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Final Report

Indian Ocean Territories Health Service

Department of Infrastructure, Regional Development and Cities

IOTHS 5 Year Strategy

26 March 2019

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Executive summary

Background, context, and objectives

The Indian Ocean Territories (IOTs) comprise Christmas Island and the Cocos (Keeling) Islands. Located to the northwest of mainland Australia in the Indian Ocean, they are some of the most remote communities in the country, with small resident populations and economies centred on phosphate mining and the Immigration Detention Centre (Christmas Island) and tourism. The IOTs are historically and culturally distinctive, with religious and linguistic diversity.

The Indian Ocean Territories Health Service (IOTHS) is a stand-alone health service operated by the Department of Infrastructure, Regional Development and Cities (Infrastructure). It provides a mix of primary care, dental, and emergency health services to the communities of Christmas Island and the Cocos (Keeling) Islands. A range of health services, including complex and specialist procedures, emergency medicine, and birthing services, are provided in Western Australia (WA) to IOT residents through a Service Delivery Arrangement (SDA) between Infrastructure and the WA Government. The SDA also establishes advisory facilities which can be utilised by the IOTHS.

Aside from a private psychologist, school psychologist, therapy assistant, and the Immigration Detention Centre (IDC) clinic on Christmas Island, there are no other health care providers on the IOTs. The IDC's clinic does not serve the general population.

Like many parts of mainland Australia, the health and health care needs of the IOT communities are changing – the population is ageing and is exhibiting the increased levels of many of the chronic diseases associated with this trend. Economic changes (driven by changes in activity at the IDC and phosphate mine) suggest that the population of Christmas Island will decline between 2019 and 2023, although in some scenarios it may increase to over 3,000 residents. The population of the Cocos (Keeling) Islands is likely to remain stable. There are also emerging areas of service need and potential for improvement and alignment with comparator services.

As a result of these changes, Infrastructure determined that there was a need to develop a strategy for the IOTHS which outlines how services could be better aligned with the changing needs on Christmas Island and the Cocos (Keeling) Islands, within the existing budget. In March 2018, PwC was engaged by Infrastructure to develop a detailed five year strategy to improve the services provided by IOTHS, which will inform a program of work to enable the IOTHS to maintain high performance.

The objectives of this strategy development required by Infrastructure under this engagement were to identify:

1. The nature, scope and delivery of healthcare in the Indian Ocean Territories;
2. Optimal staffing and governance arrangements for the IOTHS;
3. Opportunities for private sector involvement in the delivery of services;
4. Best practice record management systems, as well as optimising existing EHealth and Telehealth service and utilisation; and
5. Options for delivery of aged care service.

Needs assessment

The needs assessment undertaken as part of this five-year strategic plan included quantitative and qualitative analysis of health determinants, health behaviours and status, and service needs with respect to a set of relevant comparators (Section 2.2).

This analysis was complemented with a series of community and clinical consultations with stakeholders from across Christmas Island and the Cocos (Keeling) Islands (Section 2.2.4). The findings of the analysis and consultations were then synthesised to identify priority needs which could be addressed with strategic initiatives (Section 2.3).

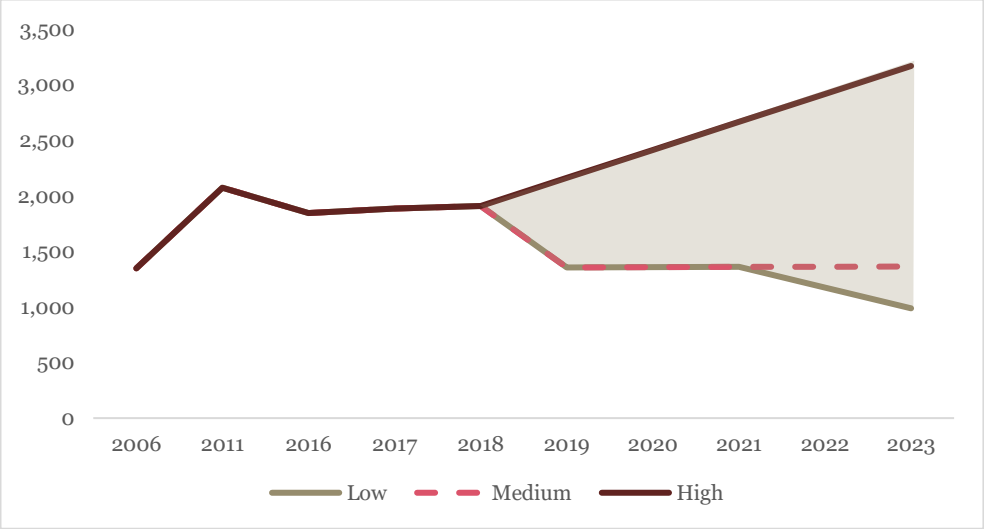
The key points which emerged from the needs assessment are summarised below.

Health determinants – key points

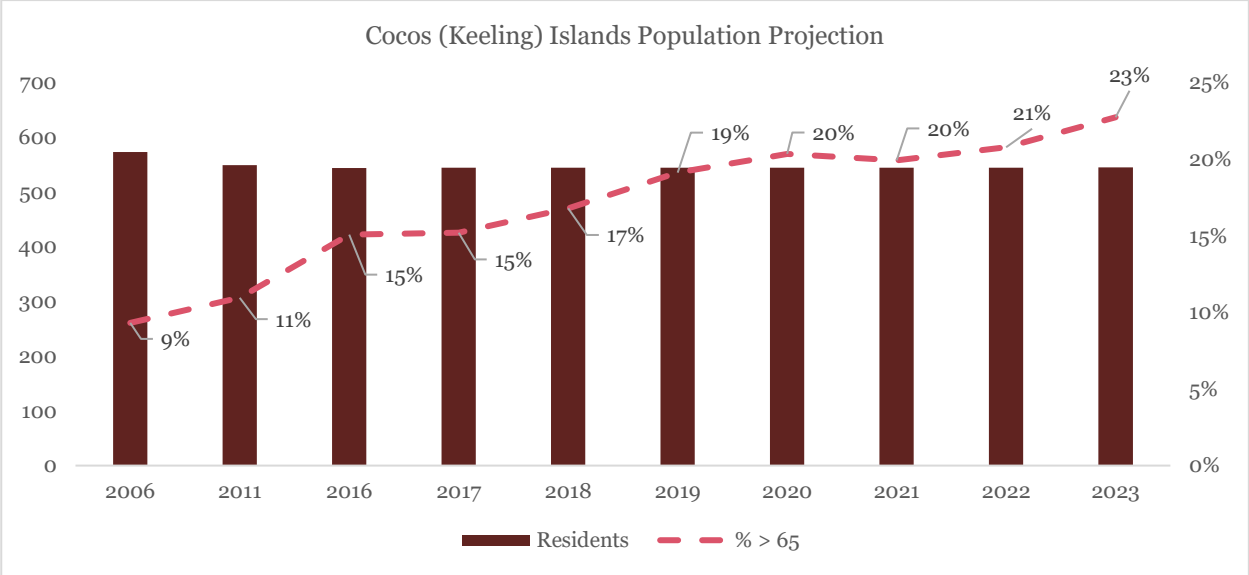
Individual characteristics

The underlying resident populations on the IOTs are ageing, although Christmas Island has experienced population fluctuations due to the IDC operations. The small size of the IOTs amplifies the effect of major economic shifts on the overall population. To reflect this, a range of population estimates for Christmas Island have been projected, from 929 to 3,054 people in 2023, based upon three economic scenarios (not including visitors). Briefly, the three scenarios considered were:

- Low scenario – the IDC goes into "hot contingency" and remains unused for the strategic period of 2019 to 2023. The mine scales down operations towards the end of the period, in line with current projections of the remaining life of known phosphate deposits.
- Middle scenario – the IDC goes into "hot contingency" and remains unused for the strategic period. The mine continues operating at the current level. This is judged to be the most likely scenario, based upon the information available.
- High scenario – the IDC reopens during the strategic period and holds up to 1,500 detainees. The mine continues operating at the current level, and new industries may be established.



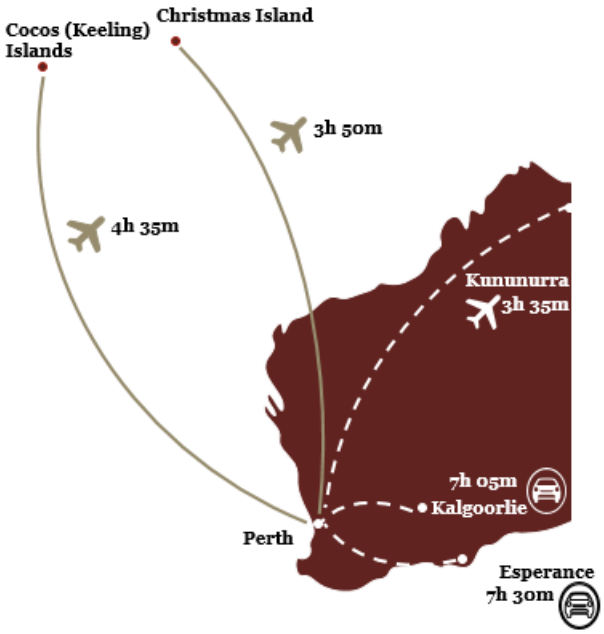
There is a significant variance between these scenarios, therefore Christmas Island population trends should be closely monitored across the strategic period. Given the relatively stable trajectory of the Cocos (Keeling) Islands' population over the last four Census periods, a single population projection of 545 by 2023 (not including visitors) has been developed.



The increasing number of ageing residents on the IOTs mean that there are likely to be increasing levels of chronic disease under all scenarios, which is consistent with trends on mainland Australia.

Physical environment

Christmas Island and the Cocos (Keeling) Islands are two of the most remote locations in Australia. Very remote and remote areas of Australia typically have poorer access to and use of health services than residents of regional areas and major cities. While the remoteness of the IOTs does limit residents' immediate access to certain specialist and complex services, both Christmas Island and the Cocos (Keeling) Islands have strong primary care services which are easily accessible by the communities.



The cost of shipping and air freight are reflected in high prices for fresh foods compared to processed and packaged food. This may be associated with poorer diet and associated risk factors. Due to the lack of State-imposed tobacco and alcohol duties, cigarettes and alcoholic drinks are less expensive than on the mainland. This may also be associated with greater health risk factors.

Social and economic environment

Compared to mainland Australia, both Christmas Island and the Cocos (Keeling) Islands exhibit increased levels of cultural and linguistic diversity, with high rates of adherence to Islam and Buddhism, and with 14% (Christmas Island) and 29% (Cocos (Keeling) Islands) of residents who do not speak English well, or at all.

