal dialysis chairs, five for same-day surgery and two for other treatments. All were generally available for use.

There were 28 POC (including cubicles, consulting rooms and procedure rooms) in urgent/primary care services in multipurpose services, all of which were generally available for use.

The review identified two operating theatres and a further three procedure rooms in multipurpose services. However, many of these operating theatres and procedure rooms are not fully utilised, and the review has further analysed the actual utilisation of operating theatres in section 1.3.2. The figure of 0.2 generally available operating theatres shown in Table 7 has been calculated by reviewing the staffed in-hours operating theatre schedules. The figure shown in Table 7 of three generally available procedure rooms has been taken from the survey responses.

There were eight other types of specialist facilities such as birthing rooms and theatre recovery spaces, all generally in use.

1.3.2 Operating theatre utilisation

In Victorian public hospitals there are 290 operating theatres, of which, at any given time, an average of 237.1 (82 per cent) are staffed and in use (see Table 8). This capacity usage of 82 per cent relates to in-hours on weekdays. Further detail by health service on the total and generally available patient operating theatres is available in Appendix 5.

Table 8: Operating theatre utilisation

| Health service groups | Total operating theatres | Average operating theatres staffed and used (in-hours on weekdays) | Percentage of total operating theatres staffed and used |
|--------------------------|--------------------------|--|---|
| Major metropolitan | 179 | 159.1 | 89% |
| Specialist metropolitan | 21 | 18.5 | 88% |
| Regional and subregional | 50 | 41.2 | 82% |
| Local and small rural | 38 | 18.1 | 48% |
| Multipurpose services | 2 | 0.2 | 10% |
| Statewide | 290 | 237.1 | 82% |

It can be seen that, in general, there are sufficient operating theatres in aggregate across the state.

The major metropolitan services have a much higher utilisation rate at 89 per cent, as do the specialist metropolitan services. The utilisation rate drops off very quickly as the services decrease in size. The average figures do not give the full picture of capacity. Within the group of 12 major metropolitan services, four are operating at near full capacity and four operate at less than two per cent below the average.

Among the regional and subregional services 10 of the 15 services run at more than +/- five per cent of the average. Three run at full capacity.

The services running at or near full capacity do so, often without a dedicated in-hours emergency theatre, and have unmet demand. Extra capacity at these hospitals could be met by utilising the theatres in twilight sessions (some public hospitals already schedule regular twilight sessions), operating on weekends, through cooperative arrangements with nearby health services that have spare in-hours capacity or by building extra theatres.

Utilisation of the operating theatres is lower in the smaller rural hospitals. This reflects a range of constraints, for example, the capacity to attract staff including surgeons, the limitation on the range of procedures that can be appropriately delivered in these facilities and local demand. Notwithstanding the relatively low utilisation, these health services provide important local access. There are examples, such as Benalla Health, where available capacity has been used to improve access to elective surgery across a wider area through cooperative arrangements with larger nearby health services.

In the past there have been efforts to transfer patients to other health services to take advantage of unused theatre capacity. Some of these schemes have been successful, others not. The barriers to success are often multiple including patient reluctance to travel, staff reluctance to travel, difficulty in transferring the care of complex patients to other health services for a single procedure and use of block funding. On some occasions these barriers have been successfully negotiated.

The out-of-hours utilisation of theatres is highly variable and was not calculated. This is as expected because out-of-hours operating is best used only for time-critical emergencies, and the bulk of operating is scheduled elective procedures.

Recommendation 4. Health services with theatre capacity problems that are unable to be solved in-house should be encouraged and facilitated to form partnerships with neighbouring health services to enhance treatment options for patients.

1.3.3 Discussion

The major finding of this review is that there are approximately 1,400 available but not in use POC that could be utilised immediately if funding, staff and demand allowed. This represents about 10 per cent of the capacity measured.

It is important to understand when interpreting these figures that the available POC is an average over a year. The actual day-to-day number of available POC is planned to fluctuate to take into account seasonal demand variation, maintenance, minor refurbishment schedules and staff leave patterns. This planned fluctuation is standard practice in modern, well-managed, large hospitals. This means the maximum and minimum daily available POC at some point over a year will be different from the average that is reported in this review. Given that, there must be a difference between maximum POC and average daily POC in a well-managed large hospital. This difference does not reflect poor planning or bad management; in fact, it reflects the opposite. For the purposes of this report, the variance is described as 'flex capacity'. This begs the question: *What is a reasonable variance of daily available POC to allow efficient utilisation of resources?* That figure should probably be about +/- three per cent. No benchmark figures are available for this flex capacity. This concept of flex capacity is different from the more studied optimal average bed occupancy.¹⁸ It would be useful if the department commissioned a study to quantify the concept of optimal flex capacity. In this review, the actual measured figure of available unused capacity in Victoria is 10 per cent, hence a buffer for good management does not explain the whole outcome.

While the review did not specifically consider demand, performance data pertaining to access was considered in the context of considering the best value application for the Beds Rescue Fund. In addition, health services provided information about demand pressures as part of their proposals and during the visits.

¹⁸ Bagust A, Place M, Posnett JW 1999, 'Dynamics of bed use in accommodating emergency admissions: stochastic simulation model', *BMJ*, no. 319, pp. 155–158.

Some health services currently have significant unused capacity as new facilities have recently been (or are in the process of being) completed. Examples include the additional 96 POC at University Hospital Geelong to be completed over the next few months, the additional 30 POC at Frankston Hospital as part of the stage 3 development, the additional 30 POC at Kilmore Hospital and the more than 200 additional POC provided in the Box Hill Hospital redevelopment. This soon to be completed capacity is included in the total POC tally. This additional capacity will in part provide for future needs as well as meet current demand. It is envisaged that these will be commissioned over a number of years.

To open the 1,400 POC that are available but not in use would require a significant increase in workforce. This will require planning and most likely a phased approach to commissioning in order to adequately and safely deal with workforce issues.

The reality is the available unused capacity is not uniform across all health services and does not necessarily line up with demand in particular areas. Across major metropolitan services, while the average excess capacity is 11 per cent, the range is 4–22 per cent. There were only two of 12 services within +/- two per cent of the average. Across regional and subregional services the average is eight per cent but the range is 0–25 per cent. The services that have available unused capacity are not necessarily those with the highest unmet demand, hence just opening the capacity may not solve the problem of unmet demand and could prove to be unnecessarily expensive. It has been hard to find a linkage between demand and supply.

The Victorian Government made a commitment to provide \$200 million (\$50 million a year over four years) in the Beds Rescue Fund to start to address this problem, with the first money flowing from 1 July 2015. I have made recommendations to the Minister for Health concerning those funds. The recommendations are those that offer best value within the constraints of where the unused capacity exists, operational capabilities and the current demand profile. The recommendations on funding are part of the budget process, hence have not been included in this report. The \$200 million is the first step to improve the functioning capacity in Victorian hospitals.

The solution to the underlying problem is to identify current and future demand and then create linkages between demand, recurrent funding and capacity building to enable better targeting of the state's limited resources. This requires the formulation of a statewide strategic service and infrastructure plan that identifies present and, as best as possible, future demand for services. A significant part of the planning process will involve how best to commission the unused capacity identified, especially at places like Geelong, Frankston, Box Hill and Kilmore.

The process of planning should match the demand as realistically as possible, with the funding of services taking into account the current and future potential capacities of health services. It would remain the health services' responsibility to deliver, as they see fit, the services required within the framework of the statewide plan. The allocation of capital funding for additional and replacement infrastructure should follow the service requirements and be included in the plan.

Recommendation 5. The capacity survey should be repeated every four years, using similar methodology, to allow comparison of levels of infrastructure.

Recommendation 6. The capacity survey should occur in the spring quarter as this better suits the operational planning cycle of health services.

Recommendation 7. A strategic statewide service and infrastructure plan ('the plan') should be developed.

Recommendation 8. The plan should aim to align health service demand with both recurrent and infrastructure (replacement and new) funding.

Recommendation 9. The plan should take a 20-year forward view but have a sharper focus on the first five years.

Recommendation 10. The plan should be reviewed every four years.

Recommendation 11. The first plan should be completed by the middle of 2017, recognising this is a major undertaking and will require extensive consultation and analysis.

Recommendation 12. An independent expert panel should be appointed to help guide the Department of Health & Human Services in preparation of the Plan and provide independent advice to the Minister for Health about the plan.

Recommendation 13. The plan should be published.

1.3.4 Selected home-based services

Home-based services supervised by health services are a growing alternative for the care of people. It has become apparent over time that many conditions previously requiring inpatient care can be safely and effectively treated at home with the correct support. Although this is not suitable for everyone, it is suitable for many. Most important of all with these innovative care models is that the vast majority of patients prefer care in their own home. In some circumstances home care can be safer than in-hospital care. These models allow the valuable inpatient beds to be available for people with an illness that still requires in-hospital care, effectively increasing capacity to treat more patients without building beds.

Examples of major services delivered in home-based settings are HITH, Rehabilitation in the Home (RITH), community palliative care and home-based renal dialysis.

HITH programs provide acute care to patients in their own home or other suitable environment. Although patients are regarded as hospital inpatients, and remain under the care of their hospital doctor, HITH is an alternative to an inpatient stay. This model of care can be offered if the care type can be delivered safely at home. HITH is provided from 52 sites across Victoria. As can be seen from the data in Table 9, HITH makes a massive contribution to hospital capacity, providing a replacement for around 666 beds.

Table 9: Hospital in the Home – 2014–15 estimated number of days and calculated bed equivalents

| Health service group | Estimated days | Calculated bed equivalents |
|--------------------------|----------------|----------------------------|
| Major metropolitan | 163,898 | 529 |
| Specialist metropolitan | 4,882 | 16 |
| Regional and subregional | 35,282 | 112 |
| Local and small rural | 2,382 | 9 |
| Multipurpose | 0 | 0 |
| Total | 206,444 | 666 |

Source: Victorian Admitted Episode Dataset, Department of Health & Human Services (as at February 2015)

Data excludes three health services with a calculated bed equivalent of less than 1. The 2014–15 estimate is based on the first five months of data for 2014–15. Bed equivalents estimates are based on 365 per annum usage at 85 per cent occupancy.

RITH is provided to people who have been assessed as requiring time-limited, community-based rehabilitation to assist them to regain and maintain optional function. Without this approach these people would remain as an admitted hospital patient to receive equivalent care. Home-based rehabilitation services are part of an integrated acute and subacute care system providing care in the most appropriate setting. They may substitute for all or part of a hospital stay or hospital day attendance or may be accessed directly from the community. RITH currently provides a replacement for around 30 beds (see Table 10).

Table 10: Rehabilitation in the Home – 2014–15 estimated number of episodes and calculated bed equivalents

| Health service group | Estimated episodes | Calculated bed equivalents |
|--------------------------|--------------------|----------------------------|
| Major metropolitan | 5,660 | 24 |
| Specialist metropolitan | 37 | 0 |
| Regional and subregional | 1,018 | 4 |
| Local and small rural | 400 | 2 |
| Multipurpose | 0 | 0 |
| Total | 7,115 | 30 |

Source: Victorian Integrated Non-Admitted Health (VINAH) data collection, Department of Health & Human Services Provisional data as at 6 March 2015.

Public health service providers only. Rehabilitation program stream, direct presence type by face-to-face delivery mode for adult patients only. Data excludes Alfred Health, St Vincent's Hospital Melbourne, The Royal Children's Hospital, Ballarat Health Services and Monash Health due to unavailable or incomplete data. Estimated episodes are based on the first five months of 2014–15. Calculated bed equivalents are based on an average of 1.5 in-hospital days substituted per episode, by bed utilisation of 365 days per annum and 95 per cent occupancy.

Community palliative care services support people to be cared for and to die at home by providing specialist end-of-life care to people in their own homes, some of whom would otherwise be admitted to a hospital for this care. Community palliative care services provide care to patients across all common clinical issues including pain management, psychosocial issues and family stress. Community palliative care services are part of an integrated acute and subacute care system providing care in the most appropriate setting. Sixty per cent of all community palliative care referrals are received from hospitals.¹⁹ Small rural health services play an important role in providing maintenance and end-of-life bed-based services that support caring for people close to their communities and families when home-based care is not an option. Small rural health services can access specialist regional palliative care consultancy services when caring for someone with end-of-life care needs for specialist advice and support.

More than 20,000 community palliative episodes of care are provided each year (see Table 11). Palliative care bed equivalents were not calculated as the length of episodes of care, and whether the episode of care was a substitution service, were not captured in the dataset. Notwithstanding, there were 23,128 episodes of care and, as a large number of these would have substituted for an admission, this is a significantly large contributor to hospital capacity.

Table 11: Community palliative care – 2014–15 estimated number of episodes

| Health service group/provider | Estimated episodes |
|--|--------------------|
| Major metropolitan | 905 |
| Specialist metropolitan | 834 |
| Regional and subregional | 3,130 |
| Local and small rural | 1,817 |
| Multipurpose | 0 |
| Non-government organisations and community health services | 16,442 |
| Total | 23,128 |

Source: Victorian Integrated Non-Admitted Health (VINAH) data collection, Department of Health & Human Services Provisional data as at 6 March 2015.

Community palliative care – home-based/direct active episodes. Estimated episodes are based on the first five months of 2014–15, except for Calvary Health Care Bethlehem, which was based on the first four months.

¹⁹ Victorian Integrated Non-Admitted Health (VINAH) data collection (2013–14), Department of Health & Human Services.

Home-based dialysis is supported by 11 specialist renal services in Victoria. While independent home dialysis is a cost-effective therapy for the health system, the model also provides many benefits to people living with chronic kidney conditions, who would otherwise need to be admitted to hospital for treatment three times a week. Home-based dialysis provides a replacement for more than 200 renal dialysis POC (see Table 12).

Table 12: Home-based renal dialysis – average number of patients per month from July to November 2014, and calculated 2014–15 bed equivalents

| Health service group | Average number of patients per month | Calculated equivalent POC |
|--------------------------|--------------------------------------|---------------------------|
| Major metropolitan | 783 | 206 |
| Specialist metropolitan | 0 | 0 |
| Regional and subregional | 0 | 0 |
| Local and small rural | 0 | 0 |
| Multipurpose | 0 | 0 |
| Total | 783 | 206 |

Source: Victorian Renal Dialysis Registry, Department of Health & Human Services

Calculated bed equivalents are based on 156 separations per patient per year and a service operating two sessions per day six days a week at 95 per cent occupancy.

In summary, the data presented indicates that, on average, there are at least 902 additional POC available for treating patients requiring in-hospital care, as a result of these home-based services. It is likely these models of care will become more prevalent.

Other similar programs are detailed below. The review has been unable to collect data about these activities that could be used to readily calculate a notional bed substitution.

Health Independence Program

Health Independence Program (HIP) services provide hospital substitution and diversion services by supporting people in the community, in ambulatory settings and in people's homes. These services focus on improving and optimising people's function and participation in activities of daily living to allow them to maximise their independence and return to, or remain in, their usual place of residence.

HIP services can provide home-based care including rehabilitation, geriatric assessments and care, care coordination, patient education, post-acute care and other specialist assessments. HIP services can also be provided to people living in residential aged care facilities as an alternative to presenting to an emergency department for relatively simple clinical procedures. These procedures include indwelling catheter complications, percutaneous endoscopic gastrostomy (PEG) and wound management. During 2013–14 HIP services provided 1,195,961 direct contacts to 137,110 non-admitted clients.²⁰

²⁰ Based on the available VINAH data from 68 per cent of HIP services.

Geriatric management at home

Geriatric management at home is a new service delivery model within HIP that supports older people with complex care needs to be assessed, treated and managed at home. The uptake of this approach has gained momentum in 2014–15, with a range of health services adopting the model tested in a metropolitan and a rural health service over 2012–13 and 2013–14.

Geriatric management at home provides time-limited intensive management of patients in the community setting who would otherwise require inpatient management. The model creates an option for patients to be treated in their home environment, thereby reducing risks such as confusion or delirium, falls and hospital-acquired infections for this vulnerable group of patients.

The geriatric management at home model aims to provide integrated care for people with multiple and complex healthcare needs who can be managed at home. Geriatric management at home services actively triage from emergency departments and inpatient services.

The target groups include patients who are 65 years of age or over with multiple (chronic or aged-related) care needs affecting their functional status and patients under 65 who have multiple chronic and complex care needs showing a steady decline affecting their functional status.