Dwelling patterns on Christmas Island are similar to the mainland, while on the Cocos (Keeling) Islands there are many more large households with extended families living together.

Unemployment rates on both Christmas Island and the Cocos (Keeling) Islands were lower than the mainland (Western Australia) in 2016. However the labour force participation rates were also lower, potentially reflecting the older population and also the limited childcare services on the Cocos (Keeling) Islands.

Median incomes on the Cocos (Keeling) Islands are lower than in Western Australia, while they are higher on Christmas Island. Due to income pooling, household incomes are higher on both Islands than in Western Australia on average.

The Cocos (Keeling) Islands are in the bottom 1-3 deciles of the 2011 Socioeconomic Indices for Areas (SEIFA) – at the lower end of the socio-economic scale. Christmas Island sits around the middle deciles on the indices. Analysis of these indices at the SA1 level indicate that there are marked socio-economic inequalities within the IOTs (refer to Figure 20). This would be associated with variations in risk factors across the community.

Reported crime rates on the IOTs are significantly lower than in Regional and Metropolitan WA.

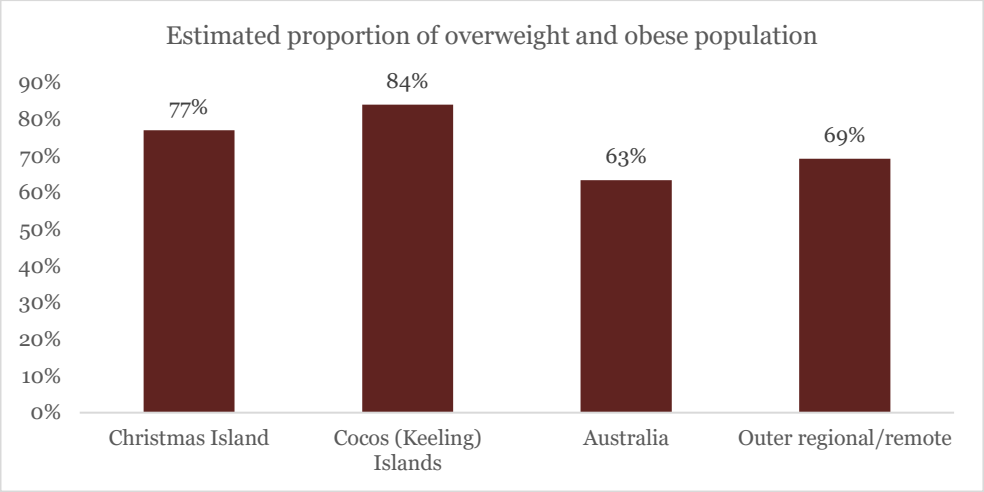
Health behaviours and status – key points

Health behaviours

The combination of remoteness, an ageing population, the low socioeconomic status on Cocos (Keeling) Islands, and the middle socioeconomic status on Christmas Island, is reflected in elevated health risk factors, some of which are tracked by the IOTHS. These elevated risks would contribute to an increased disease burden.

The current smoker rates have been approximated from IOTHS activity data, and are similar to comparable remote and very remote communities. The proportion of current smokers on Christmas Island slightly exceeds the national benchmark, but the rate for the Cocos (Keeling) Islands is lower.

The estimated proportion of IOT residents who are overweight or obese exceeds national and comparator community benchmarks. The high cost of freight to the IOTs results in higher prices for food – especially fresh foods – than on the mainland. This may be a significant factor in the levels of obesity and excess weight in the population.



Health status

The health outcomes observed in the IOT are consistent with comparative populations that are remote with ageing populations. Many of the trends with respect to chronic disease are also similar to those across Australia. While the rate of diagnosed Coronary Heart Disease (CHD) is lower than the national prevalence rate, the diagnosed rates for diabetes and kidney disease on Christmas Island and the Cocos (Keeling) Islands are higher than the national average rates, as well as the rates for relevant comparable communities.

The IOTHS provided rates of diagnosis from the patient population for communicable conditions, mental illness, oral health, injuries, maternal and child health, and mortality. Diagnoses of CHD and Diabetes are recorded, but these can only provide at best an approximation of prevalence rates in the general community, as we are not able to assess the extent of selection bias in the data.

Service needs – key points

Facility mapping

The health service facility on Christmas Island is similar to the majority of comparator services identified as part of the needs analysis, in operating a 24x7 hospital.

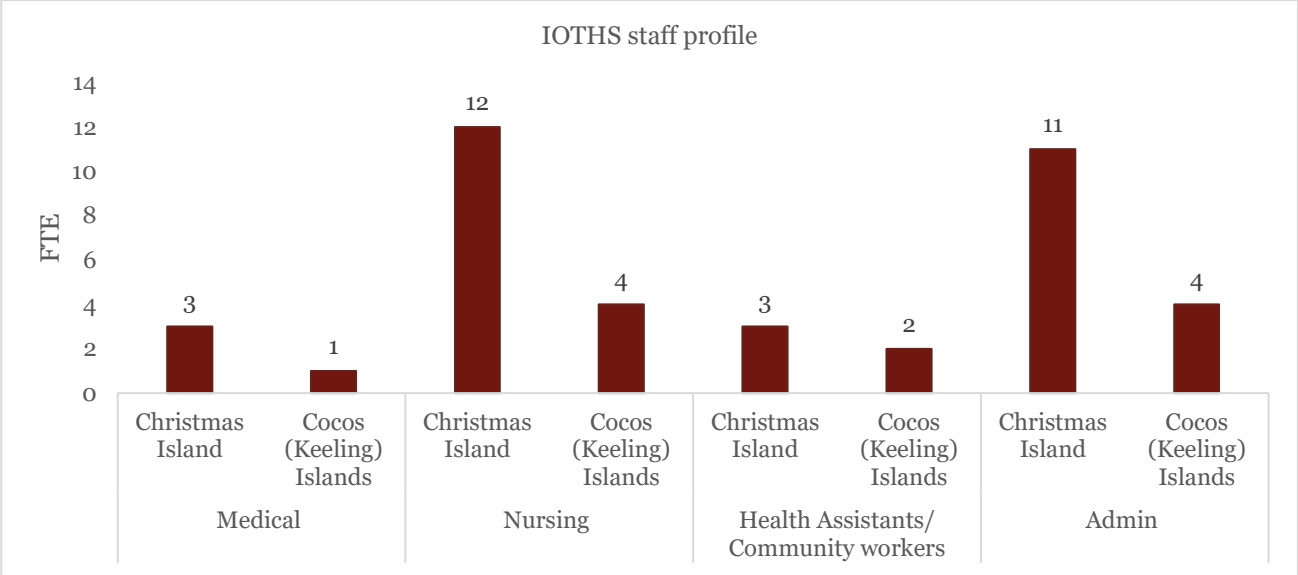
The Christmas Island health service inpatient facility is currently underutilised given the size of the local population and the facility capacity, and could operate with 2-4 beds. However, as one or two inpatient beds are utilised on just under 2/3 of nights for non-respite purposes, and given the remoteness of Christmas Island, there remains a strong case for maintaining a 24 hour facility.

Both facilities on the IOTs have more comprehensive primary care services than their comparators, including mammography and pathology capabilities.

On the Cocos (Keeling) Islands, having a clinic open during business hours and an after-hours on call model is broadly aligned with its comparators. The Cocos (Keeling) Islands offers more diagnostic and pathology services than its comparators.

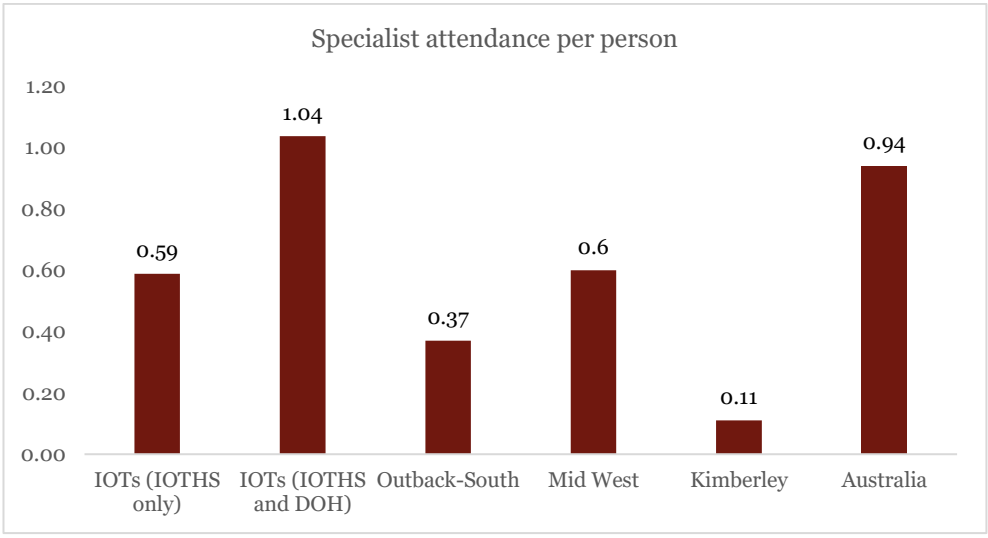
Workforce profile

The composition of staff that are employed by the IOTHS across Christmas Island and Cocos (Keeling) Islands is seen below. This includes 3 GPs who work across the Christmas Island Hospital and outpatient services, this has increased from 2 in previous years. Cocos (Keeling) Island is serviced by 1 GP who offers clinics on the West Island and Home Island. 33% of staffing expenditure is for permanent health staff whereas 77% of expenditure is on medical, nursing locum staff. This reflects common issues experienced by rural and remote health services in the attraction and retention of staff.



Service utilisation

The specialist attendance rates of residents from the IOTs slightly exceed the Australian average.



The GP attendances per person annually is lower than comparators and the Australian average. However, appointment times are also longer on average, being 30 minutes long, which is 2 to 3 times longer than appointments in metropolitan areas on the mainland. This could indicate that while the GP appointments per person in the IOTs is lower than comparators, the time spent with a GP per person annually may be comparable.

The proportion of hospitalisations outside of region is comparable in the IOTs to other regions in WA. The average cost to the IOTHS per Patient Assisted Travel Scheme (PATS) trip is more than 8 times the cost of the average PATS trip within the Western Australian Country Health Service (WACHS), which is primarily a reflection of the imperative to travel by air, and the high cost of airfares to the IOTs.

Community consultation findings

A detailed summary of the consultation findings can be found in Appendix C. The table below summarises the top 10 themes that emerged from the consultations.

Theme	Summary
Need for aged care facility	• The need for an aged care facility was raised frequently as an area of increasing need due to the ageing population and lack of existing services. • The desire to stay on island in older age was expressed by a significant proportion of the community.
Maintain 24 hour hospital on CI	• There was very strong support across the Christmas Island community for the 24/7 hospital facility to be maintained even if there are future decreases in population.
Patient Assisted Travel Service (PATS)	• PATS was raised as a major source of concern on both Christmas Island and the Cocos (Keeling) Islands largely due to the lack of clarity regarding the escort policy and process, as well as the expense and inconvenience for the patient and family associated with travel. • The cultural and language barrier on the mainland was also raised as a significant issue.
Diabetes and dialysis treatment	• The increasing number of people with diabetes was raised as a concern particularly in children on the Cocos (Keeling) Islands. • There is a widespread view across the IOTs that kidney failure is an emerging area of health need, supported by the evidence of increasing the prevalence of diabetes and the ageing population.
Mental health services	• There is a lack of understanding and awareness of mental health as an illness in parts of the community due to stigma. This may also have an impact on the willingness of the population to seek help from the health service. • It is believed that mental health illnesses such as depression and anxiety are prevalent in the community.
Nutrition, overweight/ obesity, physical activity	• A majority of consultees on the Cocos (Keeling) Islands raised that poor diet and nutrition was a significant issue on the islands. It is thought that this could be due to the high cost of food on the Islands. • Overweight and obesity was also raised as an increasing concern, particularly amongst children. This could be due to nutrition and lower physical activity.
Smoking and alcohol	• Smoking and alcohol was raised as a concern on both Christmas Island and the Cocos (Keeling) Islands, which may be due in part to the low price compared to the mainland, and may also be a coping strategy for some with mental health issues.
Emergency services	• The response time of emergency situations was raised as a concern across the IOTs. In particular, the community on Christmas Island believe that changing the hospital facility to an after-hours on call service will impact on emergency capabilities.
Engagement with health service	• The language barrier was raised as a significant challenge on Christmas Island and the Cocos (Keeling) Islands. • A desire for the health service to be more understanding of local cultural preferences and sensitivities when engaging with patients/ the community was also raised.
Continuity of staff	• The high level of staff turnaround and use of locum staff was raised in consultations as having a negative impact on continuity of care for patients and on the community's willingness to engage with the health service.

Identified priority needs

Health and service needs were assessed with a process of synthesis, triangulation and prioritisation, drawing on community and service provider feedback, and the findings of the needs analysis. The needs identified by the synthesis and triangulation assessment as being of the highest priority are summarised briefly below:

Need	***Priority***
There is an increasing need for aged care services due to the IOTs' ageing population.	High
There is a need to clarify the PATS policy and governance.	High
There is a need to review the opportunity to increase the use of telehealth.	High
There is a need to address the health behaviours including smoking/alcohol, nutrition, overweight obesity that are increasing the risks of adverse health outcomes within the population.	Medium
There is a need to clarify the emergency response process and educate the community on this.	Medium
There is a need to address the mental health issues within the community.	Medium
There is a need to improve the current engagement of the health service with the community.	Medium
There is a need to improve the continuity and governance of the health service staff.	Medium
There is a need to address the increasing need related to diabetes and kidney failure.	Medium

Full details of the assessment of the priority level, key issues, and potential solutions for the identified needs are summarised in Tables 8, 9, and 10.

Service model options and evaluation

Four service model options were developed for the Christmas Island hospital facility and potential aged care services, which all broadly align with the 2016-17 budget.

The service changes associated with each option, and the budget and staffing implications, are discussed in the sections below. The four options that have been developed and evaluated in this section are as follows:

- **Option 1:** Maintain the 24x7 hospital facility with reduced acute bed capacity, and introduce an aged care facility for patients with high care needs on the IOTHS site.
- **Option 2:** Transition to an after-hours on-call model and introduce a 24x7 aged care facility for patients with high care needs on the IOTHS site.
- **Option 3:** Maintain the 24x7 hospital facility with reduced acute bed capacity, and expand the IOTHS Home and Community Care (HACC) service.
- **Option 4:** Maintain the 24x7 hospital facility with reduced acute bed capacity, introduce an aged care facility for patients with high care needs on the IOTHS site, and expand the IOTHS HACC service.

The evaluation of the four service model options is summarised below.

Service model option	*Budget impact**	*Strategic alignment*	*Needs assessment*	*Economic analysis*	*Ease of implementation*	*Total*
Option 1: Maintain 24x7 hospital facility and introduce residential aged care facility	-$8,048	4	4	4	3	**15**
Option 2: Move to after-hours on-call model and introduce residential aged care facility	$ 67,183	3	4	2	2	**11**
Option 3: Maintain 24x7 hospital facility and increase IOTHS HACC services	$ 272,042	2	3	3	4	**12**
Option 4: Maintain 24x7 hospital facility, introduce residential aged care facility, and increase IOTHS HACC services	$ 81,781	5	5	2	3	**15**

** -$ indicate savings, $ indicate budget increases*

The evaluation has identified Option 1 or Option 4 as the preferred options for the Christmas Island hospital facility, addressing the increasing need for aged care services on the Island.

In addition to the development and evaluation of service model options, a review of the IOTHS services was undertaken to identify improvements (Section 2.2.3), along with an assessment of each strategic work stream (technology use; governance and staffing; and service provision alternatives) in Section 4. These strategic initiatives identified are expanded in further detail in Section 5 and can be implemented alongside any of the service model options presented in this section.

Strategic development and initiatives

In addition to the service model initiatives developed in Sections 2-4, this five year strategic plan developed an additional set of strategic initiatives in three key areas:

1. The use of technology, including clinical management systems and telehealth.

2. Governance and staffing arrangements, including changes flowing from service model options and initiatives which can be implemented as part of any future service model.

3. The potential for alternative service provision arrangements, including non-profit and private sector partnering for all or part of the IOTHS, and cost recovery initiatives.

The key points which emerged from the strategic development work area are summarised below.

Technology use – key points

Three key areas were considered in reviewing the use of technology in IOTHS:

1. A fitness-for-purpose review of the IOTHS clinical management system.

2. The current state of telehealth usage and opportunities to expand the existing offering, including emergency telehealth services.

3. A review of Information and Communications Technology (ICT) governance and recommendations for improvement.

The current IOTHS clinical management system, Medical Director, appears to be fit-for-purpose as the functionality of the system is comparable to other management systems used across Australia, and is compatible with My Health Record.

There is significant potential for the IOTHS to expand the use of telehealth services for specialist consultations. In line with the outcomes of similar telehealth initiatives in WA, this would be expected to deepen the level of service and address unmet health needs of the population. However, given the strong level of primary care already provided by the IOTHS, the expansion of telehealth services also has the potential to reduce patient travel expenditure – a major element of the IOTHS budget.

The IOTHS should also introduce an Emergency Telehealth System (ETS) aligned to the WACHS system to reduce clinical risks in acute circumstances.

The governance of IOTHS ICT is currently based on the Australian Public Service (APS) ICT framework, which is not well adapted to health service ICT, and lacks clear accountabilities for clinical systems. There is a need to establish clearer accountability for ICT within the IOTHS (refer to *Strategic Initiative 14*).

Governance and staffing – key points

The analysis of IOTHS governance considered both the governance structure and practices around clinical and corporate governance. The analysis identified some areas for improvement around governance roles and responsibilities in the existing structure, with role confusion for senior clinical and management staff. The IOTHS does not currently have an independent board in line with corporate and health care governance best practice in Australia. The recently instituted Health Advisory Groups (HAGs) on Christmas Island and the Cocos (Keeling) Islands do not address these governance deficits – it should be noted that the intention of the HAGs is to establish a community forum for IOT community health issues and provide guidance to IOTHS, not to undertake a governance role.

Australian Council of Healthcare Standards (ACHS) accreditation documents note that the IOTHS risk register is comprehensive and regularly monitored through an Executive Quality Committee (EQC), and that good outcomes are being achieved in terms of review of risks on the *RiskMan* software database. However this is currently dependent on key individuals, creating a risk of corporate knowledge loss if they should leave

the IOTHS. The revised ACHS National Safety and Quality Health Service (NSQHS) Standard on clinical governance will commence in January 2019 and it is recommended that the IOTHS consider how it can better align to the standard.

Consultations with senior staff suggested that establishing an effective organisational culture, especially amongst clinical staff and management, is challenging due to the high levels of transient staff.

The assessment of IOTHS staffing considered both the flow-on staffing effects of service model changes along with initiatives unrelated to the service model. Based on an analysis of the current IOTHS organisational structure, and other relevant data, a set of six staffing initiatives have been identified which could be implemented alongside any of the service model options presented in Section 3.1. Taken together, these initiatives could potentially achieve ongoing savings of around $540k per annum. The initiatives identified include:

Initiative	***Ongoing saving (per annum)***
Align locum nurse recruitment processes with examples from other health services	N/A
Consider externally contracting laboratory services currently conducted on Christmas Island	$200k (cost decrease)
Introduce practice management into the existing Business Manager role	$430k (cost decrease)
Introduce a Hospital Administrator role to replace the Health Service Manager position	N/A
Introduce an additional IOTHS HACC worker to the Cocos (Keeling) Islands service	$90k (cost increase)
Incorporate clinical risk and policy maintenance into the IOTHS administration office's remit	N/A
Total	**$540k (cost decrease)**

Alternative service provision and cost recovery – key points

There are a range of potential partnering options for the delivery of part or all of the health services on the IOTs, which have potential to improve service efficiency, effectiveness, and governance. Potential partners have been identified and profiled in Section 4.3.1.1, and a Competitive Dialogue Procurement Methodology has been outlined as a potential approach to exploring alternative service delivery options.

Medical service co-payments were not considered due to the extensive availability of bulk-billed services across Australia.

Concerns were raised in the community forum about the difficulty in making GP appointments at short notice, and the difficulty experienced by residents in making visiting specialist appointments. A significant contributing factor to this lack of availability is nonattendance, with there being a 16% cancellation rate. Therefore there may be potential to introduce a nominal cancellation fee. This would not result in significant cost recovery, but may improve the utilisation of the health service by incentivising patients to attend.

Strategic initiatives - summary

The strategic initiatives identified in Sections 2-4 and developed in Section 5 are summarised below. The Implementation Roadmap, which illustrates a suggested sequencing of implementation activities, is contained in Appendix A.