Summary

It is clear that these new model of care programs that substitute home-based care for in-hospital care are significant and extremely important in increasing the capacity of hospitals to treat patients. Most patients prefer treatment at home. There is scope to increase the size, type and reach of these models of care.

Recommendation 14. Systems should be put in place to encourage and facilitate the expansion of appropriate home-based care supervised from health services.

1.4 Recommendations for allocating the Beds Rescue Fund

A key commitment of the Victorian Government is to provide \$200 million over four years for the Beds Rescue Fund. The purpose of this fund, as announced on 25 November 2014, is to open hospital beds and theatres. All public health services were invited in December 2014 to put forward proposals, as follows:

- The proposals should increase acute and subacute service capacity on an ongoing basis by commissioning unused or under-utilised public hospital infrastructure (either inpatient accommodation or acute facilities).
- Proposals may or may not include requests for funding for minor capital works and/or equipment. Minor capital works and/or equipment are defined as being able to be completed and operational within six months and cost \$500,000 or less. Such works/equipment should have a minimum life span of five years.
- A funded capital project that is under construction should only be nominated if it will be commissioned before 1 July 2015 and will provide additional (not replacement) capacity. The proposal would be for activity within the capital project that does not have recurrent funding.
- Proposed ongoing additional services may seek to increase the capacity of an existing service to better meet demand, or establish a new service not currently available – that is, address a service gap.

Health services were asked to put forward proposals with an annual budget in the approximate full year operating cost range of \$1–5 million per annum (excluding any initial capital component). A total of 213 proposals were received.

Each proposal was reviewed by Dr Travis and evaluated against the following criteria:

- the number of additional patients to be treated
- the type of additional services provided
- the number of additional points of care that can be activated to treat patients
- assessment of feasibility by considering
 - the timeframe for implementation
 - any implementation issues such as recruiting additional staff
 - whether implementing the proposal will build long-term sustainable capacity
 - that safe, high-quality patient care can be provided through expanding the service or providing a new service
- the benefits of the proposal, taking into account
 - the impact of expanding services on reducing waiting times for elective surgery and emergency department waits
 - the impact of reducing service gaps necessitating patients having to travel further to access services
 - any impact on other service providers
- equity of access for the community.

Following evaluation, a list of proposals assessed as representing the best value for the people of Victoria was compiled and provided to the Minister for Health for consideration. This list is provided on the next page as Table 13.

Recommendation 15. Consideration is given to the best value proposals for the Beds Rescue Fund.

Table 13: Recommended allocation of Beds Rescue Fund

| Health service | Purpose | Points of care to be opened as a result of funding | Estimated patients treated per full year of operation |
|---|---|---|--|
| Albury Wodonga Health – Albury Hospital | Establish higher acuity inpatient unit | 4 | 290 |
| Austin Health | Expand elective surgery | 6 | 750 |
| Ballarat Health Services | Expand short-stay medical beds | 2 | 689 |
| Bass Coast Regional Health | Expand subacute capacity | 2 | 48 |
| Bendigo Health | Expand critical care capacity | 1 | 160 |
| Castlemaine Health | Expand elective surgery | 2 | 260 |
| Dental Health Services Victoria – Royal Dental Hospital | Expand operating theatre availability to five days/week | 3 | 736 |
| Djerriwarrh Health Services | Expand capacity for maternity care and elective surgery | 4 | 800 |
| Eastern Health – Box Hill Hospital | Expand endoscopy service | 6 | 1,837 |
| Echuca Regional Health | Expand subacute beds | 4 | 66 |
| Goulburn Valley Health | Expand acute inpatient capacity | 8 | 635 |
| Hepburn Health Service (Creswick District Hospital) | Expand inpatient capacity for end-of-life care | 1 | 12 |
| Kilmore & District Hospital | Expand maternity capacity | 1 | 60 |
| Kyabram & District Health Services | Establish same-day oncology service | 1 | 461 |
| Melbourne Health | Establish Complex Acute Emergency Care Centre | 6 | 1,500 |
| Mildura Base Hospital | Open new short-stay unit in emergency department | 4 | 1,400 |
| Monash Health – Dandenong Hospital | Expand coronary care inpatient capacity | 4 | 147 |

| Health service | Purpose | Points of care to be opened as a result of funding | Estimated patients treated per full year of operation |
|---|---|---|--|
| Northern Health | Expand emergency department capacity | 9 | 5,400 |
| Peninsula Health (Frankston Hospital) | Establish Rapid Assessment Chest Pain Service | 8 | 2,000 |
| Seymour Health | Establish same-day oncology service | 1 | 150 |
| St Vincent's Hospital | Expand acute inpatient capacity | 4 | 188 |
| The Royal Children's Hospital | Expand short-stay medical beds | 4 | 550 |
| Werribee Mercy Hospital | Expand acute inpatient capacity | 8 | 925 |
| West Gippsland Health Care Group | Expand maternity capacity | 3 | 200 |
| Western Health (Sunshine and Footscray hospitals) | Expand critical care capacity | 4 | 484 |
| Yarrawonga District Health Service | Expand elective surgery capacity | 1 | 100 |
| Total | | 101 | 19,848 |

Part 2: Increasing the capacity of the Victorian hospital system through innovation

2.1 Context

Demand for public hospital services is expected to increase at a faster rate than funding for additional capacity. The two ways to close this gap are through doing more of what we are doing now, effectively increasing the size or number of our hospitals, or doing things differently – that is, innovate. It is likely the answer will be both but with a greater emphasis on innovation rather than just building more hospitals. The cost alone of just doing more of the same is overwhelming. We would need to treat 65 per cent more patients in our public hospitals over the next 20 years, with real revenue growth of only 40 per cent at best and potentially as little as 10 per cent. This alone mandates that the heavy lifting in capacity building must be through innovation and doing things better, differently and more effectively than today.

The measure of success of health system management needs to be increasing the number of patients treated effectively within clinically appropriate timeframes, in the most suitable locations, in the most cost-effective way.

As outlined in Part 1, *Increasing the capacity of the Victorian hospital system through infrastructure and planning*, increasing POC should not be the focus of increasing capacity; rather the aim must be to treat more patients in clinically appropriate timeframes and in the most appropriate locations through innovation.

Equally important is that the indicators of success include measuring patient outcomes including both clinical outcomes and patient experience of the health system.

Given the predicted growth in demand and the limits on government funding, innovation in service delivery as well as technical efficiencies in current models of care are needed to achieve the goal of increasing health system capacity.

There are many examples of where care has been improved with better patient outcomes at a lower cost by introducing innovative approaches that modify traditional practice. These include:

- Admission for surgery on the day of surgery. This change in the late 1990s reduced patient anxiety prior to surgery, demand for hospital beds, postoperative infections and costs. It was a win-win for all concerned.
- HITH for patients who need 10 days of intravenous antibiotics but are otherwise well. This means patients can be at home with their families, relatives do not have to struggle through hospital car parks and visiting hours and patients still receive effective care with good outcomes and lower costs. Again a real success story for increasing health system capacity.
- Increased hand washing by staff and visitors has reduced Staphylococcus infections in hospitals with improved patient outcomes, and lower costs.
- A concerted whole-of-community campaign to reduce smoking over the past 30 years has achieved a remarkable fall in the number of people who smoke. This has led to reduced numbers of people who develop cancer, chronic lung conditions, heart attacks and vascular insufficiency, with a major improvement in health outcomes for patients and a major reduction in healthcare costs.

The measured effect of innovation across the Victorian public hospital system since 1995 with changes like those above and many others has increased the number of admissions to hospital from 866,871 in 1995–96²¹ to 1,509,348 in 2013–14²² (an increase of 74 per cent), while the number of average available beds (note this figure includes mental health beds) increased by only 444 (an increase of 3.4 per cent).²³ Clearly the increase in capacity to treat was due to innovation, in particular the move towards home-based treatment options that now provide the equivalent of more than 900 inpatient beds, rather than more beds within the hospital walls.

Achieving innovation in healthcare delivery happens every day in most health systems; however, the changes are usually small or occur in only one institution in the health system. The innovation often does not affect the majority of patients using the health system at a given time, therefore the impact on capacity is less than optimal.

The challenge in health is how to achieve major innovation across the whole system in a timely way such that there is maximum benefit for all patients using the system. This is particularly complex given the divisions of responsibility between the Commonwealth and the states for funding and governance of the system. Even to convert some activity-based funding in Victoria to more flexible and proactive funding models for chronic and complex patients requires cross-jurisdictional consent, limiting the ease with which integrated care reforms can be achieved. While innovation can still occur in this environment it is important to recognise the importance of partnerships to facilitate and support real system-wide change across traditional boundaries. System-wide change needs to be the goal, and this requires a systematic approach with coordination across the whole system. However, change cannot be imposed; it needs to be relevant to the local providers and must be adapted to suit local circumstances to ensure it is embraced and effective. Local providers must own the change.

Most importantly if the professionals who work within the health system do not see the benefit of a proposed change, they will always act in what they believe is the best interests of patients and will resist change if they see no benefit. Thus the engagement of local clinicians and managers is key to successful system-wide innovation.

When clinicians can see the benefit for their patients they will embrace and enact change very effectively.

Thus the process of innovation in the health system must have a number of key elements to be successful:

- statewide focus and system-wide coordination and collaboration
- locally owned adaptation and implementation
- strong clinician engagement
- measurable improvement in patient outcomes and experience
- measurable improvement in system-wide capacity and access
- quantifiable cost-benefit

21 Australian Institute of Health and Welfare (AIHW) 1997, Australian hospital statistics 1995–96, Health Services Series no. 10, Cat. no. HSE 3, AIHW Canberra.

22 AIHW 2015, Admitted patient care 2013–14: Australian hospital statistics, Health Services Series no. 60, Cat. no. HSE 156, AIHW, Canberra.

23 AIHW 2015, Hospital resources 2013–14: Australian hospital statistics, Health Services Series no. 63, Cat. no. HSE 160, AIHW, Canberra.

- strong skills in change management
- strongly linked to measurable performance and reward for success.

The health system can increase capacity through innovation if it is focused, engaged and rewarded for success. The challenge is to establish a program with the right skills and capacity to drive the innovation agenda forward.

Identifying the best areas of focus for innovation and whether real change is being achieved requires high-order data and data analytics. Health professionals are scientifically trained and data is essential to provide the necessary proof of problems and the benefits of solutions.

The need to have a formalised overarching system that helps to coordinate and facilitate is well recognised. Statutory authorities for innovation and improvement have been established in New South Wales (NSW) and Scotland, with other jurisdictions incorporating programs into existing departments or as part of far-reaching health strategies, such as in South Australia. The methods of adaption are varied; there is no one universally applicable correct answer. The particular model is heavily influenced by the starting point. In Victoria we have a devolved governance system and this dictates that the process of change at a state level must be collaborative, one of encouragement and facilitation with a little guidance.

There is an opportunity in Victoria to build on the skills developed through the Redesigning Hospital Care Program (RHCP) to increase the capacity of the health system through innovation. This would require a program specifically tasked to achieve measurable statewide improvement and a team of people with the appropriate skills to run a statewide program and ensure success.

The review set about testing this approach through consultation and visits to other states as well as through research on international programs.

2.2 Process and methods

Part 2 of the Travis review was conducted separately to matters covered in the first report, Part 1 Increasing the capacity of the Victorian public hospital system through infrastructure and planning. The information that forms the basis of the work and recommendations was obtained by:

- a desktop review of available information
- interviews with stakeholders and experts in health service innovation
- visits to other jurisdictions
- an evaluation of written submissions from stakeholders (see Appendix 6 for a list of written submissions received).

Information was sought concerning the following areas:

- the current Department of Health & Human Services structures for innovation
- innovation in other jurisdictions
- a proposed program for statewide coordination of innovation in Victoria
- areas of focus for initial efforts of coordinated innovation that provide the best value for effort
- ideas for innovation related to the areas of focus.

The information was analysed and collated in the following sections. Recommendations are based on the findings from the consultation process and the submissions received.

2.3 Current status of health system innovation in Victoria

The review team identified the following key elements of health system innovation in Victoria:

- Redesigning Hospital Care Program
- Commission for Hospital Improvement
- Health Innovation and Reform Council
- clinical networks.

Each of these is briefly described below.

Redesigning Hospital Care Program

The Redesigning Hospital Care Program (RHCP) was established in 2008 by the then Victorian Department of Health (now the Department of Health & Human Services) to deliver significant health system improvements by applying process redesign methodologies in Victorian public hospitals.

The program was intended to build health service capability to create, spread and sustain improvements in delivering patient care through a systematic and integrated approach to redesign, assisting health services to tackle local access, efficiency and service quality challenges as well as system-wide priorities.

The program was reviewed by Dr Heather Wellington of DLA Piper in 2012. The report identified there had been significant development of the skills needed for delivering improvement projects to a variable degree across Victorian health services. There was, however, no evidence presented on the outcome of the projects undertaken or whether there was any measurable system-wide improvement in patient access to healthcare, improved patient outcomes or increased health system capacity as a result of the program. Health services undertook important but small projects; however, there was no system-wide gain as these were addressing a wide range of issues.

The review also concluded that continuing methodological and financial support by the department will be necessary if redesign capability is to be embedded consistently and sustainably in all Victorian health services. The department should also continue to maintain a centralised, expert team for a further period to support health services, lead the development of project tools and support other areas of the department. It was considered necessary to provide direct financial support for redesign leads in health services for a further period. The goal should be for health services to achieve sustainable process improvement capability within their usual resource allocations within the next four years.

The RHCP funded 32 health services at \$111,862 each for 2014–15. The funding was provided to support the engagement of a redesign lead to continue to build health service capability for redesign and to support improvement activities in each health service.

Commission for Hospital Improvement

The Commission for Hospital Improvement (CHI) was established in 2011 as a unit within the then Victorian Department of Health (now the Department of Health & Human Services) to provide a focus for system-wide improvements within the Victorian public hospital sector. Following the machinery of government changes post the 2014 state election, the components of CHI have been incorporated into the Innovation Hub & Health System Improvement Branch.

CHI operated as three teams:

- Business Development, which among other roles, supported the 3rd APAC Forum on Quality Improvement in Health Care and the Victorian Public Health Care Awards
- Clinical Networks, which is responsible for six of the clinical networks (cardiac, emergency, maternity and newborn, renal, paediatrics and stroke)
- Leadership and Organisational Improvement.

The Leadership and Organisational Improvement team is responsible for the:

- *Leaders in Conversation* series
- *Leadership, Innovation, Networks and Knowledge (LINK) in Health* programs, including:
 - *Strategic LINK* for new chief executive officers
 - *Executive LINK* for executives in public health services
 - *Critical LINK* for senior clinicians and managers
 - *Vital LINK* providing a formal program in improvement science for early career clinicians
- *Clinical Leadership in Quality and Safety (CLiQS)* program, designed to equip clinicians with the leadership skills and knowledge required to successfully lead and improve the safety and quality of patient care
- Clinicians in Redesign, provided at 15 public health services in Victoria. This provides a three- or six-month rotation for junior doctors through an accredited process improvement program.

Health Innovation and Reform Council

The Health Innovation and Reform Council (HIRC) was established in 2011²⁴ to provide independent advice to the Victorian Minister for Health and the Secretary to the department on the effective and efficient delivery and management of quality health services, and the continuing reform of the public health system. HIRC addresses system-wide issues as well as opportunities for system-wide innovation and advises on:

- clinical, hospital and public health benchmarking and best practice improvements for the Victorian health system
- the implementation and ongoing review of the *Victorian Health Priorities Framework 2012–2022*, Victorian state health planning and, specifically, implementation priorities and implementation approach
- effective data acquisition, analysis, utilisation and research for the purpose of more effective clinical and policy decision making and reporting for the public healthcare system
- issues in response to specific requests from the Minister for Health.

HIRC established the Standing Committee on Health Quality, Safety and Outcomes to provide it with expert advice regarding improvements in quality and safety to achieve enhanced individual, service and system outcomes including:

- relevant system-level performance measures (and data) to support regular performance monitoring
- the recommendation of evidence-based system-level performance targets for measurement and monitoring

²⁴ Established by the Health Services Amendment (Health Innovation and Reform Council) Act 2011

- identified deficiencies in clinically appropriate care
- approaches to improvement to enhance system-level performance in relation to clinically appropriate care
- the alignment of the quality and safety agenda with the national initiatives and the Australian Commission on Quality and Safety in Health Care.

HIRC has published a number of reports including:

- *Global Melbourne health plan*
- *Health and wellbeing outcomes framework*
- *Quality use of medicines*
- *Readmissions – improving heart failure outcomes*
- *Payment for quality and outcomes*
- *Health system information, knowledge and innovation management.*

Clinical networks

Clinical networks have been established to bring together health professionals, patients, consumers, carers and stakeholder organisations to work on a collaborative basis and provide leadership for clinical service development across the full spectrum of healthcare. Victoria currently has nine clinical networks, with a clinical network in critical care currently being established. Each is working on a range of significant projects within their specialty. The current networks are in the specialty areas of:

- cancer
- cardiac
- care of the older person
- emergency care
- maternity and newborn
- palliative care
- paediatric
- renal
- stroke.

Findings

Victoria has invested significant resources in improving healthcare, and many dedicated staff, clinicians and experts are providing advice and conducting individual projects on ways to improve the system. However, there is no mechanism to assess whether all this effort is achieving a substantial benefit for patients. The DLA Piper Review of the Redesigning Hospital Care Program found that while there were numerous programs and initiatives underway to encourage health service innovation, potential exists for better alignment to deliver measurable change for the health system.

A number of the individual projects in the RHCP achieved significant productivity and capacity improvement in the local environment that, if applied across the whole system, would have achieved major system improvement for the whole state.

Examples

Alfred Health

One inpatient ward achieved a 27 per cent reduction in length of stay, saving 1.7 bed days per patient. This resulted in a 13 per cent increase in throughput – a major improvement in capacity. The way this was achieved has not been replicated across the state yet would be a very substantial increase in overall health service capacity if it could be applied in all major hospitals.

Northern Health

The health service implemented a project that resulted in an increase to 85 per cent of patients in the emergency department leaving within four hours if they did not require admission. Again this project has not been replicated elsewhere.

HIRC has been constrained by the specification that it can only undertake work on receipt of a reference from the Minister for Health, and its role has been to produce a number of substantial reports. However, it has no mandate for implementing its recommendations.

The Innovation Hub & Health System Improvement Branch (formerly the Commission for Hospital Improvement) similarly has produced reports, led educational and knowledge sharing activities and encouraged projects through clinical networks. Again there has been no coordination across health services and no measure of the benefits achieved.

Across health services, there is support for a more systematic approach to using innovation to achieve increased health service capacity and improve patient outcomes. This support could be harnessed through an appropriately structured program to capture the goodwill and energy evident throughout the health system to a visible and quantifiable increase in health service capacity and quality.

It is sensible that the first building block of the innovation program is to fold in the capabilities of the above entities and programs into a new single, coordinated innovation program. This would harness the good attributes of innovation that currently exist and allow overall focus.

2.4 Health system innovation in other jurisdictions

Health systems across Australia and internationally are all focused on improving the quality and capacity of their health systems within current resources to cope with the increasing demand resulting from an ageing population and rapid technological advances.

A variety of formalised systems and arrangements have been put in place to drive health innovation. These include dedicated teams within government departments, statutory authorities and not-for-profit organisations. Some improvement efforts prioritise system-wide innovation; others deliver targeted responses to immediate challenges in healthcare. Operational models also differ, with some embedding programs and staff within health systems, operating outreach models, functioning as 'policy hubs' or performing regulatory functions.

New South Wales

NSW has invested in health innovation for more than 10 years, firstly in a unit within NSW Health and more recently via the Agency for Clinical Innovation (ACI). The ACI is a statutory authority

established to work with the health sector and community to improve health service delivery and to translate innovative ideas into sustainable system-wide change. The ACI is overseen by a board of 10 health experts and consists of a team of 100 EFT, plus a statewide clinical council with 30 clinical networks. The ACI works closely with local health districts and specialty health networks but also links with the organisations responsible for quality (the Clinical Excellence Commission) and reporting of hospital performance (the Bureau of Health Information).

The ACI is funded by the Ministry and its work program is agreed as part of the annual budget process. Thus its programs align closely with the key priorities set by NSW Health as led by the Ministry. Currently the work of the ACI aligns with the *NSW state health plan: Towards 2021*. The plan proposes innovation through key priorities and sets system-wide targets. Furthermore, the significant shared data and analytics systems in NSW, and the reporting and advisory functions of the NSW Bureau of Health Information, ensure the ACI has timely access to information to inform its innovation programs.

Over the past 10 years NSW has achieved major improvements in elective surgery management and emergency department performance to the national targets.²⁵ More recently it has undertaken a formal program of innovation in chronic disease management. The program did not deliver the expected outcomes, but there was a substantial improvement in the understanding of the natural history of the journeys of patients with chronic disease and why the interventions did not work. This is a complex area and there is much to learn about how to address the problem of avoidable hospital admissions.

More recently NSW Health has taken a redesign project developed in Westmead hospital to proactively plan and manage patient flows and extended it statewide. All hospitals and clinicians and indeed NSW Health can check on the status of patients in individual hospital wards or emergency departments to see whether they have exceeded their expected length of stay or waiting time for admission. In addition, the program can predict the expected patient load for the next 14 days so, for the first time, hospitals can plan for their patient loads and ensure discharges are aligned to the demand for admissions. It is an essential tool to manage demand and supply of expensive infrastructure such as a public hospital.

The next major element in the NSW program is the Integrated Care Planning and Innovation Fund. This strategy provides \$120 million over four years to develop new models of integrated care in NSW. This will allow the development of a range of projects and approaches in different health services, partnering with a variety of Primary Health Networks, private not-for-profit providers and others to identify models that work. This builds on the findings of the Chronic Disease Management Program evaluation.

In addition, the Ministry has funded three demonstrator Local Health Districts (Central Coast, Western Sydney and Western NSW) to demonstrate and test system-wide approaches to integrated care. The demonstrators will build on the lessons learnt from the chronic disease management program above to design and implement better models for managing vulnerable patients with chronic diseases.

25 MacLellan D 2009, 'Applying clinical process redesign methods to planned arrivals in New South Wales hospitals', MJA, no. 188: s23–26 and O'Connell T 2009, 'Clinical process redesign for unplanned arrivals in hospitals', MJA, no. 188: s18–22

Queensland

A unit of the Health Systems Innovation Branch in Queensland Health, the Clinical Access and Redesign Unit (CARU), aims to improve the flow of patients through the health system by providing clinical redesign support and advice. CARU's work priorities include improving access to inpatient care, surgical services and outpatient clinics, as well as improving emergency department waiting times. CARU has delivered a range of service improvement initiatives leading to significant improvements in emergency department performance against the National Emergency Access Targets (NEAT), with 76 per cent of patients treated, admitted or discharged from emergency departments within four hours (compared with 67 per cent in 2012).²⁶ It has also supported widespread clinical practice change, driving systems efficiencies through investing in telehealth expansion. Queensland has the largest managed telehealth network in Australia, with more than 200 hospitals and community facilities participating across 40 clinical subspecialties.²⁷

To support the work of CARU Queensland Health has established 17 statewide clinical networks and advisory groups as well as a large Clinical Senate (with 87 individual members). The Clinical Senate provides strategic advice on system-wide issues affecting quality, affordable and efficient patient care.

South Australia

Transforming Health (2014) is a service planning and innovation initiative of SA Health ensuring systemic improvement and embedding a consistent and sustainable quality agenda.

Under Transforming Health, clinical advisory committees have worked together and with extensive community consultation to develop quality principles and 284 clinical standards they consider essential to providing a healthcare system that meets the future needs of South Australia. Another key priority of Transforming Health is to unlock capacity and significantly improve patient access and flow in metropolitan hospitals. This will involve relocating and consolidating services at appropriate sites and a focus on evidence-based statewide models of care that improve consistency and quality.

Western Australia

The Western Australia Department of Health first established health redesign projects in 2007, with area health service redesign teams funded to drive capability at the local level. A priority of these programs became achieving the 'four hour rule' and reducing waiting times for admission to metropolitan emergency departments. The program was extremely successful, with a 73 per cent reduction in time waited for admission from emergency departments and 85 per cent of non-admitted patients leaving the emergency department within four hours, with evidence of significant improvements in timeliness of care.²⁸

WA Health operationalised the redesign program in 2012, with health services taking responsibility for resourcing redesign teams and the department providing centralised support for redesign activities through training, resources and tools.

26 Queensland Clinical Senate. NEAT: Is 90% the right target? Viewed 28 May 2015, <<http://www.health.qld.gov.au/qldclinicalsenate/docs/fin-rep-mar2014.pdf>>.

27 Queensland Department of Health 2014, Better health for the bush, p. 11.

28 Geelhoed G, de Klerk N 2012, 'Emergency department overcrowding, mortality and the 4-hour rule in Western Australia', MJA, vol. 196, no. 2, pp. 122

International

England

The UK commenced a program under the Blair Government to improve access to the National Health Service (NHS).

One part of its focus was to set ambitious targets for waiting times in emergency departments and access to elective surgical procedures. It then resourced redesign programs, clinical engagement, training in change management and knowledge sharing to support the change. Through its Prime Minister's Delivery Unit, the role of the government was to monitor and drive achievement of the targets. This process was very transparent, which was an important element in its success.

The program was extremely successful. Waiting times for elective surgery were reduced from one or more years to 18 weeks.²⁹ More than 90 per cent of patients now leave the emergency department within four hours either by admission to a ward or return home.³⁰

The program has continued to evolve. The NHS Improving Quality (NHS IQ) initiative, a collaboration between the Department of Health and NHS England with a focus on better health outcomes, was established in 2013. It was created following the merger of several NHS improvement functions, including the NHS Institute for Innovation and Improvement (established in 2005).

NHS IQ develops and implements improvement programs, builds improvement capability/capacity throughout the NHS commissioning system and supports improvement across the wider NHS. NHS IQ is committed to working to the key priorities of the *NHS Outcomes Framework*, the tool used to drive accountability in the NHS using indicators. This ensures NHS IQ is linked into the broader framework for system-wide performance monitoring.

The focus of the UK program has moved onto better integration of care for people with chronic and complex disorders and care of the elderly. This has meant that the program has broadened to incorporate partnerships with other health and social service providers to better manage these patients in the community in which they live.

Scotland

Created in 2011, Healthcare Improvement Scotland (HIS) is a statutory body that plays a national improvement support role to the NHS boards and independent healthcare providers.

While HIS has the mandate to gather and share evidence about best practice, it also independently scrutinises services and supports NHS boards to implement improvements. Outside of its regulatory functions around quality, the recent work of HIS includes its *Strategy 2014–2020*, with the priorities to:

- empower people to have an informed voice in managing care and shaping how services are designed
- reliably spread and support implementation of best practice to improve healthcare.

29 NHS UK 2015, Your rights in the NHS: Waiting times, viewed 28 May 2015, <<http://www.nhs.uk/choiceintheNHS/Rightsandpledges/Waitingtimes/Pages/Guide%20to%20waiting%20times.aspx>>.

30 Indicator: A&E Waiting times, QualityWatch. Nuffield Trust & Health Foundation, viewed 28 May 2015, <<http://www.qualitywatch.org.uk/indicator/ae-waiting-times>>.

United States

The US Institute for Healthcare Improvement (IHI) is an independent not-for-profit organisation promoting healthcare improvement across America and internationally. Established over 25 years ago IHI works in partnership with governments, health services, professionals and other innovation agencies across five key areas including improvement, quality, safety and person-centred care. IHI creates collaborative platforms for health professionals, as well as professional development opportunities and an open school for students. The IHI does not manage or fund any health systems. Its program works by setting quantifiable goals and enlisting health services that wish to achieve those goals to join a program whereby models, tools and successes are shared to engender successful achievement of the targets. IHI is funded primarily through fee-based program offerings and the support of foundations, companies and individuals.

Other efforts to implement change in healthcare in the US have included the *Affordable Care Act*, which contains provisions to avoid costly mistakes and readmissions, rewards for quality, and health information technology infrastructure enabling new payment and delivery models. Discussion in the US has centred on whether the funding reforms implemented under the Act have been instrumental in the recent marginal growth in health spending. Relevant reforms include new accountable care arrangements under which providers share risk for the quality and cost of services. Evidence suggests that these innovative models have led to reductions in utilisation (and thus cost savings).³¹

2.5 The case for a new approach to redesigning healthcare in Victoria in order to increase the capacity of the health system

As stated above there has been significant investment already in redesigning healthcare in Victorian health services and much has been achieved in local projects. However, when viewed from the statewide level there is no visible difference in the capacity of the system to treat more patients as a result of this investment.

The Victorian approach has built great capacity for change and built the skills necessary in a significant number of managers and clinicians. There is now the opportunity to harness the benefits of that investment to achieve a quantifiable increase in the capacity of the health system to treat more patients in the right place, at the right time and by the right people.

There are a number of key learnings from the review of interstate and overseas approaches that can benefit the Victorian program.

Programs seen to be successful by the general public used a focused approach to achieving set levels of performance across the whole system. The areas of focus were ones that patients complained about – problems such as surgical waiting lists, outpatients waiting times and emergency department access.

Those programs have now gone on to focus on the growing problems of the older patient with chronic and complex disorders. These models need the cooperation of health and aged care providers outside the state system, and the designs have focused on partnerships that can deliver more care in the community, close to home or in the home for these patients.

³¹ Blumenthal D, Stremikis M, Cutler D 2013, 'Health care spending – A giant slain or sleeping', *The New England Journal of Medicine*, no. 396, pp. 26

The more successful programs have had a number of common features:

- focused on a small number of major problems at one time
- a whole-of-system focus on the same problems
- setting ambitious and quantifiable targets, with transparent reporting driving progress
- strong support for the individuals responsible for managing the local projects by means of education and training, knowledge sharing, workshops, expertise and toolkits
- seed funding to get the projects off the ground and resource project management and enablers
- strong clinical engagement, with key clinical leaders as advocates for change.

Victoria needs to build on its previous investment by focusing innovation resources into a single program aimed at delivering a quantifiable increase in health system capacity and improved patient outcomes for designated groups of patients across the state that will be sustainable within predicted resources.

2.6 Proposed program for increased capacity through innovation

To meet the challenge of a sustainable increase in the quality and quantity of healthcare, Victoria will need to have a recognisable, vibrant and active innovation program. As outlined above many jurisdictions have invested heavily in this area. Innovation rather than just building more hospitals with a 'business as usual' mantra is the preferred direction. This should be achieved by creating a statewide innovation program whose primary tasks are to identify, encourage and facilitate the dissemination of innovation in the Victorian health sector, with the goal of increasing health system capacity. This is not to say there is no innovation in Victorian hospitals; far from it. Since 1996 Victorian hospitals have increased admissions by 74 per cent, with only a 3.4 per cent increase in the bed numbers. Victorian hospitals have been an engine room of innovation and will remain so under any new program.

However, there remain many examples of innovations that have benefitted local patients but have not been made available across the state. There are also new models in other jurisdictions and countries that could well be adapted to the local Victorian health system with further benefit.

Victoria needs a program to assist and amplify the good work in innovation in order to reap the maximum benefit for Victorians. The program should be biased towards large system changes rather than myriads of small single site pilots and test runs. The need for Victoria to refresh its approach, and a view that other jurisdictions were doing this better, were consistent and strongly-held views in the submissions and consultations.