Initiative category	*Strategic initiative*	*Description*
Service model initiatives	SI1	Increase aged care services to meet the needs of the ageing population.
	SI2	Restructure the IOTHS staffing model to enable greater efficiencies while continuing to meet the community health and service needs.
	SI3	Amend PATS budgeting assumptions to reflect the full average cost of PATS trips, inclusive of patient escort airfares and accommodation.
	SI4	Develop a health promotion and education program to encourage healthy behaviours within the IOTs community and increase awareness of health risks, focused on diabetes prevention, health eating, exercise and activity.
	SI5	Redesign the process for responding to emergency situations and communicate change to the relevant stakeholders.
	SI6	Provide an improved interpreter service to overcome the current language barrier experienced by some community segments, and improve the engagement between the health service and the community.
	SI7	Develop an annual communications strategy for the health service to ensure important messages and information are effectively communicated.
	SI8	Plan for services that may be required to meet the emerging need to address kidney disease.
	SI9	Identify potential improvements to mental health services on the IOTs, including addressing community awareness and understanding of mental health and confidentiality concerns, in particular with the expansion of telehealth consultation services.
Technology use initiatives	SI10	Record Medicare item numbers in patient notes to enable better data analysis, insights and sharing.
	SI11	Increase the use of telehealth services for specialists and mental health consultations.
	SI12	Refine the PATS process to align with policy intent of using telehealth in place of travel where it is reasonable to do so, and provide clearer referral guidelines to clinicians regarding scheduling telehealth consultations.
	SI13	Introduce equipment and technology to enable an ETS model aligned to WACHS to complement existing 24h emergency capability.
	SI14	Establish an appropriate ICT governance framework for the size of the IOTHS.
Governance and staffing initiatives	SI15	Reform IOTHS governance structure to clarify roles and responsibilities and ensure that robust controls and oversight are in place to reduce and manage risks to the health service, including the introduction of an independent board.
	SI16	Align clinical, safety and quality policy and risk management systems and databases with WACHS practice and the revised NSQHS standards.
	SI17	Where necessary, clarify the roles and responsibilities of reception staff in terms of triage and customer service, and ensure that staff are given appropriate training.

Initiative category	*Strategic initiative*	*Description*
Governance and staffing initiatives	SI18	Align locum nurse recruitment with examples from other health services.
	SI19	Review the base salary and allowances of IOTHS staff.
	SI20	Scale down the IOTHS laboratory capability on Christmas Island, and scale up externally contracted pathology services.
	SI21	Introduce Practice Management to an existing administrative role to include general practice management and to streamline GP appointments.
	SI22	Recast the Health Service Manager role as a Hospital Administrator, to be selected and appointed by an independent board in consultation with Infrastructure.
	SI23	Introduce an additional IOTHS HACC worker on the Cocos (Keeling) Islands, where needed.
Service provider initiatives	SI24	Conduct market sounding and dialogue with potential service providers for the full health service or elements of the service.
	SI25	Assess the introduction of a nominal cancellation fee to improve the utilisation of the health service GP clinics and visiting specialists on both Islands.

The strategic initiatives described above were developed to address the priority needs identified through the assessment of community feedback, service provider feedback, and the health and service needs analysis. The alignment of Strategic Initiatives to the greatest priority needs is summarised in the table below:

Priority needs identified	*Aligned Strategic Initiatives*
There is an increasing need for aged care services due to the IOTs' ageing population.	SI1; SI4; SI8; SI11; SI23
There is a need to clarify the PATS policy and governance.	SI3; SI12
There is a need to review the opportunity to increase the use of telehealth.	SI11; SI13
There is a need to address the health behaviours including smoking/alcohol, nutrition, overweight obesity that are increasing the risks of adverse health outcomes within the population.	SI4; SI8
There is a need to clarify the emergency response process and educate the community on this.	SI5; SI7
There is a need to address the mental health issues within the community.	SI9; SI11
There is a need to improve the current engagement of the health service with the community.	SI4; SI6; SI7; SI9; SI17; SI25
There is a need to improve the continuity and governance of the health service staff.	SI2; SI15; SI18
There is a need to address the increasing need related to diabetes and kidney failure.	SI4; SI8; SI11

Conclusion

Taken together, the Strategic Initiatives developed in this Five Year Strategy would enable the IOTHS to maintain high performance while aligning more closely with changing and emerging health and service needs on the IOTs, with minimal impact to the service's budget. The Implementation Roadmap presented in Appendix A proposes an indicative sequencing of the Strategic Initiatives to be considered by Infrastructure. Once the Strategic Initiatives and timeline for implementation have been considered, Infrastructure should submit its proposed way forward to a community and service consultation process, before proceeding with implementation at the appropriate juncture.

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1.1 Background and context

The IOTs encompass Christmas Island and the Cocos (Keeling) Islands. Located to the northwest of mainland Australia in the Indian Ocean, they are some of the most remote communities in the country, with small resident populations and economies centred on phosphate mining and the Immigration Detention Centre (Christmas Island) and tourism. The IOTs are historically and culturally distinctive, with religious and linguistic diversity.

The IOTHS is a stand-alone health service operated by the Department of Infrastructure, Regional Development and Cities (Infrastructure). It provides a mix of primary care, dental, and emergency health services to the communities of Christmas Island and the Cocos (Keeling) Islands. A range of health services, including complex and specialist procedures, emergency medicine, and birthing services, are provided in Western Australia (WA) to IOT residents through a SDA between Infrastructure and the WA Government. The also establishes advisory facilities which can be mobilised by the IOTHS.

Aside from a private psychologist and the IDC clinic on Christmas Island, there are no other health care providers on the IOTs. The IDC's clinic does not serve the general population.

Like many parts of mainland Australia, the health and health care needs of the IOT communities are changing – the population is ageing and is exhibiting the increased levels of chronic disease associated with this ageing trend. Economic changes suggest that the population of Christmas Island will decline between 2019 and 2023, although in some scenarios it may increase to over 3,000 residents. The population of the Cocos (Keeling) Islands is likely to remain stable. There are also growing areas of service need and potential for improvement to, and alignment of, service offerings with comparator services and regions. There is an opportunity to develop a five year strategy for the IOTHS which puts in place initiatives that bring services into closer with the changing needs on Christmas Island and the Cocos (Keeling) Islands.

In March 2018, PwC was engaged by Infrastructure to develop a detailed strategy for the IOTHS, which will inform a program of work over the next five years to enable the service to maintain high performance into the future.

1.2 Overview of previous work

This five year strategy adds to previous work on IOT health services which has been developed over the past fifteen years. Key previous pieces of work include:

- Commonwealth Grants Commission *Report on Indian Ocean Territories* 2007; and
- Australian Healthcare Associates *Review of Aged Care in the Indian Ocean Territories*, Final Report, February 2015.

The health and service needs assessment, service model options and strategic plan developed in this report adds a rigorous and up-to-date analysis of the changing health and service needs on the Islands. This analysis has been benchmarked against a set of relevant comparator communities and health services from across mainland Australia and Norfolk Island, and includes the assessment of community perceptions in the identification of priority areas of need.

This strategy also adds to previous work by highlighting a clear and complementary set of strategic initiatives which can be implemented over the next five years. These are focused on improving the alignment of IOTHS services with the changing health and health care needs of IOT residents, as well as identifying opportunities to deliver improved value for money.

1.3 Objectives for a new IOTHS strategy

The objectives of this strategy development required by Infrastructure under this engagement are to identify:

1. The nature, scope and delivery of healthcare in the IOTs;
2. Optimal staffing and governance arrangements for the IOTHS;
3. Opportunities for private sector involvement in the delivery of services;
4. Best practice record management systems, as well as optimising existing e-Health and Telehealth service and utilisation; and
5. Options for delivery of aged care service.

1.4 Our approach to developing a five year strategy for the IOTHS

PwC's approach to developing a five year strategy for the IOTHS encompassed two key phases with a number of sub-work streams:

1. **Service model development and evaluation**, including:
    a) A needs assessment which analysed the health and service needs on the IOTs, and identified priority needs to be addressed with strategic initiatives. The needs assessment had two components:
        - A quantitative and qualitative analysis of health determinants, health behaviours and status, and service needs with respect to a set of relevant comparator communities and health services from across mainland Australian and Norfolk Island.
        - A series of community and clinical consultations with stakeholders from across Christmas Island and the Cocos (Keeling) Islands.

    b) Development of four service model options for the Christmas Island hospital facility and the expansion of aged care services.

    c) An evaluation of the service model options.
2. **Strategy development**, including the development of strategic initiatives around:
    a) The use of technology, including clinical management systems and telehealth.

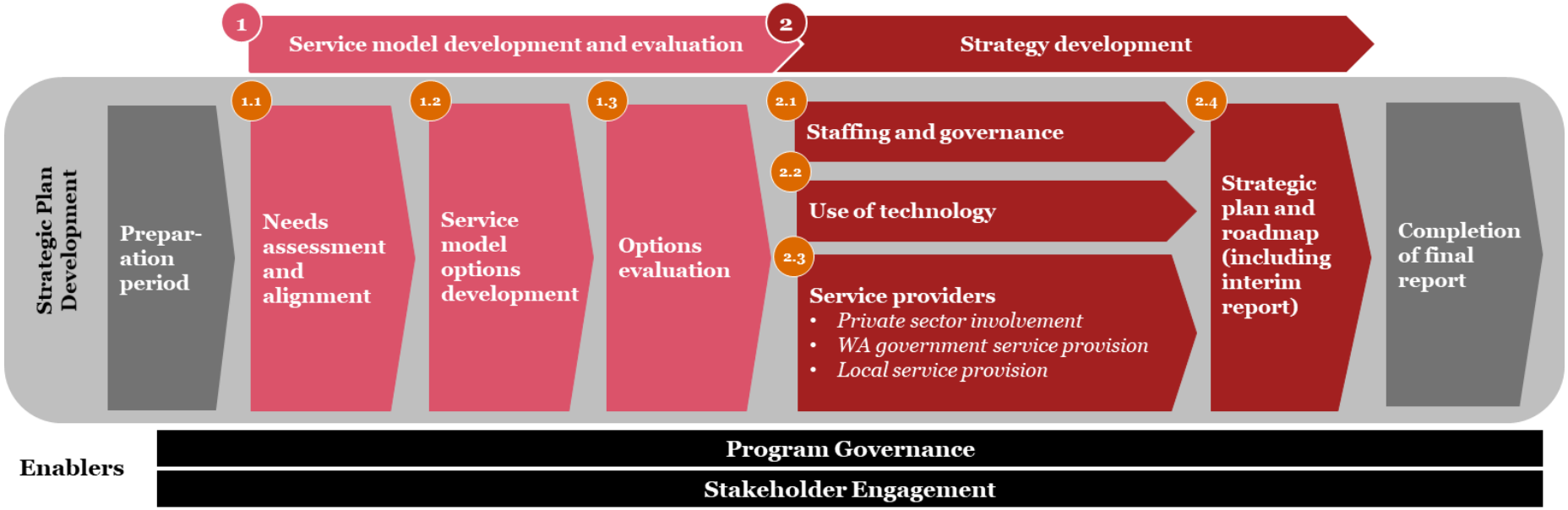
    b) Governance and staffing arrangements, including changes flowing from service model options and initiatives which can be implemented as part of any future service model.

    c) The potential for alternative service provision arrangements, including non-profit and private sector partnering for all or part of the IOTHS, and cost recovery initiatives.