The innovation program has the potential to accelerate the delivery of better outcomes for individual Victorians as well as better health system outcomes. The program needs four key elements to drive this:

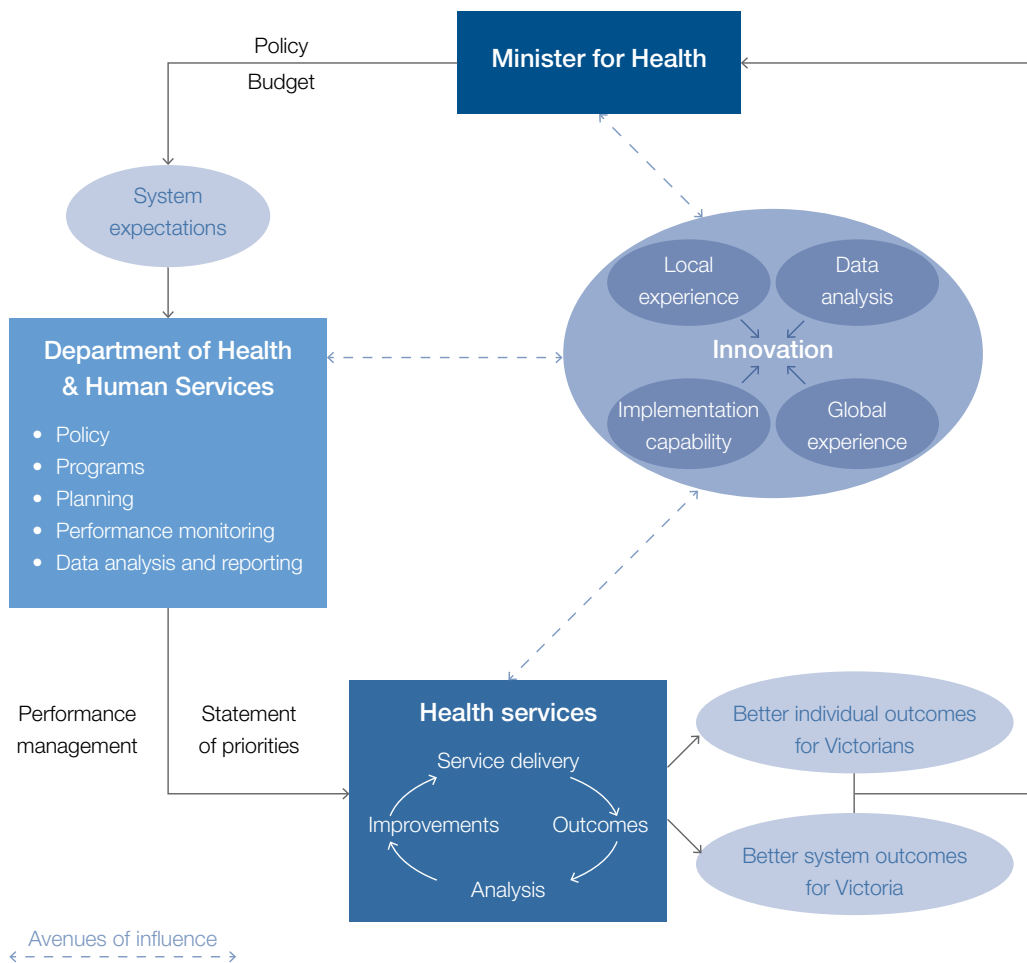
- access to best practice innovations from other jurisdictions, and analysis of these innovations to identify possible models that could be tailored for implementation in Victoria
- local experience in developing and piloting innovations
- data analysis to provide an evidence base for determining priorities
- implementation capability so that good ideas can be scaled up and implemented for system-wide impact.

The innovation program needs to align effectively with three levels of the health system:

- the Minister for Health, who sets system expectations for policy and budget
- the Department of Health & Human Services, in particular its system management functions of policy development and implementation, program management, planning, performance monitoring, and data analysis and reporting
- health services, which need to continuously improve service delivery as well as innovate to deliver better outcomes for individual Victorians and the system as a whole.

Figure 2 shows the relationships that exist between these three levels of the system to support and drive an innovation program, and the opportunity for the innovation program to accelerate and spread systemic innovation by working in alignment with each of these levels. Internally the innovation program requires data, local experience, implementation capability and global experience to properly influence the system and improve individual and system outcomes.

Figure 2: The role of innovation in improving system and individual outcomes



Recommendation 16. The Minister establishes a statewide program to increase health service capacity through relevant innovation, and that the program includes amalgamating the current innovative health capabilities associated with the government.

Recommendation 17. The purpose of the program is to identify, encourage and facilitate the dissemination of relevant innovation across the Victorian health sector.

2.7 Discussion of models and elements for the statewide program

There are many different models that could and would fulfil the role of promoting statewide innovation in healthcare.

Before settling on a particular model it is useful to consider the elements that likely successful models would have in common. These elements are key, and all proposed models should be benchmarked against these requirements.

Human factors

Innovation is just a fancy word for change, hopefully for the better. The driver for successful change lies with people. It is the will and intent of people that make or break change, and whether it will be successfully embedded in health systems.

Successful innovation requires first and foremost the will of people to change.

The following are the key people who need to support change:

- patients and carers
- the government, led by the Minister
- the Department of Health & Human Services, led by the Secretary
- health services, led by the chief executive officers and senior executive
- staff who deliver the services that are changing.

Without the will of all of the people involved, change will not occur. Change is challenging for people; the status quo is comfortable. The key function of any innovation program will be to identify, encourage, lead and coordinate people to ensure the will for change exists. A vision for a different future, rather than a slightly modified future, may mean moving out of an established comfort zone, and this must be accepted. The communication skills and change management skills of the people in an innovation program are paramount to its success.

The people leading and implementing innovation programs need to be respected across the sector, good communicators, adaptable and of themselves accepting of change.

Innovation by its nature is inherently risky. There are processes to mitigate risk, but nonetheless 'failure' may occur. The human culture that is in place must acknowledge this reality and be accepting of safe failure and encourage a continuous culture open to change and innovation. It is extremely unlikely that all innovation will be successful. If a 'no risk, no failure' culture is mandated from above, innovation will be suffocated. The key stakeholders must also be accepting of this reality and be supportive of acceptable safe failure.

Operating principles of an innovation program

To ensure patients, the community and the health system as a whole benefit through innovation, an innovation program should be guided by a set of principles that seek to maintain this goal at the core of its operation.

Based on the findings of the consultation process, the following are a set of general operating principles that should guide any innovation program:

- goals focused on specific measurable outcomes and performance
- being encouraging and receptive to innovation and ideas from the broader health sector
- fostering innovation as an essential part of everyday business for health services
- permissive and encouraging of health service attempts to innovate
- inclusive of the whole Victorian health system, with a statewide focus on implementation
- promoting new approaches that are sustainable and affordable over the long term
- driven by evidence, and sharing of innovation knowledge and expertise.

Performance

Innovation must be linked to performance to achieve the full benefit for all patients.

The purpose of innovation is to improve the outcomes of health services by increasing the capacity of the system to treat more patients and/or to improve the quality of health services in order to achieve improved patient outcomes.

For innovation to be seen as successful, any new approaches or new models of care need to deliver a measurable increase in the number and/or quality of services provided to patients (measured on a statewide basis).

Implementation

This means that selected innovative models and the benefits they can deliver will need to be implemented across the state with the necessary tailoring and customisation to the local operating environment. This is essential to delivering a measurable statewide benefit.

Innovation is only successful if it is implemented effectively.

Thus the beneficial outcomes of an identified innovation need to be specified as targets for health services funded by Department of Health & Human Services and specified in the Statement of Priorities that health services sign with the Minister.

Health services should be free to implement their own approach to achieving the same outcome or, if they are unable to do so, request assistance from the innovation program to help them develop a plan to achieve the change.

The innovation program will need a chair and director who establish and maintain linkages across all areas in the department. In particular a strong link to the Sector Performance, Quality & Rural Health Branch is essential to ensure the benefits are delivered statewide. Achievement of the targets does need to be strongly driven by a performance review in order to fully achieve the benefits.

All too often, innovative models of care remain localised to the entity that trialled it in the first place without the essential dissemination and uptake necessary to achieve the same outcome for patients across the state.

[Link to the state health strategy](#)

In selecting the areas of focus for new models of care, it will be important for the new program to develop priorities that align with the overall strategy for the health system in Victoria as set by the Minister. Thus the innovation program needs to be developed in close cooperation with the Health Strategy Branch in the Department of Health & Human Services.

However, the innovation program also has a role in helping identify opportunities to improve the health system because of its knowledge of new approaches across the state, nationally and internationally. Thus it should have regular dialogue with the Health Strategy Branch to help shape the thinking with what can be achieved through innovation across the health system.

Governance

There are three common governance models utilised to support innovation across health systems, and each of these is discussed in turn below. While most of the operating principles above can be achieved under the three models, the effectiveness of the governing body is likely to impact on the levels of corporate governance required. This will be significant in the case of a statutory authority compared with an innovation program embedded within an existing organisational structure such as the Department of Health & Human Services. Furthermore, the lines of accountability, which are particularly important for driving and measuring system and individual outcomes and performance, are heavily influenced by the model. Ultimately a balance is required between allowing health services to select their preferred focus areas and the need to achieve a quantifiable statewide impact. The best way to achieve a statewide impact is to ensure the innovation program has timely access to relevant information and data to enable coordinated activity in focus areas, as well as the mechanisms to drive and implement improvements in capacity across the health system.

[Independent statutory authority reporting to a Minister or Parliament](#)

This model has been adopted in NSW to create the ACI and in Scotland to create HIS. By necessity this model involves significant resourcing, with the ACI's budget being around \$25 million and 100 EFT. If this model were adopted in Victoria it would require legislative enactment, with the governing board or executive having significant corporate responsibilities including fiduciary and regulatory duties. While it would meet most of the operating principles articulated above its independence could impact on its ability to 'leverage' with health services, and potential exists to confuse lines of accountability between the authority and the department for health service performance.

[Minister appointed board supported by the Department of Health & Human Services](#)

Under this model a board is appointed and accountable to the Minister for Health and provides guidance to a dedicated secretariat within the department responsible for day-to-day functions of the innovation program.

This model enables the board to focus on its mandate without dedicating significant resources towards corporate governance, as occurs in the statutory model. It balances autonomy with accountability, the dedicated secretariat within the department sitting separate from other departmental functions yet with close linkages to areas of the department responsible for monitoring and managing the performance of health services. This model facilitates close coordination between the department and health services, a benefit during preliminary phases

of process change or redesign. Finally it provides for clear lines of accountability, which are necessary to drive changes that optimise statewide capacity.

In keeping with the general operating principles above, this model requires staff within the secretariat to develop close linkages with health services and at the same time to support health services to 'own' change and redesign. Under this model the secretariat within the department provides clinicians with a dedicated environment to drive innovation.

The board reports to the Minister for Health to ensure clear lines of accountability and also has a role to support the Minister to deliver on innovation priorities. To be adaptable and nimble a smaller rather than larger board, able to make decisions within short timeframes, is preferable.

Departmental division or unit within the Department of Health & Human Services

This model embeds the innovation program within the department, with functions and operations placed within existing structures and reporting to a Deputy Secretary or the Secretary.

While this model could meet most of the general operating principles, a departmental team would not have the same level of autonomy for direction setting as one guided by a separate board. An innovation body needs to have a measured distance from the established orthodoxy in order to present and bring forward often challenging new ways of doing business. An in-house model risks loss of the autonomy needed to think differently.

To succeed innovation will require promotion and acceptance of change across and within health services. A significant requirement of an innovation program within the department would be to raise the profile of innovation within the Victorian public health system and to consciously create a dedicated environment within which clinical networks and others could innovate. Arguably this will occur more naturally in a supportive program that sits alongside the key stakeholders responsible for system and individual outcomes. An in-department model would be seen to be closely aligned with other functions of the department, hence new ideas that are yet to be tested may be misinterpreted as departmental policy. This would hinder the need to adopt and sometimes reject ideas quickly as evidence evolves. While this may be a good thing for an innovation body, it may not be a desirable trait for the department.

Governing board

The membership of the governing board could be approached as either representative or expert in nature.

The advantage of the representative model is buy-in from recognised stakeholder groups, but that also brings disadvantage. Political positions are pursued or defended at the expense of challenging but essential change that may threaten a status quo. In addition given the nature of the venture, the significant stakeholder list that would seek representation is long. This leads to a large and unwieldy governance board that runs counter to a fundamental need for adaptability. A political representative system is also less likely to be supportive of change that may seem to favour other political groups.

A political representative system is likely to be less embracing of risk as outcomes will reflect on the stakeholder. The minimisation of risk is likely to suffocate innovation.

The other model is to select the members of the governing board based on expertise and skills. This can be a group of any size, hence is capable of being a smaller adaptable group.

The skills needed for the board are likely to be:

- respected leadership across the sector
- varied clinical skills in health
- health management
- change management
- data analysis
- patient-focus perspective
- implementation science
- communication skills.

Obviously not every member of the board would have every skill listed, but at the end of the process the board should collectively possess these skills. It may be necessary to recruit people who are not a member of any of the key stakeholder groups to cover off the board skill mix. This is a further advantage of a skills-based approach to board selection. As with most boards there should be policies that ensure regular renewal balanced with continuity.

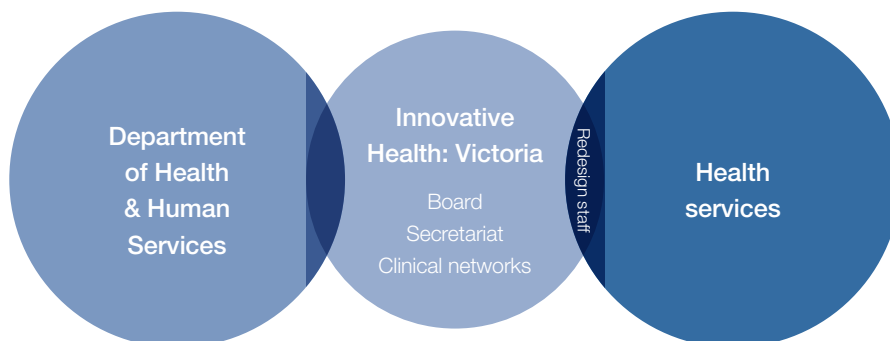
2.8 The recommended model for Victoria – Innovative Health: Victoria

Governance

There are many structures that could deliver the outcome. The preferred model is to establish Innovative Health: Victoria (IHV) with three key components:

- a board appointed by the Minister for Health that creates and oversees the statewide program
- the board closely supported by the department and with the secretariat embedded in the department
- clinical networks providing a key source of engagement not just with health services but with the wider Victorian health system and the community (see Figure 3).

Figure 3: Overview of the relationship of IHV with the Department of Health & Human Services and health services



This model is preferred because it strikes the right balance between independence and dependency, while promoting transparency and accountability. The success of this framework is dependent on close cooperation with the department, the Minister for Health and other stakeholders. There needs to be a clear understanding of the importance and backing of innovation to encourage health services to listen and cooperate, but at the same time it needs to be, and be seen to be, apart from the department.

The Minister for Health must be seen to be a key player, and the requirement of a reporting line to the Minister achieves that outcome. If IHV was a body that reported to parliament rather than the Minister then the accountability is too diffuse.

The governing body of IHV should be a board that is skills-based rather than representative of stakeholders. This will allow a sufficiently small board to facilitate decision making and allow people with the correct skills to be appointed. The board should have about nine people and collectively possess the skills described above. The board and the chair should be appointed by the Minister.

The IHV chair should be an executive chair – that is, the role should extend beyond chairing the IHV board in order to be recognised as the key leader of IHV. The executive chair is likely to need to commit one or two days a week to the role.

IHV must have a strong working relationship with the department. This is vital on two fronts. First, the provision of data. The currency of innovation is accurate data to initiate and evaluate innovation. The department will remain the key source of data, hence a close working relationship is required. This model is likely to have the best chance of success. The second front is the rollout of statewide changes. This requires close and active participation of the department, particularly the Sector Performance, Quality and Rural Health Branch. This is best achieved through a close working relationship from the start. This model best facilitates that outcome.

In order to further enhance the linkage between the board and the department the relevant Deputy Secretary should be an ex-officio member of the board. This allows good buy-in from the department and allows health services to appreciate that the board and hence its workings are taken seriously by the department.

The current practice of embedding redesign expertise in health services should be continued. The staff working in these roles should be encouraged to view themselves as an essential component of the IHV model and will provide an important conduit to transfer information to and from health services regarding innovative ideas.

No matter the model, the recurring theme from all the people who have had experience in this area is that it is the human relationships that are paramount to success. Structure can help or hinder, but it is the people that will make it work.

Recommendation 18. The Minister establishes Innovative Health: Victoria (IHV) as the statewide program for innovation.

Recommendation 19. The Minister appoints a skills-based board with approximately nine members to govern IHV.

Recommendation 20. The relevant Department of Health & Human Services Deputy Secretary is an ex-officio member of the IHV board.

Recommendation 21. The executive chair of IHV is directly appointed by the Minister for Health.

Operating principles for IHV

The following set of principles is based on those identified as necessary to guide any innovation program. The principles reflect the Victorian context and priority areas, as well as the aim of IHV to increase the capacity of the Victorian health system as a whole through innovation:

- Focus on specific measurable outcomes and performance in the areas of:
 - patient outcomes
 - patient experience
 - access
 - adverse events
 - prevention
 - cost.
- Focus across the whole health system including the interfaces between hospital services and primary healthcare, aged care and community-based care.
- Actively seek out and be receptive to innovation and ideas that would increase health system capacity in Victoria, from Victorian health services, national/international programs and other health stakeholders.
- Promote the value and role of innovation as an essential part of everyday business for health services.
- Foster a permissive culture that encourages health service attempts to innovate.
- Include all Victorian health services, with a statewide focus on implementing innovation.
- Ensure the new approaches are feasible and sustainable over the long term. IHV needs to be very strong on the principle of sustainability and practicality if it is to successfully implement new models of care across the system. It needs to operate on the principle that there is no new funding other than seed funding to sustain the change.
- Drive innovation through evidence and by sharing knowledge and expertise.

Key functions of IHV

It is proposed that IHV will have the following functions, linked with the above principles.

Focus on specific measurable outcomes and performance

- Align IHV goals with the state health strategy.
- Work with the department, health services, clinicians, patients and government to identify a set of goals for improvement in health system capacity.
- Set specific measurable goals for system-wide improvement.
- Link IHV goals to health service *Statements of priorities* and performance management of outcomes
 - Apply effective methods of incentivising achievement of goals.
 - Work closely with Sector Performance, Quality and Rural Health to ensure achievement of goals.
 - Report regularly on achievement of measurable outcomes.

Focus across the whole health system

- IHV should look for new models of care that treat patients in the most appropriate location by the most appropriate provider. This means looking beyond hospitals (where appropriate) and embracing models that integrate primary care, aged care and community care with hospital services in the most effective combination.
- Facilitate the development of new models of care that cross funder boundaries and identify and propose changes to funding systems that prevent new approaches. IHV can play an important role in facilitating dialogue with providers who are funded by sources other than the state government.
- Facilitate relationships with the Primary Health Networks. Realising an integrated whole-of-system approach to care will inevitably require a relationship with the Primary Health Networks as the Commonwealth-funded entities represented at the local level.
- IHV should provide advice to the Minister and Department Secretary as requested or required on specific issues from a whole-of-health perspective. This function would fold in the current function of HIRC and allow IHV to build on the accomplishments of HIRC.

Actively seek out and be receptive to innovation and ideas that would increase health system capacity in Victoria

- Encourage, garner and respond to ideas for innovation generated from all parts of the health system as well as local, national and international sources.
- Identify or design innovative programs either de novo or in response to requests.
- Communicate regularly with a wide range of stakeholders to seek external ideas for improvement.

Promote the value and role of innovation as an essential part of everyday business for health services

- Work with health service executives to build understanding of benefit realisation and unlocking value for reinvestment.
- Work with health services to build implementation capability.
- Provide education and training to key managers and clinicians in health services on change management methodologies.

Foster a permissive culture that encourages health service attempts to innovate

- Effectively communicate with all stakeholders to engage, foster and encourage innovation and collaboration.
 - Communicate and interact with the myriad ‘entities’ that make up the health landscape of Victoria in a cooperative and collaborative manner.
 - Facilitate clinician engagement.
- Encourage health services and clinicians to identify the best way to achieve the goals in their local service, and provide help in designing a program if health services request support to achieve defined outcomes.
- Establish key relationships with the department to facilitate the innovation mission.

Include all Victorian health services, with a statewide focus on implementing innovation

- Support the implementation of successful innovations across Victoria.
- Facilitate whole-of-state rollout of innovative programs.
- Facilitate and support clinical networks to identify and help drive innovation across health services
- Share and build innovation knowledge, expertise and capability within health services.
 - Analyse health literature in the innovation sphere.
 - Develop reports/scientific articles about activities and outcomes.
 - Reference resources concerning innovation.
 - Provide an in-house consultant to help health services devise and implement innovation.
 - Organise educational activities related to innovation.

Ensure the new approaches are feasible and sustainable over the long term

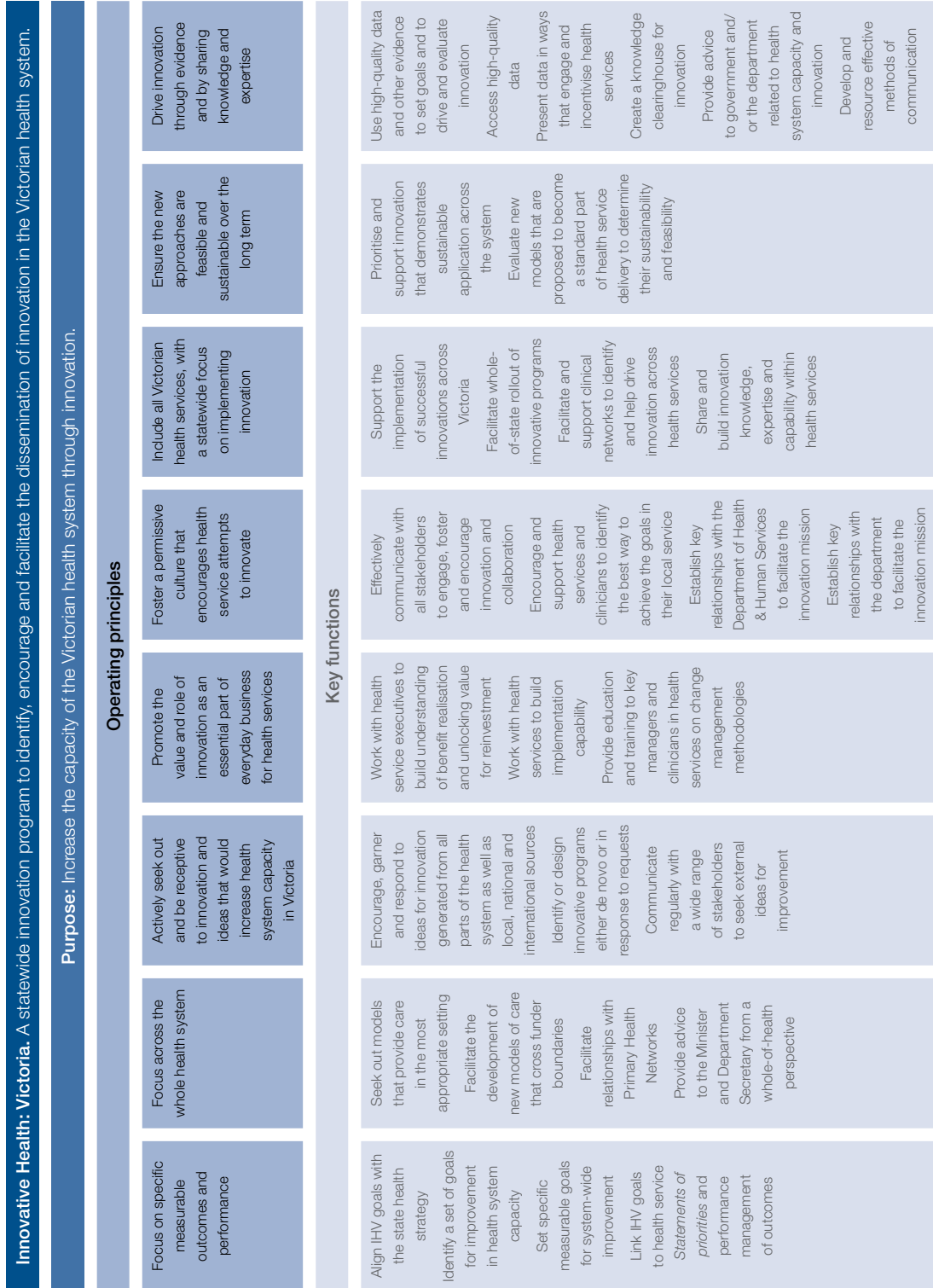
- Prioritise and support innovation that demonstrates sustainable application across the system.
- Evaluate new models that are proposed to become a standard part of health service delivery to determine their sustainability and feasibility.

Drive innovation through evidence and by sharing knowledge and expertise

- Use high-quality data and other evidence to set goals and to drive and evaluate innovation.
 - Collect and access health data related to innovation activities.
 - Analyse health data through the prism of innovation.
- Work closely with the System Intelligence and Analytics Branch to ensure access to high-quality data.
- Present data in ways that engage and incentivise health services to adopt new models.
- Be a knowledge clearinghouse for innovation.
- Provide advice to government and/or the department related to health system capacity and innovation.
- Develop and resource effective methods of communication with health system clinicians and managers about innovative approaches to providing healthcare.

These functions and principles are summarised in Figure 4.

Figure 4: Operating principles and key functions for IHV



Clinical engagement

The matter of clinical engagement is a theme that has recurred in all discussions about the elements of successful innovation. If clinical engagement does not occur 'on the ground' then failure is assured. The process for engagement at a single health service can be driven in house, but engagement at the state level is more problematic. The work carried out by the review taskforce has identified two dominant schemes of clinical engagement at the whole-of-system level. The term 'clinical' has been chosen carefully to be inclusive of all health professionals rather than just registered medical practitioners. Innovation usually involves the whole healthcare team and is rarely restricted to just registered medical practitioners, hence it is important that clinical engagement involves all who must change – doctors, nurses, allied health practitioners, ancillary services personnel and administrators.

The dominant models of engagement at a high level are either a single (and large) 'Clinical Senate' or multiple small clinical networks that are a mixture of craft- or patient-oriented groups.

The Clinical Senate model is best typified in Queensland. The Queensland model involves a group of 87 people with a highly structured representative membership. There is no ability to be selective with the appointment of skills-based people; the only acknowledgement of innovative desire is that they must be on the local engagement committee. This seems to be a very large committee. There is an inner sanctum of four or five who are the mandated executive committee and presumably they make the substantive decisions. This model seems prone to disengagement due to it being a large unfocused force.

The clinical network model is the main focus in NSW at the ACI. It involves a very large group of 30 clinical networks. This has a large administrative load but does spread the involvement across many people.

The senate is a large body that needs formal processes to function. It then devolves into multiple working groups. It would seem that the senate behaves a bit like the board of the proposed Victorian model but is very large. This appears to be duplicative and not helpful. The clinical network model seems to be more focused and allows probably greater clinician involvement in their particular area of interest. It also allows a greater number of people to become 'champions' of change.

The great threat to clinical engagement is that the clinicians disengage when nothing seems to happen. The solution is to make change happen and that the clinicians rightly feel a part of that change.

The preferred model of clinical engagement in the Victorian health system is via clinical networks. The clinical networks would be a key workhorse of the program. They would be able to bring forward ideas, as well as provide solutions to presented problems. Their function would require departmental support, which should be provided from within the IHV.

It is always problematic as to the number and genre of clinical networks. The NSW solution of 30 clinical networks is excessive and cumbersome. It would be sensible to start with the following networks:

- surgery/anaesthesia/intensive care
- emergency care and trauma
- renal
- stroke
- cardiac
- cancer
- care of the older person
- GP interface with hospital
- obstetrics and newborn
- paediatrics.

The number and genre of the networks should be subject to a periodic review.

Recommendation 22. IHV establishes multiple clinical networks to facilitate clinical innovation.

Department of Health & Human Services support of IHV

The next part of the model is the departmental support structure. The key is to supply support that meets the capability list described above. There are many ways of achieving that outcome.

It is evident from the description of the department's current structures that many of the capabilities required already exist but are scattered and not focused. The department already has considerable funding dedicated to innovation, estimated at \$7.8 million per annum. It would seem feasible that some of the resources should be redirected into a new innovation support section that services the IHV functions. There are current activities that should continue but would be better suited if they are merged with the innovation section, for example the RHCP. The RHCP funds the salaries of 32 redesign staff embedded in health services at a cost of \$3.6 million in 2014–15 (in addition to the above funding for innovation). Under this plan those embedded staff would remain but have a greater reporting role to IHV in order to enhance two-way communication between health services and IHV.

While not strictly part of the Department, HIRC has provided an important contribution to innovation in Victoria over the past few years, as detailed earlier in this report. To ensure alignment and consistency, the role of HIRC should be folded into the new statewide innovation program. The innovation program will need the expertise and resources to deal with the range of referrals that the Minister would have otherwise made to HIRC.

The exact details of the departmental support structure are better worked out in cooperation with the department. It seems the capability requirement would dictate the need for a workforce of 25–30 EFT (this excludes the 32 embedded and already funded redesign staff). This would cost approximately \$4.5 million per annum. There is also capacity to redirect resources from current activities. There would need to be an additional budget allocation to fund the day-to-day activities of the IHV that is estimated at \$4 million per annum. This would mean that IHV would require

an operational budget of approximately \$8.5 million plus the funding allocation for the salaries of the RHCP staff who are embedded in health services. Most of that money should come from redirecting resources currently distributed across the department.

Recommendation 23. The Department of Health & Human Services ensures that IHV is adequately resourced to deliver its functions including the appointment of a suitable director.

Recommendation 24. The Department of Health & Human Services provides an implementation plan for establishing and operating IHV.

Recommendation 25. The Department of Health & Human Services continues to provide annual funding to health services under the Redesigning Hospital Care Program in order to build health service capability for innovation.

2.9 Communication

Undertaking the key functions of IHV, and doing so in a manner consistent with the operating principles, requires a team and governing board with a particular mix of knowledge, skills and qualities. While the subject expertise and technical aspects are essential for a well-functioning program, the ability to communicate and engage with a wide cross-section of the health sector, including within the Department of Health & Human Services, cannot be underestimated.

As previously discussed, the success or otherwise of innovation fundamentally lies with people.

Figure 5 demonstrates the flow of communication internally within IHV as well as externally between IHV and key stakeholders. The key elements of IHV – the board, secretariat and clinical networks – will work closely to drive innovation. The redesign staff embedded in public health services will have strong reporting channels to IHV as well as internally within their respective health services. Additionally there should be strong communication between the secretariat and clinical networks and redesign staff. The IHV secretariat (and clinical network managers) will be employed by the Department of Health & Human Services but will sit separately from the day-to-day functions of the department. However, strong mutual communication lines between IHV and other parts of the department will be essential, particularly with performance, strategy and analytics teams and the relevant Deputy Secretary. Ministerial advisory groups, consultative councils and departmental committees working on innovation and new models of care will also be critical stakeholders for IHV, and work programs should aim to be complementary rather than duplicative, and subject to regular review.

Beyond the department IHV will need to engage with external stakeholders in innovation, including counterparts in other jurisdictions. Key Victorian external stakeholders will include, among others, the two new Victorian National Health and Medical Research Council (NHMRC) Advanced Health Research and Translation Centres:³²

- Alfred Health and Monash Health and Partners Advanced Health Research and Translation Centre
- Melbourne Health Care Partners Advanced Health Research and Translation Centre.