The strategic initiatives developed in response to priority needs and in the three key areas of technology use, governance and staffing, and service provision, are collated in Section 5, and the key activities that need to be undertaken to implement each initiative are identified. The Implementation Roadmap contained in Appendix A brings together all of the strategic initiatives and illustrates a suggested sequencing of activities over the five year strategic period.

Figure 1 illustrates the approach outlined above on the page opposite.

Figure 1: Needs assessment and strategy development approach



2 Needs assessment

2.1 Needs assessment

2.1.1 Our approach to conducting this needs assessment

The approach to this needs assessment has been adapted from the Primary Health Network (PHN) needs assessment guide produced by the Australian Department of Health in 2015. This approach has been used by PHNs to systematically build up an understanding the health and healthcare needs of the population of the IOTs, and involves epidemiological and qualitative approaches to determining priorities.

A needs assessment comprises of two parts – analysis and assessment:

- **Analysis**: This part of the needs assessment aims to understand the health needs and the service needs of a population. This involves demographic analysis, understanding the determinants of health and risk factors of the population, health of the population, and the services currently available to the population.

- **Assessment**: This part of the needs assessment aims to understand the relative priorities and options based on the analysis conducted.

The needs assessment is conducted through a desk top review of data as well as consultations with a wide range of stakeholders as expanded upon in Sections 2.1.2 and 2.1.3 respectively.

2.1.2 Data availability

Quantitative analysis of demographic, population health, and service activity data is a core part of the needs assessment and a foundation for an objective assessment of service priorities and options. The PHN needs assessment guidelines suggest that the quantitative analysis should draw on a range of data sources, including:

- ABS demographic data, including for example the SEIFA, the National Health Survey, and the National Nutrition and Physical Activity survey;

- Australian Institute of Health and Welfare and the former National Health Performance Agency data and publications, including the Metadata Online Registry (METeOR);

- Aged care data such as the Commonwealth Home Support Programme;

- Mental health data such as the Access to Allied Psychological Services data;

- Data on indigenous populations, where relevant;

- Australian childhood immunisation register; and

- Other relevant sources made available to us or identified by research, including research from relevant institutions.

A four pronged approach to data collation was undertaken:

1. An online search for publicly available data sources on demographics, population health and the socioeconomic status of the IOTs and comparable communities.

2. An internal search for comparable service models from PwC's previous experience.

3. Data requests to Infrastructure and IOTHS staff for health service data on activity and population health.

4. Consultations with other health services on service comparators and telehealth services.

Refer to Appendix B for full details of the data sources collated through research.

2.1.3 Stakeholder consultation

In parallel to the quantitative analysis of population health and service activity data, an extensive consultation process with clinical, community, Infrastructure and comparator health services was undertaken. The principal objective of the consultations was to develop a clear understanding of staff and user perceptions of the current and potential future health needs and levels of service on the IOTs, while also validating initial findings of the quantitative analysis, and identifying new potential data sources and important lines of inquiry.

The clinical and community consultations on the Islands were structured around:

- Needs identification:
    - Understanding how needs are changing on the Islands.
    - Identifying health needs of the population and the needs of the service.
- Service provision:
    - Exploring community awareness of the services currently provided.
    - Identifying which existing services are seen as most valuable by the community and clinical staff.
    - Prioritising which potential additional services are seen as the most important.

The stakeholder consultation process included:

- Clinical and community consultations on Christmas Island (4 - 10 April and 19 – 22 May 2018) and the Cocos (Keeling) Islands (11 - 14 April 2018).
- Follow-up teleconference consultations with key stakeholders unavailable during PwC's time on the Islands.
- Meetings with comparator health services to discuss comparable services models and telehealth services.

Refer to Appendix C for a summary of the community stakeholder consultations undertaken between 4 April – 22 May on Christmas Island and the Cocos (Keeling) Islands.

2.1.4 Comparator health services for the IOTHS

A key part of the process of conducting assessments of priority needs and service options involves comparison to similar health services. This process is important for several reasons: it identifies the consistent and unique aspects each catchment area shares with the rest of the country, and with populations with demographic and geographic similarities; it can enable the identification of unmet needs; and it can highlight the extent to which resources are being deployed in line with best practices to meet the needs of the community.

In the past, work examining aspects of service delivery on the IOTs has made use of a set of comparators drawn from remote Western Australia, principally because they, "require State-type services that are similar to the services those communities receive from the Western Australian government".[1] PwC have elected to adhere to this approach, but, in recognition of the unique geographic, demographic, and governance aspects of

[1] Commonwealth Grants Commission "Report on Indian Ocean Territories", 2007

the IOTs have also drawn comparator communities from the Central Western district of Queensland and Norfolk Island.

As there are no two communities which are directly comparable to those on Christmas Island and the Cocos (Keeling) Islands, a group of comparable communities has been selected which exhibit varying degrees of similarity to the IOTs along key dimensions. Because of geographic differences between the datasets on population health and the location of health services (including hospitals, primary health clinics and nursing posts), the comparator groups for population health and for health services are different.

The following dimensions have been considered in the selection of comparator communities:

- Population size.
- Remoteness – based on the Accessibility and Remoteness Index of Australia (ARIA+).
- Key population demographics:
    - Percentage of population aged over 65 years.
    - Percentage of population identifying as Aboriginal or Torres Strait Islander.
    - Percentage of households where English is the only language spoken at home.
- Socioeconomic profile (based on SEIFA 2011).
- Health Service Region for health service data.
- Relevant statistical areas (SA2 and SA3)[2] for population health or service comparison data.

The table below shows the comparable communities selected for this needs assessment and data on the relevant dimension of comparison.

[2] Statistical Areas Level 2 (SA2) are medium-sized general purpose areas built up from whole Statistical Areas Level 1. Their purpose is to represent a community that interacts together socially and economically. Statistical Areas Level 3 (SA3) are geographical areas built from whole SA2 areas. See the link to the ABS web-page below for more detail: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20Features~Statistical%20Area%20Level%202%20(SA2)~10014

Table 1: Relevant comparator factors for Christmas Island and the Cocos (Keeling) Islands

Location	ABS Urban Centre & Locality population (2016)	SA2 name	SA2 usual resident population (2016)	ARIA+ remoteness measure (2011)	Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) decile (2011)	Index of Relative Socio-economic Disadvantage (IRSD) decile (2011)	Index of Economic Resources (IER) decile (2011)	Index of Education and Occupation (IEO) decile (2011)	Population over 65 (2016, %)	ATSI Population (2016, %)	English only spoken at home (2016, %)	Health Service Region
Christmas Island	1,843[3]	Christmas Island - OT	1,843	Very Remote	5	4	4	5	9.7	0.5	26.8	IOTHS
Carnarvon	4,426	Carnarvon	5,367	Remote	2	2	2	3	14.3	19.1	N/A	WACHS Midwest
Fitzroy Crossing	1,141	Derby – West Kimberley	8,322	Very Remote	1	1	1	2	6.1	38.2	48.4	WACHS Kimberley
Halls Creek	1,546	Halls Creek	3,598	Very Remote	1	1	1	1	5.1	49.5	44.8	WACHS Kimberley
Norfolk Island	1,748	Norfolk Island – OT	1,748	Very Remote	N/A	N/A	N/A	N/A	23.8	0.5	45.5	NI Health and Residential Aged Care Service
Longreach	2,738	Longreach	3,727	Very Remote	5	5	4	6	15.8	5.3	88.8	Central West Hospital and Health Service

[3] The Christmas Island population includes the IDC detainee population of 242 as at July 2016. In general, where prevalence rates for chronic conditions have been calculated for this strategic plan, the IDC population has not been included in the base population for Christmas Island as detainees are treated at the IDC clinic for general medicine. Some prevalence rates have been sourced from IOTHS produced activity data; this has been clearly indicated where relevant. Service utilisation measures were estimated based on the 2016 Christmas Island population including detainees, as detainees were admitted to the IOTHS from time to time.

Location	ABS Urban Centre & Locality population (2016)	SA2 name	SA2 usual resident population (2016)	ARIA+ remoteness measure (2011)	Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) decile (2011)	Index of Relative Socio-economic Disadvantage (IRSD) decile (2011)	Index of Economic Resources (IER) decile (2011)	Index of Education and Occupation (IEO) decile (2011)	Population over 65 (2016, %)	ATSI Population (2016, %)	English only spoken at home (2016, %)	Health Service Region
Cocos (Keeling) Islands	544	Cocos (Keeling) Islands – OT	544	Very Remote	1	1	3	1	15.5	1.1	22.2	IOTHS
Meekathara	573	Meekathara	3,160	Very Remote	1	1	1	3	9.9	8.6	66.7	WACHS Midwest
Kalumburu	421	Kununurra	7,496	Very Remote	2	1	1	5	6.4	32.6	76.3	WACHS Kimberley
Warmun	366	Kununurra	7,496	Very Remote	2	1	1	5	6.4	32.6	76.3	WACHS Kimberley
Boulia	273	Far Central West	2,114	Very Remote	2	2	2	3	16.8	13.8	87.3	Central West Hospital and Health Service

2.2 Analysis

The purpose of the analysis component of this Needs Assessment is to develop an understanding of the health status and needs of the population, and of the current services provided. The analysis has been organised into the following Sections:

- **2.2.1 Health determinants:** this includes analysis of the three determinants of health – individual characteristics, the physical environment, and the social and economic environment.
- **2.2.2 Health behaviours and status:** this includes analysis of risk factors within the population and of health status and outcomes.
- **2.2.3 Service needs:** this involves the mapping of the IOTHS workforce and services in terms of location, utilisation, accessibility, responsiveness, capability, acceptability and quality.
- **2.2.4 Community consultation findings:** this Section contains a summary of the key themes which emerged from the community consultations. Full details of the findings of the community consultations conducted between 4-14 April and 19-21 May 2018 can be reviewed in Appendix C.

Context and Overview of the IOTs

Key points

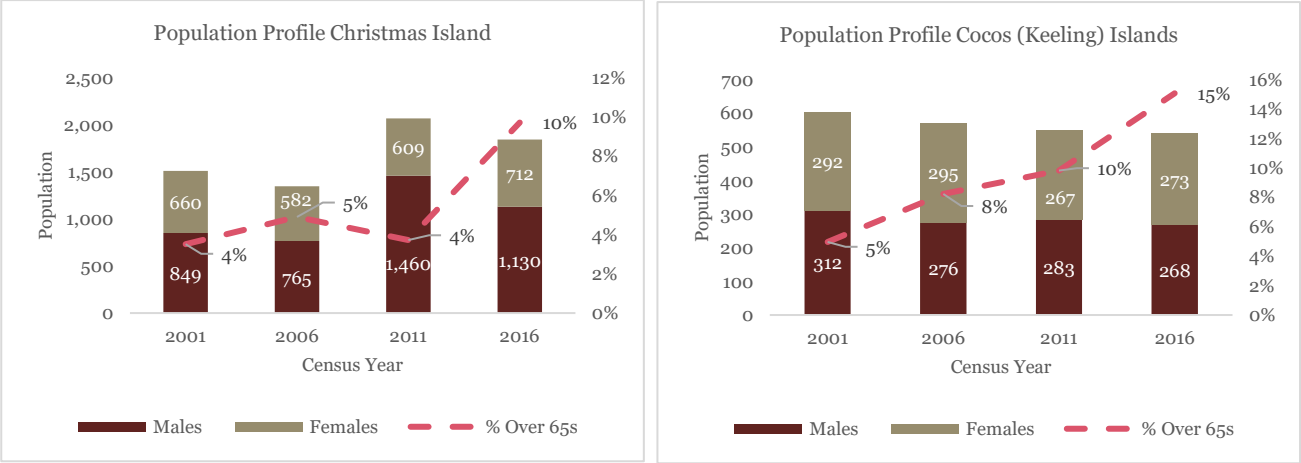
- The underlying residential populations of Christmas Island and the Cocos (Keeling) Islands have been relatively stable for the last four Census periods, with a slight downward trend.
- Christmas Island has experienced large fluctuations in the overall population in response to the establishment and operation of the Immigration Detention Centre (IDC).
- Both Christmas Island and the Cocos (Keeling) Islands have experienced a steady rise in the proportion of the population aged 65 and over.
- Visitor numbers are not expected to increase significantly across the strategic period between 2019 and 2023 without significant further investment in tourism infrastructure.

The last population Census was conducted by the Australian Bureau of Statistics (ABS) in 2016, at which time the population of Christmas Island was counted at 1,843 people, and the population of the Cocos (Keeling) Islands was 544.

Since the 2001 Census, the overall population on the Cocos (Keeling) Islands has experienced a slight decline. The analysis suggests that the underlying resident population on Christmas Island has experienced a similar trend, although Christmas Island has experienced large fluctuations in the overall population in response to the establishment and operation of the IDC.

On both Islands the population has been steadily ageing. On Christmas Island, the proportion of the population over 65 years of age increased from 4% to 10% between 2001 and 2016; over the same period the over 65s population went up from 5% to 15% on the Cocos (Keeling) Islands. The ageing population of the IOTs, and its impact on the health needs profile, are discussed in greater detail in Section 1.2.1 below on health determinants.

Figure 2: Population of Christmas Island and the Cocos (Keeling) Islands at Census Times



Source: ABS Census of Population and Housing, 2016

The recent decline in the Christmas Island population from 2,069 in 2011 to 1,843 in 2016 appears to be due to a decrease in the number of detainees at the IDC.[4] The IDC transitioned into "hot contingency" on 1 October 2018, leaving the centre unoccupied but maintained for rapid re-mobilisation on demand.[5] If other factors remain constant, this change would result in a reduction in the number of residents on Christmas Island. The projected impact of changes to the detained population on Christmas Island is considered along with the impact of other population drivers in Section 2.2.1 below. It is also projected that the overall and aged populations of the Cocos (Keeling) Islands will continue to change at rates similar to the long-term trend.

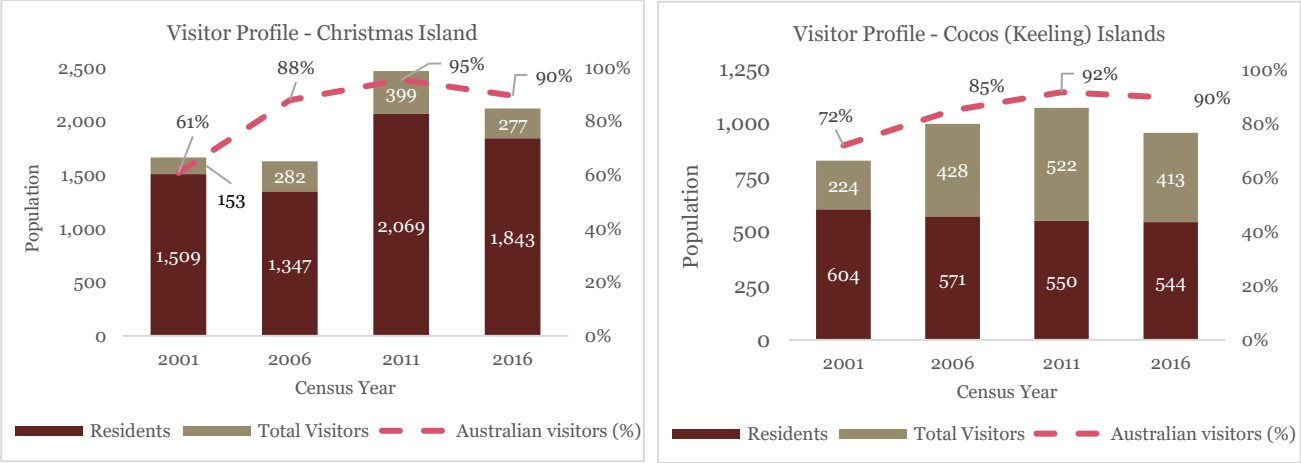
In addition to the resident population, the Census records the number of visitors on the Islands (see Figure 3 below). Visitor numbers have remained relatively stable since 2006 and, based upon consultations, are not expected to increase significantly over the strategic period without significant further investment.[6] The Census data indicates that the majority of visitors continue to be Australian citizens.

[4] Note: Data on the number of detainees and staff at the IDC was only available for 2016.

[5] Note: The Immigration Detention Centre has re-opened in response to amendments to the *Home Affairs Legislation Amendment (Miscellaneous Measures)* Act 2019. This report does not account for this development, as the research, findings, conclusions and recommendations were developed prior to the decision to re-open.

[6] Consultees on both Christmas and the Cocos (Keeling) Islands indicated that tourism growth was a key economic priority, and that investment discussions were ongoing. Developments in this area should be monitored on an ongoing basis to inform service demand projections over the strategic period.

Figure 3: Christmas Island and the Cocos (Keeling) Islands Visitor Profile at Census Times



Source: ABS Census of Population and Housing, 2001; 2006; 2011; 2016

2.2.1 Health determinants

There are various factors that may affect the health of individuals, communities, and populations with special needs, and it is therefore important to consider the determinants of health in a holistic manner when conducting a Needs Assessment of a population.

According to World Health Organisation (WHO), factors which affect health can be broadly categorised into three determinants of health:[7]

- **2.2.1.1 Individual characteristics:** Individual characteristics include genetics, gender and age. In the related section below, the impact of the ageing population and associated risk factors is explored.

- **2.2.1.2 Physical environment:** The physical environment of a community includes its geographic location, the accessibility of clean water and fresh food, and the conditions of roads, buildings and housing. In particular the effect of the remoteness of the IOTs on population health is explored below.

- **2.2.1.3 Social and economic environment:** The social and economic environment in which an individual or population is situated encompasses income, education and cultural factors. It has an important effect on the way that individuals behave and make choices that affect health and their interactions with health services. The unique cultural diversity and economy of the IOTs is explored below to build an understanding of the impacts they have on the health of the population.

These determinants of health also influence behaviours or risk factors that have an impact how likely we are to stay healthy or become ill or injured. The risk factors that are present in the IOTs are discussed further in Section 2.2.2.

[7] WHO "Health Impact Assessment: The determinants of health", 2018

2.2.1.1 Individual characteristics

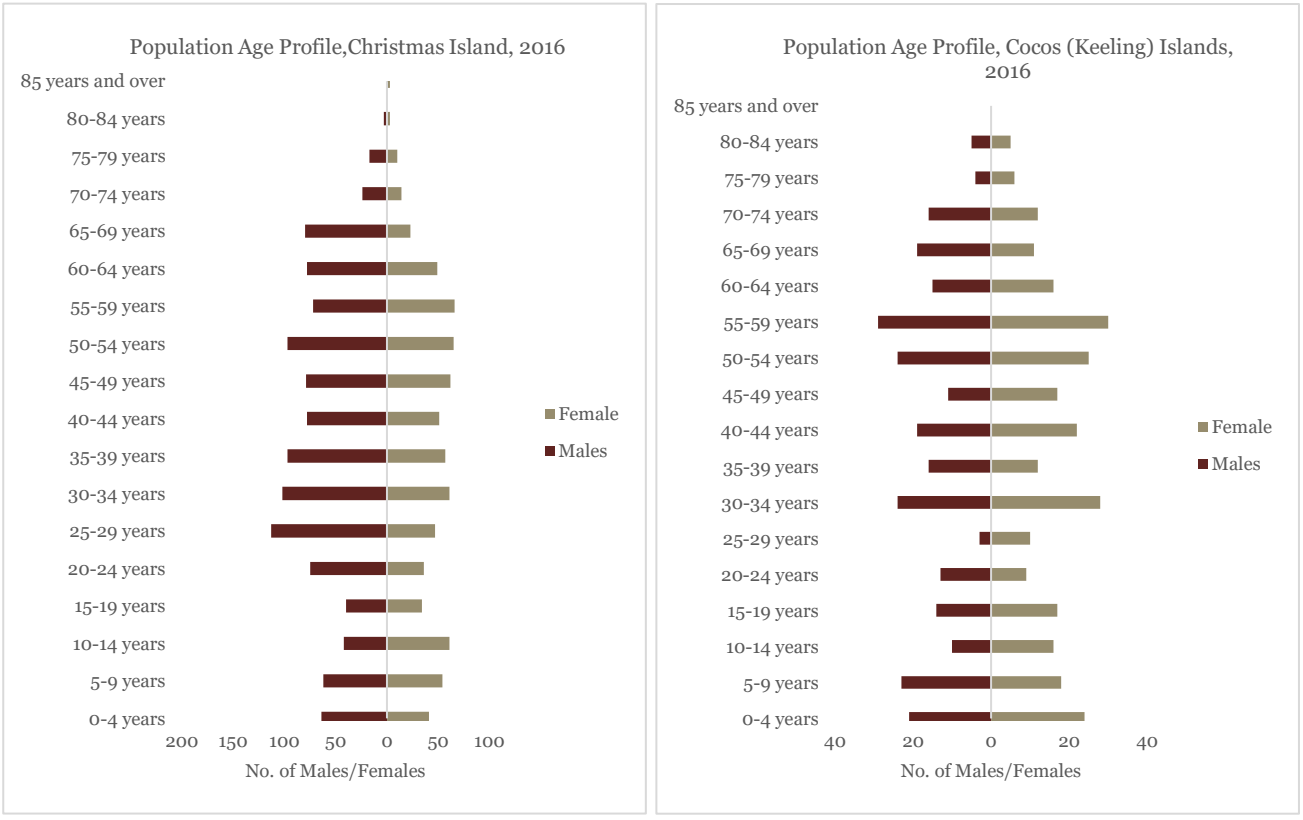
Key points

- The underlying resident populations on the IOTs are ageing, although Christmas Island has experienced population fluctuations due to the IDC operations.
- The small size of the IOTs amplifies the effect of major economic shifts on the overall population.
- To reflect this, a range of population estimates for Christmas Island have been projected, from 929 to 3,054 people in 2023, based upon three economic scenarios (not including visitors).
- Given the relatively stable trajectory of the Cocos (Keeling) Islands' population over the last four Censuses, a single population projection of 545 by 2023 (not including visitors) has been developed.
- The increasing number of ageing residents on the IOTs mean there are likely to be increasing levels of chronic disease under all scenarios.