The new centres are collaborations of health services, universities and medical research institutes, working together to foster research translation. They have been established by the

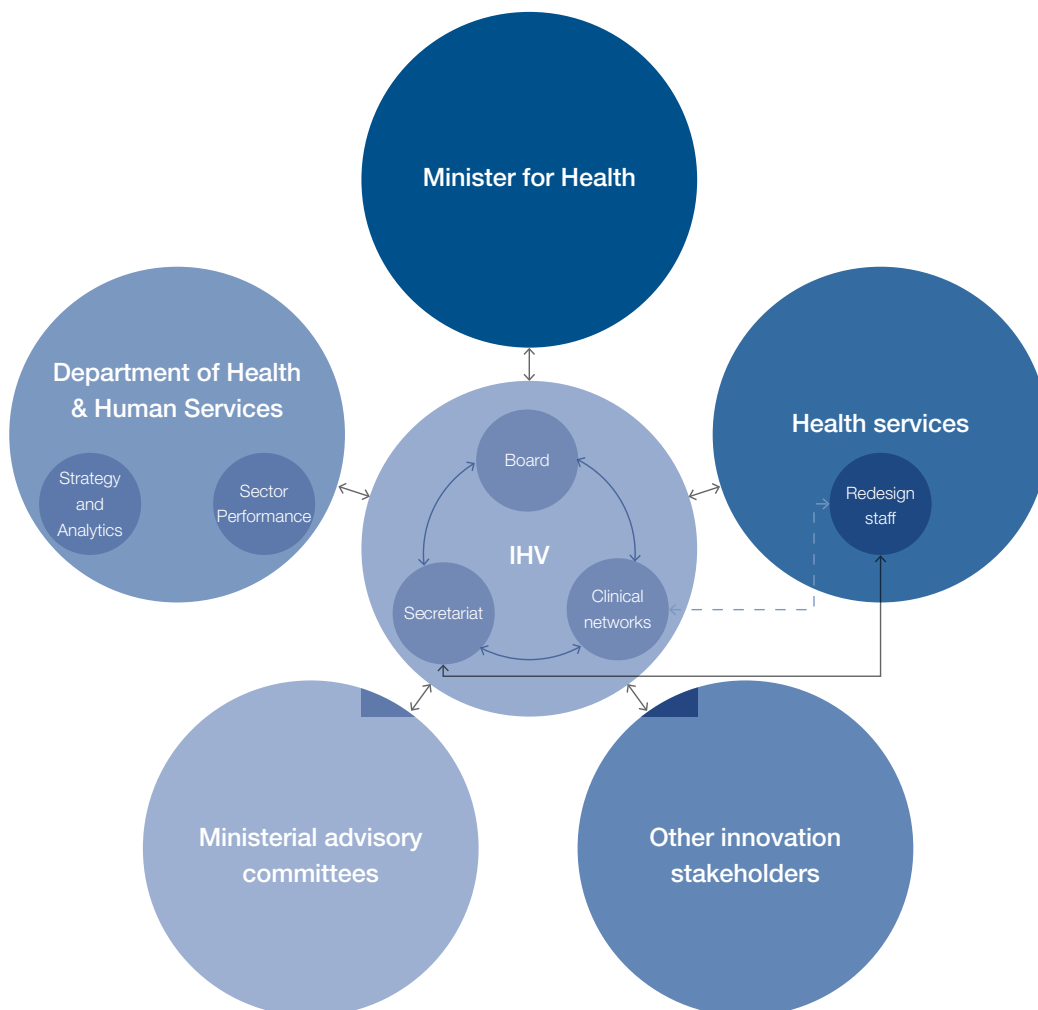
³² Announced by the Hon. Sussan Ley MP, Minister for Health on 28 March 2015

NMHCRC to encourage leadership at an internationally competitive level. The centres have been selected on the basis of excellence in research, the translation of evidence into excellent patient care including of the most complex cases, and with a strong research and translation focus in the education of health professionals. Strong communication links between IHV and the NMHCRC Advanced Health Research and Translation Centres will be necessary to maximise the strengths and complementary nature of respective work programs.

Finally IHV will need to ensure communication occurs more broadly with health services and the public. A formalised reporting system of activity and evaluation will need to be established, as well as interactive opportunities that facilitate the sharing of knowledge and information between IHV and stakeholders.

Recommendation 26. The executive chair of IHV commits to allocating sufficient time to the role to lead communication and stakeholder engagement for IHV.

Figure 5: Innovation communication flow between IHV and key stakeholders



2.10 Focus areas

The Travis Review held extensive consultations regarding the focus of innovation activities. The consultation threw up one consistent theme: a new innovation program should focus its efforts, at least initially, on a few areas and not try to tackle everything all at once.

The next area of debate was *Which areas should be the initial focus?* There are many areas and traditionally efforts have been focused on the emergency department and surgical processes. These areas are not perfect, but there is considerable in-house health service capability that is still looking at these matters. The burning recurring themes were in fact the less traditional change areas related to exiting the hospital and diverting admissions. An additional recurring theme was unwarranted clinical variation related to specific clinical activities. These matters were synthesised into four areas:

- chronic complex medical patients
- outpatients
- care outside the walls of the hospital supervised or performed by hospital staff
- variance of practice in delivering defined areas of care.

The main reason for these choices is that they represent a large proportion of health service activity that has the biggest potential gains from change. This change would involve better models of care. The first three involve promoting healthcare outside hospital rather than in hospital, albeit either by hospital staff or partnering with other providers.

Unexplained variance is largely an inpatient-related problem. The concept of variance analysis has gained momentum over the past decade. Variance means looking at the difference in outcomes between providers delivering the same care. Ideally the outcomes should be approximately equal; however, they are not.

The analysis of this type of data is in its early stages in Victoria and needs to continue. This does not mean to say that all other innovation is to stop; rather these should be the area of concentration of resources. Some or all of these focus areas will intersect with each of the clinical networks and be used as a guide for workplans. The focus areas are not meant to rigidly exclude other areas of innovation. It is envisaged that, over time, the focus areas will be changed or increased in number.

Recommendation 27. IHV initially focuses its activities on four areas:

- chronic complex medical patients
- outpatients
- care outside the walls of the hospital supervised or performed by hospital staff
- variance of practice in the delivery of care in defined areas.

2.11 Examples of potential innovations

The review sought proposals from health services and other stakeholders to provide examples of the kinds of innovation that could be supported. These are included as illustrations of the type of initiatives that IHV may want to sponsor, either to test new ideas or to scale up for implementation across all public health services. One example of a current innovative project sponsored by the department is also included.

Chronic complex medical patients

Integrated Complex Care Service

This model has been developed as a joint initiative through one of the metropolitan health services and a Medicare Local. It is proposed to target people who display an emerging complexity of care need, due to their combination of chronic conditions and physical and social risk factors that impact their ability to maintain health. This target group includes people who, though not currently requiring intensive service provision or frequent hospitalisation, are at risk of a rapid and substantial decline in health and wellbeing.

The Integrated Complex Care Service is designed to intervene before people experience decline and provide long term tailored support to individuals. Under a philosophy of patient-centred care planning, each enrolled patient will work in partnership with a team comprising their GP, a Care Coordinator and their carer. Affiliated GP clinics will be the physical 'home' for interactions between the patient and their team. Patients will also have rapid access to a purpose-specific chronic condition management clinic.

The total estimated net benefit over five years is \$2.1 million for 280 enrolled patients, assuming a two year pilot. The benefits result from an estimated saving of 3,502 acute bed days and 686 emergency department attendances over five years.

IHV would be able to help with seed funds and orchestrate a sustainable funding model. If this proves successful then IHV would help coordinate a rollout via with other health services and Primary Care Networks.

Children with Medical Complexity

The Royal Children's Hospital conducted a six-month pilot program supporting 20 high care need children using a case management approach. Over six months there was a reduction of 45 per cent of admitted bed days, 43 per cent of emergency department presentations and 7 per cent of outpatient attendances. While a family survey tool measured a 30 per cent improvement in the quality of care.

If this program was scaled up to 200 patients it is anticipated there would be a reduction of 1,400 WIES (\$6.1 million). It is anticipated the new care provided would cost \$1.1 million but none of that money can be recouped as it is all out of hospital non-admitted care. In essence The Royal Children's Hospital would lose \$7.2 million but create a gain of net \$5 million for the state and improved patient care.

A new funding model is needed to support the rollout of the program to allow a win for the hospital and for the patients.

Outpatients

A standardised approach to accessing outpatient services

The development of statewide standardised practices for outpatient consultation and reviews, along with a suite of referral pathways, were identified as key initiatives in improving system capacity and reducing avoidable hospital usage.

A health service proposed that standardised practices and processes include clear referral criteria and minimum information necessary for a suitable referral. Standardisation could be further enhanced through the use of information systems that pre-populate with referral details.

The development of referral pathways for different clinical streams based on best practice evidence should guide appropriate timeframes for initial specialist appointments, and inform standardised new-to-review ratios and patient discharge targets. Discharge from outpatient to primary care settings, and discharge processes generally, was a particular area identified in a number of submissions as requiring system innovation.

Standardisation of practices and pathways, also provides the opportunity to define optimal and alternative models for effective and efficient service delivery, including nurse-led clinics and telehealth based models.

A complementary proposal is the option of providing a centralised referral mechanism, similar to that provided in other jurisdictions. This could operate as a single portal for GPs to refer patients to all health services, and would provide up to date information on the clinics for health services so that the GP can choose the most appropriate option for the individual patient. In addition, this portal could provide estimates of waiting times for a first appointment to assist in selecting the most appropriate site for referral.

Back pain assessment clinic in primary care

A health service provided details on the elements of a collaborative model they implemented in partnership with a community health service. The model has successfully improved the capacity of outpatient services, reduced waiting times (six weeks compared to two years) and achieved high patient satisfaction, through the development of a back pain assessment clinic based in the community.

The model provides a single point of access triaging outpatient referrals that may be directed to various outpatient services streams, for assessment and appropriate management via the clinic. Evidence based specialist assessment and comprehensive management plans are developed through this model delivered by an advanced practice physiotherapist and rheumatology registrar overseen by a consultant rheumatologist, and underpinned by streamlined internal and external patient pathways.

The model shifts the focus of back pain care to the community and more appropriately uses the physiotherapy and rheumatology workforce to manage suitable patients rather than surgical specialists. It has enabled many people to avoid the unnecessary long wait for surgical assessment and facilitated quick access to proven non-surgical treatments.

It also dramatically shortened the waiting time for people who were likely to benefit from surgical intervention.

There is merit in expanding this model to other health services and conditions, as the drivers which led to the development of this model exist across the health system. IHV would help with the scaling up of this approach to back pain.

Care outside the walls of the hospital

Geriatric Evaluation and Management (GEM) at Home

The primary clinical purpose of GEM is to improve the functioning of a patient with multidimensional needs associated with medical conditions related to ageing.

'GEM at Home' is a relatively new model in Victoria, with only a few health services currently delivering this care type in a home setting. 'GEM at Home' can either be established as a Hospital in the Home (HITH)-type service – that is, with patients admitted as inpatients but the care delivered at home rather than in a ward – or as a non-admitted service. Multiple proposals were received regarding the value of establishing GEM at Home services as effective substitutions for inpatient care. Benefits include shorter stays in hospital for vulnerable older patients, care in the least restrictive setting and cost-effective care.

One submission to the review proposed an inpatient model for a GEM at Home program. The proposed program would deliver 24/7 services from medical, nursing, allied health and pharmacy professionals. The proposal suggests the resources required for inpatient-based GEM beds could support three times their equivalent in the home-based setting. The benefits in patient outcomes and cost-effectiveness suggest the model warrants further application across the system.

IHV would help with the funding arrangements and provide seed funding.

Developing scale and scope in Hospital in the Home (HITH)

A submission to the Travis Review commented that although HITH has been established as a service model by 52 hospital sites, it has not been fully embraced and valued as an alternative service model. The submission identifies that an opportunity exists for high-quality growth and development of the program by building the clinical culture and structure in HITH through encouragement and financial support for research, possibly in a 'centre of excellence', and development of a dedicated medical and nursing clinical workforce and curriculum.

The submission proposes establishing a 'HITH institution' (independent health service or cooperative of multiple health services) that could realise the benefits of scale and pooling of resources, and strengthen the role of HITH across the health system. The institution could undertake undergraduate and postgraduate medical training, and medical research. The institution could also establish a postgraduate HITH nursing training program.

Consistent with the recommendation in Part 1 of this report to put systems in place to encourage and facilitate the expansion of appropriate home-based care supervised from health services, the review noted that there is an opportunity to improve efficiency and effectiveness by expanding the scale and scope of HITH services.

This proposal demonstrates that there is further fertile ground for developing HITH services that merits further study.

Variance of practice

Seven-day service

One of the metropolitan health services introduced a seven-day service model of care to its general medicine wards in June 2013. The model ensures that, regardless of the day of the week, the same services are provided in the same way: senior consultant ward rounds, multidisciplinary team meetings, care planning and allied health and pharmacy services.

The program results in a reduction in average length of stay of 0.9 days with around 7,000 bed days saved over 12 months that were released to enable more timely treatment of other patients, predominantly elective surgery. The quality of care also improved with an 18 per cent reduction in mortality as a result of the more frequent patient reviews and multidisciplinary care planning. Discharge rates on the weekend doubled, enabling better flow through the emergency department. The service change was introduced with no change in cost; however, it did require changes to medical and allied health staff rosters and in some instances renegotiation of contracts.

The health service is now implementing the seven-day service across all its wards and units to ensure all patients receive the same level of care regardless of the day of the week. The health service used a robust redesign methodology with strong clinical and operational leadership, broad involvement from frontline staff, and input from patients.

This is an example of a program that could be scaled up for implementation across the state to improve patient experience and outcomes and provide more timely treatment through better patient flow. The implementation could be modelled on the National Demonstration Hospital Program, with a consortium of collaborating hospitals, supported by a lead hospital, working together to develop, pilot and implement the redesigned model of care in their local facilities.

Reducing variation in length of stay

One health service advised the Travis Review of an analysis undertaken by the Health Roundtable for its Victorian public hospital members on variation in length of stay of acute care episodes. This analysis demonstrated that 160,000 bed days (the equivalent of 515 beds) could be saved if the member hospitals reached the third best average stay in every diagnosis-related group (DRG). While the Health Roundtable analysis is not comprehensive,³³ it indicates the scale of the potential improvement that can be achieved. IHV may choose to seek early advice from the performance and data branches within the department on the opportunity for improvement.

³³ The Health Roundtable analysis uses the relative stay index method (RSI) which in essence compares each patient's length of stay with the expected length of stay for that patient. The expected length of stay is estimated by a stratification process to adjust for patient characteristics and factors that are outside the control of hospitals. The Health Roundtable does not have access to admitted patient data for all Victorian hospitals and consequently its calculation of expected length of stay includes data from other states and possibly New Zealand. Differences in clinical coding practices between different jurisdictions will affect the reliability of the stratification and hence the accuracy of the RSI analysis. The Department of Health & Human Services has developed an RSI tool that has been validated for use across the entire Victorian public hospital sector.

Analysis of geographic variation in healthcare

For decades health service researchers have documented extensive variation in the delivery of healthcare. Information on variation in healthcare is important for examining the impacts of policy and clinical decisions on the effectiveness and efficiency of care.

Variation in the use of different diagnostic tests, interventions and procedures can reflect differences in health needs or patient preferences. But where the use of different approaches is not determined by patient needs or preferences, it can signal either under- or over-utilisation of care (unwarranted care), which raises questions about the efficiency of the health system and overall performance.

The Department of Health & Human Services has undertaken a pilot project examining geographic variation in healthcare across Victorian local government areas (using a visual analytic program). Cardiac care was selected as the demonstration focus for the pilot. Data from both public and private health systems were analysed. The study included three specific cardiac procedures for adults: coronary artery bypass graft, percutaneous coronary intervention and cardiac catheterisation.

The amount of variation across local government areas was smallest for cardiac catheterisation (a 2.7-fold variation between the smallest and largest rates per 100,000) and largest for percutaneous coronary interventions (a 4.5-fold variation). Coronary artery bypass graft had a 2.9-fold variation. Large differences in rates of procedures persisted when the largest and smallest results were omitted from the analysis. Data analysed separately for the private and public sector resulted in larger folds of variation.

The Victorian Cardiac Clinical Network provided expert advice to the project.

A key observation was that the geographic data provides a leading indicator for health services and clinicians to undertake further analysis with additional data sources at a local level, in order to form a more complete picture of healthcare variation and its impact on patient outcomes.

At a system level, publishing meaningful and comparable geographic-level data as part of a wider focus on clinical variation provides a significant opportunity to improve the productivity of the Victorian health system. In practice it can be a key enabler and tool for promoting funding reform, efficient resource allocation, capital planning, compliance with best practice (clinical guidelines) and introducing patient-reported health outcome measures.

IHV would be involved with using the data generated to drive changes that created better utilisation.

Partnerships

Rural health service alliances

A joint proposal from Albury Wodonga Health, Tallangatta Health Service, Beechworth Health Service, Northeast Health Wangaratta and Upper Murray Health & Community Services was put forward to increase local system capacity through integrated operational planning, addressing variances in activity and demand. This would see a move from reactive locally focused day-to-day management of services to a proactive, planned, integrated regional and rural response to healthcare that manages demand and ensures patients are treated in a timely way in the appropriate setting.

Under this proposal a diagnostic performance tool available at Albury Wodonga Health would be extended and linked to the other four health services to enable integrated operational planning. This would be particularly useful for planning healthcare responses during periods of peak capacity, including winter.

This proposal provides just one example of the way in which collaboration can drive innovation to the benefit of patients and communities. Particular opportunities exist to build collaboration in rural and regional Victoria, especially to enhance capacity during peak periods or to better align services, staff and resourcing. These collaborations may then be applied elsewhere to the benefit of the whole system. IHV would play a key role in encouraging rural and regional health services to work together, as has been facilitated to date by the Department of Health & Human Services through the Strengthening Hospitals program. This program facilitates health services to work together to systematically improve service delivery.