Individual characteristics such as age, gender and genetic factors can have a significant impact on health. In particular, as people move through different age groups, they are exposed to different circumstances which may influence their health behaviours, as well as the likelihood of developing poorer health outcomes.

As noted in the context discussion above, the population is ageing steadily on both Christmas Island and the Cocos (Keeling) Islands. At the 2016 Census, 9.6% and 15.1% of the respective populations were over 65 years of age. The population age profile taken from the ABS census in 2016 for Christmas Island and the Cocos (Keeling) Islands reflects a near stationary pyramid shape, typical of that of an ageing population elsewhere in Australia. Somewhat atypically when compared with the rest of Australia, both Islands have a sharp narrowing of the population profile between the ages of 10 and 30; the pattern is most marked for the Cocos (Keeling) Islands. This reflects the need for children and young adults to undertake the later years of their schooling and tertiary education on the mainland.

Figure 4: Christmas Island and Cocos Islands Age Profile, 2016



Source: ABS Census of Population and Housing, 2016

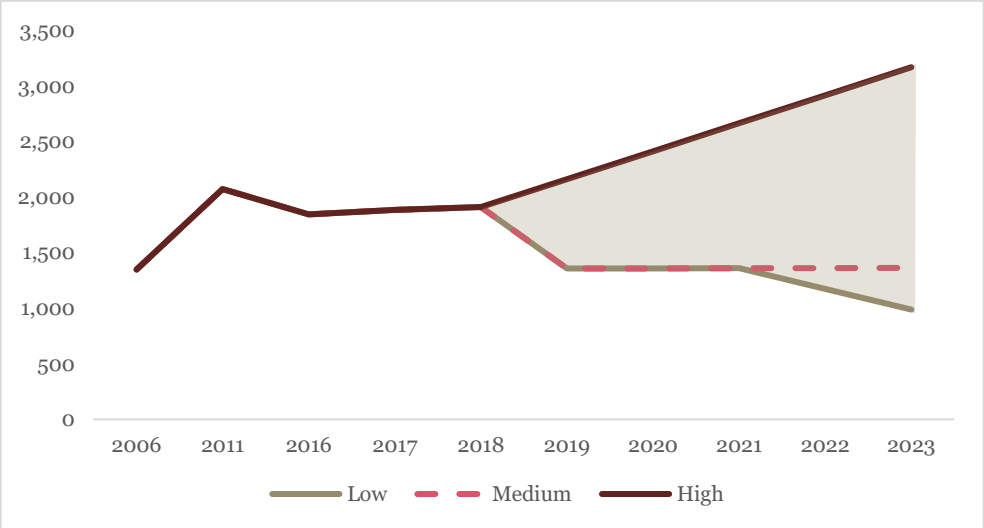
The 2011 Census data indicate that the population of Christmas Island experienced a spike in the male population, approximately between the ages of 20 and 40 years. This demonstrates the impact which the IDC has had on the population of the Island over the last decade, causing significant fluctuations in the overall population and the proportion of elderly people.

Population growth projections

Given the small size of the IOTs, the effect of economic changes tends to elicit "lumpy" responses in population, as the example noted above illustrates. On Christmas Island, the economy is heavily dependent on activity associated with the phosphate mine and the IDC. The direct employment created by these enterprises supports a significant proportion of the non-tradable sector. It is therefore important to consider a range of scenarios when projecting the future population of Christmas Island. Three have been developed:

- Low scenario – the IDC goes into "hot contingency" and remains unused for the strategic period of 2019 to 2023. The mine scales down operations towards the end of the period, as current phosphate deposits are depleted.
- Middle scenario – the IDC goes into "hot contingency" and remains unused for the strategic period. The mine continues operating at the current level. This is judged to be the most likely scenario, based upon the information available.
- High scenario – the IDC reopens during the strategic period and holds up to 1,500 detainees. The mine continues operating at the current level, and new industries may be established.

Figure 5: Christmas Island population scenarios



The remaining assumptions informing the projections across the strategic period are as follows:

- Visitor numbers remain steady on both Islands in all scenarios.
- The death rate is assumed to be 5.3 per 1000 population based on the ABS estimate of the Remote/Very Remote Australia death rate.
- 80% of deaths occur over the age of 65, based on Australian Institute of Health and Welfare (AIHW) estimates.
- A multiplier of 2.5 is applied to the estimated number of mine workers to approximate family size.
- The majority of mine workers and their families, IDC staff, and detainees are assumed to be under 65 years of age. The number of mine workers in 2018 is taken to be approximately 150.

- ABS population data is used to estimate the number of people turning 65 each year (extrapolation from 2016).

- The number of people over 65 is anticipated to increase by the same amount under all economic scenarios given the assumptions on birth and death rates. However, the proportion of over 65s in the population may vary between each scenario. During the community consultations IOT residents expressed a range of preferences with respect to ageing-in-place or moving off the Islands to access residential aged care and family support.

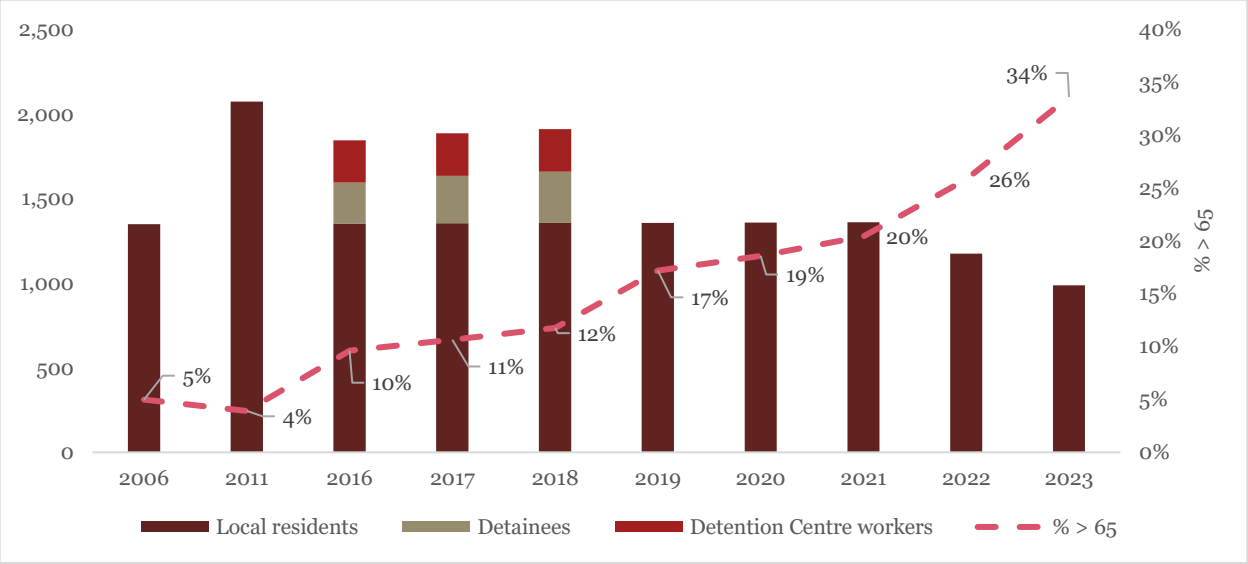
Note: Data on the number of detainees and IDC staff on Christmas was only available for 2016. In the absence of IDC data, the following assumption was made:

- The natural change in the local resident population has been projected from an assumed base of 1,351 at the Census time in 2016, using the assumed birth and death rates for Christmas Island and Very Remote Australia.

Christmas Island – low scenario population projection

Figure 6 illustrates the projected change in Christmas Island's population associated with the low economic activity scenario. The IDC remains in "hot contingency" across the period (2019-23) and the mine reduces activity over time, resulting in a decrease in the local resident population. The number of people over the age of 65 increases, which significantly increases the proportion of the ageing population to 34% by 2023. This reflects the assumption that detainees, IDC staff, and mine workers are generally under 65.

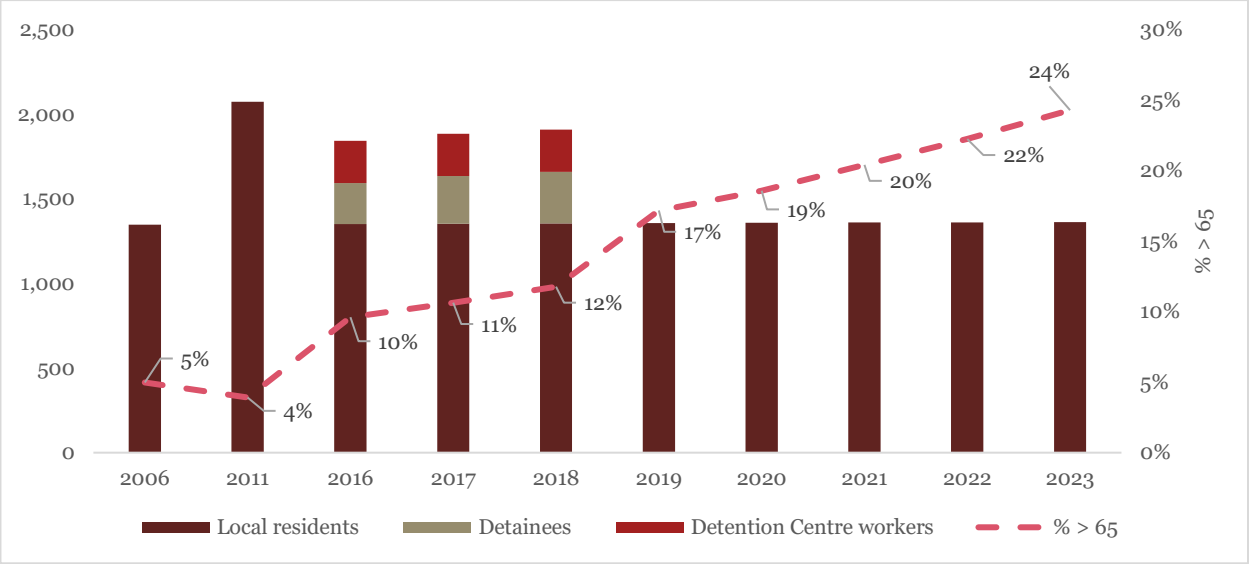
Figure 6: Christmas Island Population Projection (Low Scenario)



Christmas Island – middle scenario population projection

Figure 7 illustrates the projected change in Christmas Island's population associated with the middle economic activity scenario. The IDC remains in "hot contingency" across the period and the phosphate mine remains open at the current level of activity. This results in the local resident population remaining relatively stable after birth and death rates are taken into account. The number estimated number of people over 65 each year increases, however, as the working age population is greater than the low scenario due to the mine remaining open, the proportion of ageing population only increases to 24% by 2023.