2.12 Data

Data is essential to increasing useful capacity in the health system.

In undertaking health reform, innovation or ensuring efficiency and productivity, it is essential that any change can be quantified. Without the ability to measure the impact of any change on the health system there is no way to determine efficacy or impact.

Thus data is essential to understanding the health system and how it is functioning.

The role of data is to:

- monitor and measure what is occurring now
- assess the impact of any change on the performance of the health system
- provide an analysis of where the problems are and the opportunities for improvement
- allow comparison with similar systems interstate or overseas.

As such, data is critical to managing a health system.

The problem in health is not lack of data but information overload and a lack of proactive analysis of the performance of the system as a whole to identify the areas needing improvement or opportunities for change.

Much of the current approach to the data is to continue to collect information on specific areas of focus, for example, waiting lists and emergency department access. These are important but give a narrow view of performance and do not lead to innovative thinking regarding improvement. Data also continues to be collected for reasons that have been forgotten with time, and to answer questions when asked by the various divisions and groups across the health system that are no longer needed.

Thus active management of data collection and analysis is critical to improving the capacity of the health system.

In Victoria, management of the vast majority of data collections has recently been consolidated into a central data analytics group – the System Intelligence and Analytics Branch in the department. This is an important and positive development. Establishing data management capability that can be used for proactive analysis as well as providing data for various specific purposes is highly commendable and will serve as a major resource for innovation and productivity improvement.

National clinical quality registries are an important source of data for quality/outcome measurement. The Australian Commission on Safety and Quality in Health Care has developed the Framework for Australian clinical quality registries in collaboration with the states and territories and expert registry groups. The framework describes a mechanism by which jurisdictions can authorise and secure record-level data within high-priority clinical domains to measure, monitor and report on the appropriateness and effectiveness of healthcare. The information can be used to inform improvements in healthcare quality and safety and would be another valuable tool in IHV-driven innovation.

Data collection does carry a cost and bureaucratic burden on service providers. It is important not to collect data for data's sake. Data linkage can help reduce this burden by pursuing the holy grail of data: enter once but use many times.

In driving health innovation and efficiency, the first step is to decide what data is needed to drive the process. Data is a powerful tool for engaging both managers and clinicians in understanding the way the system functions now and the benefit of any changes proposed and implemented. It is critical to evaluating outcomes and for engaging staff in the process.

In terms of increasing health system capacity some of the key data are:

- the number of patients treated in the correct clinical timeframes by disease category, demographic characteristics and treating provider
- patient experience of the system
- waiting times
- patient health outcomes
- adverse events
- costs.

It is critical that the outcome of every patient treated within the public system can be tracked to determine the outcome. This continuous evaluation approach is essential to knowing how the whole system is working for the variety of patients who go through the health system.

Available technology should now be utilised to develop automated ways of capturing that data and allowing analysis, as needed, while protecting the privacy of individuals.

Victoria does not have a single electronic medical record system, but there are now ways to link disparate computer systems to allow them to communicate and integrate data effectively. This would allow better integration and cross-referencing of de-identified data, giving a better evidence base for whole-of-health-system decision making. This may take an investment of time and resources but is essential to gaining the most increase in capacity through innovation and process improvement methodologies.

The counterpoint of this data collection is the risk to privacy. This has been managed in other states and can be managed in Victoria. It is possible to de-identify the data but still allow data matching across various health providers at the state level. The NSW Health Bureau of Health Information has developed such a system over time and is able to interrogate information on groups of patients to identify problems and progress. The system allows individual health services to also interrogate the data for the benefit of self-improvement.

The establishment of the System Intelligence and Analytics Branch is an excellent development that can help inform the innovation process to increase health system capacity. It needs to further develop its data linkage capability and to ensure that skills are obtained to proactively interrogate the data for opportunities for improvement and also to monitor performance of the system as a whole.

Ideally this data would also be available to local sites rather than having duplicate systems for local use.

The relationship between IHV and the System Intelligence and Analytics Branch is vital to success. There should be a formal relationship between the two bodies. This could take the form of an annual written agreement between the two entities that identifies and formalises the functions to be provided.

Some of the potential key areas of regular reporting are:

- reports on performance in the specific areas of focus targeted for improvement by the IHV, by health service entity
- Identification of areas of poor performance from an access, patient outcome, patient experience or cost perspective for consideration of a targeted approach to improvement
- areas of significant variation in performance across the system or in comparison with other states or international performance again for possible targeted improvement.

Recommendation 28. The Department of Health & Human Services be encouraged to further develop the scope and expertise of the System Intelligence and Analytics Branch to enhance an evidence-based approach to innovation.

Recommendation 29. The System Intelligence and Analytics Branch works closely with and supports IHV, and this should be supported by an annual written agreement.

Recommendation 30. Evaluation of the success of innovations sponsored by IHV should take into account international benchmark data.

2.13 Addressing barriers to innovation

Funding barriers

Innovation in the way healthcare is delivered needs to be focused on delivering care in the best setting, by the most appropriate provider, to meet the needs of the patient and deliver optimal outcomes. While the long-term focus on activity-based funding for health services in Victoria has driven technical efficiency in the delivery of episodic acute care, it has not been as successful in promoting better health outcomes for those with chronic and complex conditions because it provides little incentive to manage care in a more integrated manner.

At the state level, funding is heavily focused on hospital admissions, and the National Health Reform changes introduced in 2011 extended this focus to the Commonwealth contribution to hospital funding. As a result, converting activity-based funding for acute inpatient episodes to more flexible and proactive services requires an agreement to be reached between the Commonwealth and the state. Models of care that might be better delivered out of hospital and by non-hospital community practitioners are difficult to fund under the current activity-based funding models.

For example, a hospital spends money on a staff member to case manage a person with chronic complex health problems with the aim of preventing hospital admissions. This is a good activity, is often successful, prevents admissions and the person stays healthier. Unfortunately the funding system rules only allow a hospital to be paid for an admission. Under current rules it is not paid for the staff salary to keep someone out of hospital even though it is cheaper and better for the patient, and so the hospital loses money. In this situation the innovation needs to be coupled with a change in funding policy.

All services require funding and all funding in the health sector is governed by rules. These rules are there to protect the public interest and usually limit the manner in which the funds can be used. This is sensible and necessary. However, part of the innovation needed to increase the capacity of the health system within current resources requires the development of new approaches and new rules to funding the most cost-effective ways to deliver healthcare. This is a very complex area because of the division of funding between Commonwealth and state governments and the need to be clear about avoiding cost shifting.

New approaches to care redesigned through the IHV initiatives will need to allow for much greater flexibility in how care is provided and hence funded. This will need the capacity to develop new funding models and, if necessary, approaches to pooling of funds between the Commonwealth and Victorian governments and/or between entities such as health services and Primary Health Networks or between health services.

The new Primary Health Networks will provide a vehicle for exploring new models of care that potentially integrate services between Commonwealth-funded primary care and hospital care. There is a willingness at both state and federal departments of health to explore better models for integrated care. The source of funding for services that cross this interface is often a barrier to their development. There is an opportunity for a third party such as IHV to act as a facilitator of these discussions and to identify models that work and approaches to funding for the consideration of both Commonwealth and state governments. IHV would be ideally placed to broker dialogue between the Primary Health Networks and groups of health services to encourage the development of models of care that cross the divide. This dialogue would identify barriers that need to be overcome by specific innovation agreements between Commonwealth and state governments to allow such trials to proceed.

Thus IHV will need to work with the relevant areas of the department and, where appropriate, external consultants with the relevant expertise in funding reform, to identify and develop new funding models that can remove barriers between in-hospital and out-of-hospital care. This will allow much greater flexibility in where patients are treated and by which providers.

In addition, IHV will need to be able to contribute to the dialogue with the state and Commonwealth governments and other health entities (including in the private sector) to progress models that require cooperation with private providers and non-government organisations.

These types of initiatives require different skills from those learned through managing local health services and as such will need to be accessed by IHV through other expertise within the department or through external consultants with the relevant expertise.

New initiatives and new thinking in this space is required to overcome the barriers built into the multiple funding systems inherent in the Australian health system, namely: Commonwealth government, state government, private health insurance and patient payments, as well as the divide between healthcare funding and aged care/disability funding.

Governance barriers

Victoria has had a long and proud tradition of devolved governance that has resulted in 86 separate public health services. While there are many benefits to this arrangement, it creates a governance barrier that can make collaboration more difficult. The Strengthening Hospitals program is a good example of inter-health-service cooperation in the Victorian context. Under this model a jointly agreed network operating model will allow groups of hospitals to collaborate more systematically on service delivery, the attraction and retention of staff, resourcing and planning.

Health services will also need to work closely with other organisations, such as the new Primary Health Networks, to develop and embed the innovation required to improve care provided outside the hospital walls. IHV will be ideally placed to help broker agreements between health services.

Recommendation 31. IHV brokers dialogue between the multiple healthcare-related organisations to facilitate new models of care that cross traditional boundaries of care.

2.14 Innovative Health: Victoria Fund

A recurring theme from people who have rolled out innovation is that huge results can be achieved if there is a small amount of seed money or even ‘reward’ money – money that is disbursed on achievement of key performance indicators. Health services cannot divert funding from current patient services to experiment with new models. Thus it is critical that there is a specific allocation of new funds to seed innovation development and rollout. It is proposed that funds be made available to health services to facilitate innovation.

The IHV Fund needs to be new money as it is often the lack of that initial extra start-up expense that snuffs out the spark of innovation. It is necessary to change the mindset of *Why bother, it's too hard to get the extra initial money, the budgets are too tight, we just have to keep treating patients*. To encourage and foster innovation it has to be made easier. A separate allocation of funds is a key element to initiate change.

The announcement of new funding by the government will provide a strong signal to both the general community and health professionals that it wants new ideas and innovative solutions. The government has an important role in stimulating a different way of thinking about how healthcare can be provided.

The money should be allocated through governance processes that reside in the IHV board but are consistent with departmental grant allocation requirements to be set out in the annual policy and funding guidelines.

Funded activities would fall into three main streams:

1. health-service-initiated proposals
2. IHV-suggested proposals that result from observed data or scaling up activities
3. IHV-auspiced activities that cross the state–federal government funding domains.

The activities should align with the focus areas of IHV unless there are overriding reasons in individual cases. The projects should be of a sufficient size to produce meaningful results, either positive or negative. Effectively this would limit proposal funding to the 30 or so largest health services or groupings of health services that provide sufficient scale. Smaller health services will be encouraged to collaborate with other local health services to ensure the innovations have system-wide impact. IHV would have a focus on improving collaboration across the entire system, and across rural and regional areas in particular, to share knowledge and collaboration on innovations which have a broader system impact.

It is anticipated that the funding would be in the order of \$250,000 per project. This money is incentive money to participate and not specifically tied to individual expenses of a project such as a project officer's salary. The payment would be in two parts, with 50 per cent initially on acceptance of a proposal. The second payment is not conditional on success, rather completion and reporting of agreed outcomes. All activities will need to have firm measurable outcomes sufficient to determine success or failure.

Subject to available funding, health services would be encouraged to undertake one project in each of the four focus areas each year, which could either be a new innovation or to scale up a proven innovation. Projects may run for longer than a year. The funds are to facilitate innovation, not fund operational activity. This funding would be separate from, and additional to, the already allocated funding for health services under the Redesigning Hospital Care Program. This program has been critical to building capability for innovation in health services and should be continued.

Recommendation 32. An Innovative Health: Victoria Fund be established and its funds be used to encourage innovation by (i) testing innovation opportunities and (ii) scaling up proven innovations for tailored local implementation across the system.

Appendices

Appendix 1: List of health services by groups

Major metropolitan health services

Alfred Health
Austin Health
Barwon Health
Eastern Health
Melbourne Health
Mercy Health
Monash Health
Northern Health
Peninsula Health
St Vincent's Hospital Melbourne
The Royal Children's Hospital
Western Health

Specialist metropolitan health services

Calvary Health Care Bethlehem
Dental Health Services Victoria
Peter MacCallum Cancer Centre
The Royal Victorian Eye and Ear Hospital
The Royal Women's Hospital

Regional and subregional health services

Albury Wodonga Health
Bairnsdale Regional Health Services
Ballarat Health Services
Bendigo Health Care Group
Central Gippsland Health Service
Echuca Regional Health
Goulburn Valley Health
Latrobe Regional Hospital
Mildura Base Hospital
Northeast Health Wangaratta
South West Healthcare
Swan Hill District Health
West Gippsland Health Care Group
Western District Health Service
Wimmera Health Care Group

Local and small rural health services

Alexandra District Hospital
Bass Coast Health
Beaufort and Skipton Health Service
Beechworth Health Service
Benalla Health
Boort District Health
Casterton Memorial Hospital
Castlemaine Health
Cobram District Health
Cohuna District Hospital
Colac Area Health
Djerriwarrh Health Services
Dunmunkle Health Services
East Grampians Health Service
East Wimmera Health Service
Edenhope and District Memorial Hospital
Gippsland Southern Health Service
Heathcote Health
Hepburn Health Service
Hesse Rural Health Service
Heywood Rural Health
Inglewood and Districts Health Service
Kerang and District Health
Kilmore and District Hospital
Kooweerup Regional Health Services
Kyabram and District Health Services
Kyneton District Health Service
Lorne Community Hospital
Maldon Hospital
Mansfield District Hospital
Maryborough District Health Service
Moyne Health Services
Nathalia District Hospital
Numurkah District Health Service
Omeo District Health
Portland District Health
Rochester and Elmore District Health Service
Rural Northwest Health
Seymour District Memorial Hospital
South Gippsland Hospital
Stawell Regional Health
Tallangatta Health Service
Terang and Mortlake Health Service
West Wimmera Health Service
Yarram and District Health Service
Yarrawonga District Health Service
Yea and District Memorial Hospital

Multipurpose services

Alpine Health
Mallee Track Health and Community Service
Orbost Regional Health
Otway Health and Community Services
Robinvale District Health Services
Timboon and District Healthcare Service
Upper Murray Health and Community Services

Appendix 2: Health service visits

| Health service | Date visited (2015) | Visitor |
|--|----------------------------|---------------------|
| Albury Wodonga Health | 27 February | K McGrath |
| Alexandra District Health Service | 2 March | D Travis |
| Alfred Health | 17 February | D Travis |
| Austin Health | 27 February | D Travis |
| Ballarat Health Services | 16 February | K McGrath |
| Barwon Health | 10 February | D Travis |
| Bass Coast Regional Health | 6 February | D Travis |
| Bendigo Health | 16 February | D Travis |
| Castlemaine Health | 16 February | D Travis |
| Dental Health Services Victoria | 3 March | D Travis |
| Djerriwarrh Health Services | 16 February | K McGrath |
| Eastern Health | 2 February | D Travis |
| Echuca Regional Health | 13 February | D Travis |
| Goulburn Valley Health | 5 February | K McGrath |
| Hepburn Health Service | 25 February | D Travis |
| Kilmore and District Hospital | 2 February | D Travis |
| Kyabram and District Health Service | 13 February | D Travis |
| Kyneton District Health | 16 February | D Travis |
| Latrobe Regional Hospital | 6 February | D Travis |
| Melbourne Health | 25 February | D Travis |
| Mercy Health (Werribee) | 23 February | K McGrath |
| Mildura Base Hospital | 28 January | D Travis |
| Monash Health | 20 February | K McGrath |
| Northern Health | 2 February and 25 February | K McGrath, D Travis |
| Peninsula Health | 10 February | K McGrath |
| Rochester and Elmore District Health Service | 13 February | D Travis |
| Seymour Health | 2 March | D Travis |
| St Vincent's Hospital Melbourne | 18 February | K McGrath |
| The Royal Children's Hospital | 11 February | D Travis |
| The Royal Victorian Eye and Ear Hospital | 11 February | D Travis |
| The Royal Women's Hospital | 30 January | D Travis |
| West Gippsland Healthcare Group | 6 February | D Travis |
| Western Health | 23 February | K McGrath |
| Yarrawonga District Health Service | 27 February | K McGrath |

Appendix 3: Total and generally available inpatient POC by health service

| Health service group and name | Total POC | Generally available POC |
|--|-----------|-------------------------|
| Major metropolitan | | |
| Alfred Health | 992 | 952 |
| Austin Health | 857 | 794 |
| Barwon Health | 678 | 529 |
| Eastern Health | 1,205 | 977 |
| Melbourne Health | 707 | 677 |
| Mercy Health | 398 | 356 |
| Monash Health | 1,537 | 1,427 |
| Northern Health | 547 | 497 |
| Peninsula Health | 711 | 620 |
| St Vincent's Hospital Melbourne | 587 | 555 |
| The Royal Children's Hospital | 362 | 315 |
| Western Health | 911 | 792 |
| Specialist metropolitan | | |
| Calvary Health Care Bethlehem | 60 | 60 |
| Dental Health Services Victoria | 20 | 20 |
| Peter MacCallum Cancer Centre | 143 | 124 |
| The Royal Victorian Eye and Ear Hospital | 59 | 59 |
| The Royal Women's Hospital | 233 | 217 |
| Regional and subregional | | |
| Albury Wodonga Health | 275 | 257 |
| Bairnsdale Regional Health Service | 109 | 101 |
| Ballarat Health Services | 342 | 317 |
| Bendigo Health Care Group | 317 | 311 |
| Central Gippsland Health Service | 124 | 105 |
| Echuca Regional Health | 122 | 91 |
| Goulburn Valley Health | 232 | 211 |
| Latrobe Regional Hospital | 237 | 222 |
| Mildura Base Hospital | 140 | 122 |
| Northeast Health Wangaratta | 145 | 131 |
| South West Healthcare | 202 | 180 |
| Swan Hill District Health | 64 | 64 |
| West Gippsland Healthcare Group | 86 | 86 |
| Western District Health Service | 88 | 88 |
| Wimmera Health Care Group | 97 | 87 |

| Health service group and name | Total POC | Generally available POC |
|--|-----------|-------------------------|
| Local and small rural | | |
| Alexandra District Hospital | 29 | 16 |
| Bass Coast Health | 60 | 54 |
| Beaufort and Skipton Health Service | 10 | 10 |
| Beechworth Health Service | 9 | 2 |
| Benalla Health | 50 | 40 |
| Boort District Health | 9 | 9 |
| Casterton Memorial Hospital | 15 | 15 |
| Castlemaine Health | 60 | 46 |
| Cobram District Health | 14 | 14 |
| Cohuna District Hospital | 18 | 18 |
| Colac Area Health | 53 | 40 |
| Djerriwarrh Health Services | 68 | 64 |
| Dunmunkle Health Services | 2 | 2 |
| East Grampians Health Service | 57 | 54 |
| East Wimmera Health Service | 43 | 43 |
| Edenhope and District Memorial Hospital | 20 | 15 |
| Gippsland Southern Health Service | 51 | 51 |
| Heathcote Health | 8 | 8 |
| Hepburn Health Service | 30 | 30 |
| Hesse Rural Health Service | 5 | 4 |
| Heywood Rural Health | 5 | 5 |
| Inglewood and Districts Health Service | 7 | 7 |
| Kerang District Health | 18 | 18 |
| Kilmore and District Hospital | 58 | 21 |
| Kooweerup Regional Health Service | 12 | 6 |
| Kyabram and District Health Services | 46 | 42 |
| Kyneton District Health Service | 35 | 24 |
| Lorne Community Hospital | 6 | 6 |
| Maldon Hospital | 4 | 2 |
| Mansfield District Hospital | 26 | 26 |
| Maryborough District Health Service | 48 | 48 |
| Moyne Health Services | 15 | 15 |
| Nathalia District Hospital | 6 | 6 |
| Numurkah District Health Service | 21 | 21 |
| Omeo District Health | 4 | 4 |
| Portland District Health | 68 | 53 |
| Rochester and Elmore District Health Service | 12 | 12 |

| Health service group and name | Total POC | Generally available POC |
|--|---------------|-------------------------|
| Local and small rural | | |
| Rural Northwest Health | 23 | 16 |
| Seymour Health | 34 | 28 |
| South Gippsland Hospital | 16 | 16 |
| Stawell Regional Health | 46 | 38 |
| Tallangatta Health Service | 13 | 13 |
| Terang and Mortlake Health Service | 26 | 19 |
| West Wimmera Health Service | 52 | 44 |
| Yarram and District Health Service | 23 | 23 |
| Yarrawonga District Health Service | 27 | 27 |
| Yea and District Memorial Hospital | 10 | 10 |
| Multipurpose | | |
| Alpine Health | 41 | 41 |
| Mallee Track Health and Community Service | 14 | 8 |
| Orbost Regional Health | 14 | 14 |
| Otway Health | 4 | 4 |
| Robinvale District Health Services | 23 | 23 |
| Timboon and District Healthcare Service | 13 | 13 |
| Upper Murray Health and Community Services | 13 | 13 |
| Total | 13,981 | 12,545 |

Note:

POC include additional capacity (new infrastructure) planned to be completed by early 2015–16 and reflect some major reconfigurations between campuses of the one health service due to take effect on or before July 2015. Data excludes mental health POC located on public health service sites, transition care and other non-acute patient accommodation and any off-site POC.

Appendix 4: Total and generally available emergency department, urgent care unit and primary care centre treatment spaces by health service

| Health service group and name | Total POC | Generally available POC |
|--|-----------|-------------------------|
| Major metropolitan | | |
| Alfred Health | 47 | 47 |
| Austin Health | 46 | 45 |
| Barwon Health | 44 | 35 |
| Eastern Health | 108 | 81 |
| Melbourne Health | 48 | 43 |
| Mercy Health | 39 | 25 |
| Monash Health | 118 | 118 |
| Northern Health | 67 | 48 |
| Peninsula Health | 53 | 53 |
| St Vincent's Hospital Melbourne | 45 | 45 |
| The Royal Children's Hospital | 38 | 38 |
| Western Health | 89 | 84 |
| Specialist metropolitan | | |
| Dental Health Services Victoria | 8 | 8 |
| The Royal Victorian Eye and Ear Hospital | 13 | 13 |
| The Royal Women's Hospital | 15 | 15 |
| Regional and subregional | | |
| Albury Wodonga Health | 37 | 37 |
| Bairnsdale Regional Health Service | 11 | 11 |
| Ballarat Health Services | 31 | 30 |
| Bendigo Health Care Group | 21 | 21 |
| Central Gippsland Health Service | 11 | 9 |
| Echuca Regional Health | 20 | 20 |
| Goulburn Valley Health | 21 | 15 |
| Latrobe Regional Hospital | 17 | 17 |
| Mildura Base Hospital | 19 | 18 |
| Northeast Health Wangaratta | 15 | 15 |
| South West Healthcare | 18 | 18 |
| Swan Hill District Health | 9 | 9 |
| West Gippsland Healthcare Group | 20 | 20 |
| Western District Health Service | 7 | 7 |
| Wimmera Health Care Group | 10 | 10 |

| Health service group and name | Total POC | Generally available POC |
|---|-----------|-------------------------|
| Local and small rural | | |
| Alexandra District Hospital | 6 | 6 |
| Bass Coast Health | 11 | 10 |
| Beaufort and Skipton Health Service | 2 | 2 |
| Beechworth Health Service | 1 | 1 |
| Benalla Health | 7 | 7 |
| Boort District Health | 2 | 2 |
| Casterton Memorial Hospital | 4 | 4 |
| Castlemaine Health | 7 | 7 |
| Cobram District Health | 3 | 3 |
| Cohuna District Hospital | 4 | 4 |
| Colac Area Health | 6 | 5 |
| Djerriwarrh Health Services | 10 | 10 |
| Dunmunkle Health Services | 1 | 1 |
| East Grampians Health Service | 7 | 7 |
| East Wimmera Health Service | 10 | 10 |
| Edenhope and District Memorial Hospital | 1 | 1 |
| Gippsland Southern Health Service | 7 | 7 |
| Heathcote Health | 2 | 2 |
| Hepburn Health Service | 3 | 3 |
| Hesse Rural Health Service | 2 | 2 |
| Heywood Rural Health | 2 | 2 |
| Inglewood and Districts Health Service | 2 | 2 |
| Kerang District Health | 2 | 2 |
| Kilmore and District Hospital | 5 | 3 |
| Kyabram and District Health Services | 5 | 5 |
| Kyneton District Health Service | 4 | 4 |
| Lorne Community Hospital | 4 | 4 |
| Maldon Hospital | 1 | 1 |
| Mansfield District Hospital | 3 | 3 |
| Maryborough District Health Service | 5 | 5 |
| Moyne Health Services | 4 | 4 |
| Nathalia District Hospital | 7 | 7 |
| Numurkah District Health Service | 4 | 4 |
| Omeo District Health | 3 | 3 |
| Portland District Health | 8 | 8 |

| Health service group and name | Total POC | Generally available POC |
|--|--------------|-------------------------|
| Rochester and Elmore District Health Service | 2 | 2 |
| Local and small rural | | |
| Rural Northwest Health | 3 | 3 |
| Seymour Health | 5 | 5 |
| South Gippsland Hospital | 4 | 4 |
| Stawell Regional Health | 5 | 5 |
| Tallangatta Health Service | 1 | 1 |
| Terang and Mortlake Health Service | 4 | 4 |
| West Wimmera Health Service | 23 | 23 |
| Yarram and District Health Service | 2 | 2 |
| Yarrawonga District Health Service | 3 | 3 |
| Yea and District Memorial Hospital | 4 | 4 |
| Multipurpose | | |
| Alpine Health | 12 | 12 |
| Mallee Track Health and Community Service | 3 | 3 |
| Orbost Regional Health | 4 | 4 |
| Otway Health | 3 | 3 |
| Robinvale District Health Services | 2 | 2 |
| Timboon and District Healthcare Service | 2 | 2 |
| Upper Murray Health and Community Services | 2 | 2 |
| Total | 1,284 | 1,190 |

Notes:

POC include resuscitation bays, cubicles (trolley and chair), consulting rooms (general, specific/restricted use) treatment/procedure rooms and behavioural assessment rooms.

Health services without designated emergency departments were grouped as urgent care services or primary care services according to their designation under the trauma system as published in Trauma towards 2014: Review and future directions of the Victorian State Trauma System (Department of Human Services 2009).

Appendix 5: Total and generally available operating theatres by health service

| Health service group and name | Total POC | Calculated theatre use |
|--|-----------|------------------------|
| Major metropolitan | | |
| Alfred Health | 19 | 16.8 |
| Austin Health | 19 | 14.6 |
| Barwon Health | 12 | 11.4 |
| Eastern Health | 20 | 17.1 |
| Melbourne Health | 12 | 12 |
| Mercy Health | 8 | 5.8 |
| Monash Health | 27 | 25.2 |
| Northern Health | 9 | 8.2 |
| Peninsula Health | 9 | 8.8 |
| St Vincent's Hospital Melbourne | 12 | 11.6 |
| The Royal Children's Hospital | 14 | 12.3 |
| Western Health | 18 | 15.3 |
| Specialist metropolitan | | |
| Dental Health Services Victoria | 3 | 2.4 |
| Peter MacCallum Cancer Centre | 5 | 4.3 |
| The Royal Victorian Eye and Ear Hospital | 8 | 7 |
| The Royal Women's Hospital | 5 | 4.8 |
| Regional and subregional | | |
| Albury Wodonga Health | 7 | 4.1 |
| Bairnsdale Regional Health Service | 2 | 1.9 |
| Ballarat Health Services | 6 | 5.6 |
| Bendigo Health Care Group | 5 | 5 |
| Central Gippsland Health Service | 2 | 1.7 |
| Echuca Regional Health | 3 | 2 |
| Goulburn Valley Health | 3 | 3 |
| Latrobe Regional Hospital | 4 | 4 |
| Mildura Base Hospital | 3 | 2.2 |
| Northeast Health Wangaratta | 3 | 2.3 |
| South West Healthcare | 4 | 3.5 |
| Swan Hill District Health | 2 | 0.9 |
| West Gippsland Healthcare Group | 2 | 1.7 |
| Western District Health Service | 2 | 1.6 |
| Wimmera Health Care Group | 2 | 1.7 |

| Health service group and name | Total POC | Calculated theatre use |
|--|------------|------------------------|
| Local and small rural | | |
| Alexandra District Hospital | 1 | 0.3 |
| Bass Coast Health | 1 | 0.8 |
| Benalla Health | 2 | 0.5 |
| Casterton Memorial Hospital | 1 | 0.05 |
| Castlemaine Health | 2 | 1.2 |
| Cobram District Health | 1 | 0.3 |
| Cohuna District Hospital | 1 | 0.2 |
| Colac Area Health | 2 | 1.4 |
| Djerriwarrh Health Services | 2 | 1.9 |
| East Grampians Health Service | 2 | 1.3 |
| Gippsland Southern Health Service | 3 | 1.5 |
| Hepburn Health Service | 1 | 0.2 |
| Kerang District Health | 1 | 0.4 |
| Kilmore and District Hospital | 2 | 0.5 |
| Kyabram and District Health Services | 1 | 0.8 |
| Kyneton District Health Service | 2 | 0.9 |
| Mansfield District Hospital | 1 | 0.2 |
| Maryborough District Health Service | 1 | 0.9 |
| Numurkah District Health Service | 1 | 0.2 |
| Portland District Health | 2 | 1.6 |
| Rochester and Elmore District Health Service | 1 | 0.2 |
| Seymour Health | 1 | 0.7 |
| South Gippsland Hospital | 1 | 0.3 |
| Stawell Regional Health | 2 | 0.8 |
| Terang and Mortlake Health Service | 1 | 0.2 |
| West Wimmera Health Service | 1 | 0.4 |
| Yarrawonga District Health Service | 1 | 0.3 |
| Multipurpose | | |
| Orbost Regional Health | 1 | 0.02 |
| Timboon and District Healthcare Service | 1 | 0.2 |
| Total | 290 | 237.1 |

Notes:

The average utilisation of operating theatres was calculated from the monthly (in-hours) operating theatre schedule submitted by relevant health services.

Out-of-hours utilisation of theatres is highly variable and was not calculated.

Appendix 6: List of submissions provided to the final stage of the review

Health services

Alexandra District Hospital
Alfred Health
Austin Health
Ballarat Health Services
Bendigo Health
Boort District Health
Calvary Health Care Bethlehem
Cohuna District Hospital
Dental Health Services Victoria
East Grampians Health Service
Eastern Health
Heathcote Health
Melbourne Health
Mercy Health Inc.
Northern Health
Northeast Health Wangaratta
Orbost Regional Health
Peninsula Health
Peter MacCallum Cancer Centre
St Vincent's Hospital Melbourne
Stawell Regional Health
The Royal Children's Hospital
The Royal Victorian Eye and Ear Hospital
The Royal Women's Hospital
Western Health

Health service alliances/joint submissions

Goulburn Valley Health initiative:

- Benalla Health
- Cobram District Health
- Goulburn Valley Health
- Kyabram and District Health Services
- Numurkah District Health Service
- Seymour Health

Upper Hume Alliance:

- Albury Wodonga Health
- Beechworth Health Service
- Northeast Health Wangaratta
- Tallangatta Health Service
- Upper Murray Health and Community Services

Organisations

- Australian Medical Association (Victoria)
- Australian Nursing and Midwifery Federation (Victorian Branch)
- Networking Health Victoria
- Victorian Healthcare Association

Individual

Associate Professor Michael Montalto, Unit Head, Hospital in the Home,
The Royal Melbourne Hospital

Abbreviations

| | |
|---------------|---|
| ACI | Agency for Clinical Innovation (New South Wales) |
| CARU | Clinical Access and Redesign Unit (Queensland) |
| CCOPMM | Consultative Council on Obstetrics and Paediatric Mortality and Morbidity |
| CCU | coronary care unit |
| CHI | Commission for Hospital Improvement |
| EFT | equivalent full time |
| GEM | geriatric evaluation and management |
| GP | general practitioner |
| HIP | Health Independence Program |
| HIRC | Health Innovation and Reform Council |
| HIS | Healthcare Improvement Scotland |
| HITH | Hospital in the Home |
| ICU | intensive care unit |
| IHI | Institute for Healthcare Improvement (United States of America) |
| IHV | Innovative Health: Victoria |
| NHMRC | National Health and Medical Research Council |
| NHS | National Health Services (England) |
| NHS IQ | National Health Service Improving Quality (England) |
| NICU | neonatal intensive care unit |
| NSW | New South Wales |
| POC | point of care |
| RHCP | Redesigning Hospital Care Program |
| RSI | Relative Stay Index |
| SCN | special care nursery |
| WIES | weighted inlier equivalent separation |