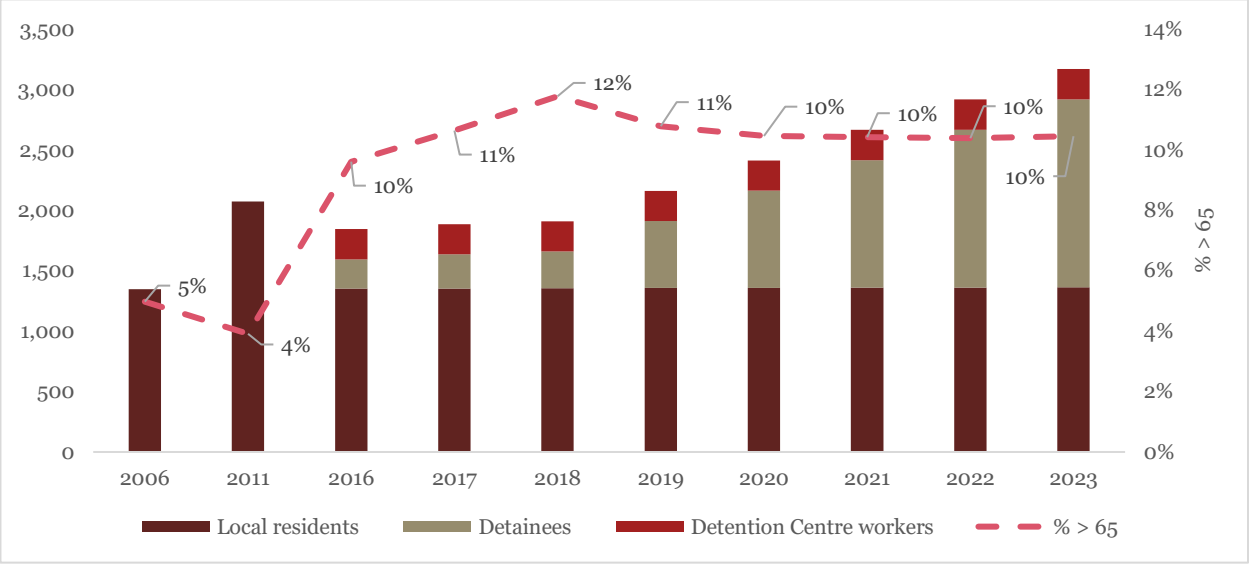
Figure 7: Christmas Island Population Projection (Middle Scenario)



Christmas Island – high scenario population projection

Figure 8 illustrates the projected change in Christmas Island's population associated with the high economic activity scenario. In this scenario both the mine and the IDC remain open, new industries may develop, and the detainee population grows to around 1,500 between 2018 and 2023. The proportion of ageing population falls to 10% as the increasing number of people over 65 is offset with the increase in activity of the IDC. This reflects the assumption that the IDC population would be skewed towards under 65s.

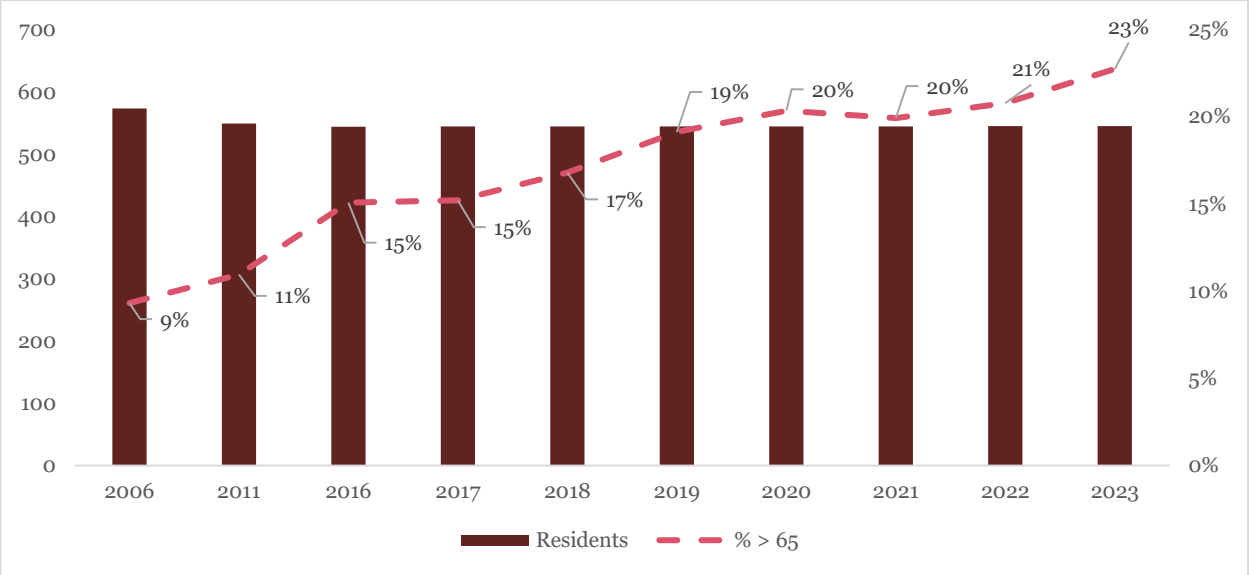
Figure 8: Christmas Island Population Projection (High Scenario)



The Cocos (Keeling) Islands population projection

Figure 9 below shows the population projection for Cocos (Keeling) Islands. Only one scenario was modelled for the Cocos (Keeling) Islands' population as there are not as many factors foreseen to effect the population size. As the assumed death and birth rates are almost identical, the population is expected to remain stable over the next five years. However, the number of people over 65 each year is expected to increase, thereby increasing the proportion of the population over 65s to 23% by 2023.

Figure 9: The Cocos (Keeling) Islands Population Projection



The effect of ageing on health

Older populations are more likely to exhibit health risk factors including being overweight or obese, lack of physical activity, poor diet and psychological distress.[8] These risk factors increases the likelihood of developing chronic diseases.

According to the AIHW, the top diseases burdens in persons aged 65 and over include:[9]

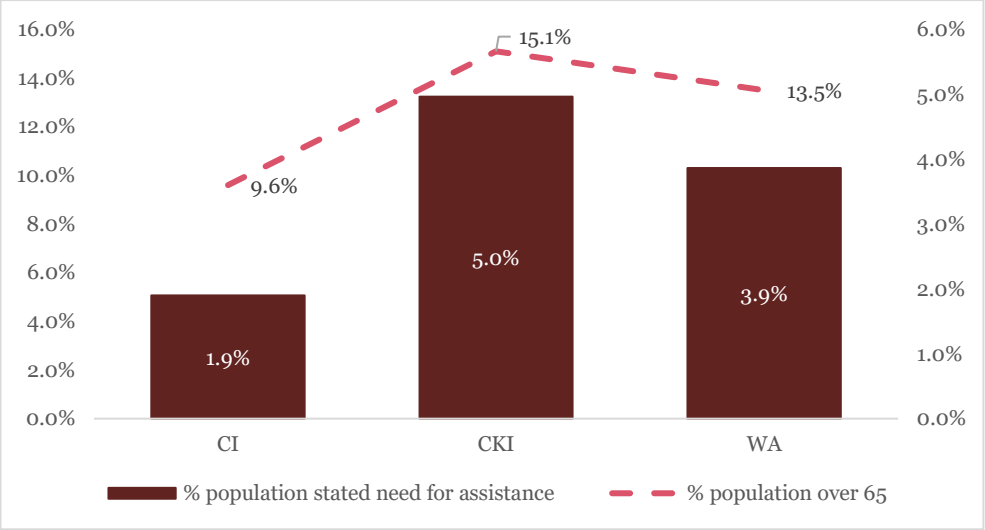
- Coronary heart disease;
- Dementia;
- Chronic Obstructive Pulmonary Disease;
- Cancer;
- Diabetes;
- Musculoskeletal disease.

These risk factors and some of these diseases are explored further in Section 2.2.2 on Health Behaviours and Status. According to the 2016 ABS data, the proportion of population over 65 is 9.6% on Christmas Island which is lower than 13.5% in Western Australia. However, the proportion of population over 65 is higher on the Cocos (Keeling) Islands than both Christmas Island and Western Australia at 15.1%. As shown in the figure below, these proportion follows the same pattern for the proportion of the population with a stated need for assistance.

[8] AIHW, "Older Australia at a glance", 2017

[9] AIHW "Health and Functioning", 2016

Figure 10: Proportion of population with stated need for assistance



Source: ABS Census of Population and Housing, 2016

Community and clinical consultations on Christmas Island and the Cocos (Keeling) Islands also raised that some of the older populations do not speak English well or at all, which is supported by Census evidence (refer to Figure 13). This may be a barrier to the way in which they access and engage with health services. It was also raised that the increasing number of ageing population means that there is a greater need for services such as residential services and respite services.

2.2.1.2 Physical environment

Key points

- Christmas Island and the Cocos (Keeling) Islands are two of the most remote locations in Australia. Very remote and remote areas of Australia typically have poorer access to and use of health services than residents of regional areas and major cities.
- While the remoteness of the IOTs does limit residents' access to certain specialist and complex services, both Christmas Island and the Cocos (Keeling) Islands have strong primary care services which are easily accessible by the communities.
- The cost of shipping and air freight are reflected in high prices for fresh foods compared to processed and packaged food. This may be associated with poorer diet and associated risk factors.
- Due to the lack of State-imposed tobacco and alcohol duties, cigarettes and alcoholic drinks are less expensive than on the mainland. This may be associated with greater health risk factors than would otherwise be the case.

The physical environment – including factors such as access to clean water and fresh food, access to services, and the community context – all contribute to the health of the population. While in general the quality of basic infrastructure and services is high, the unusual remoteness of the IOTs has an impact on some of these factors, and the implications for health are explored below.

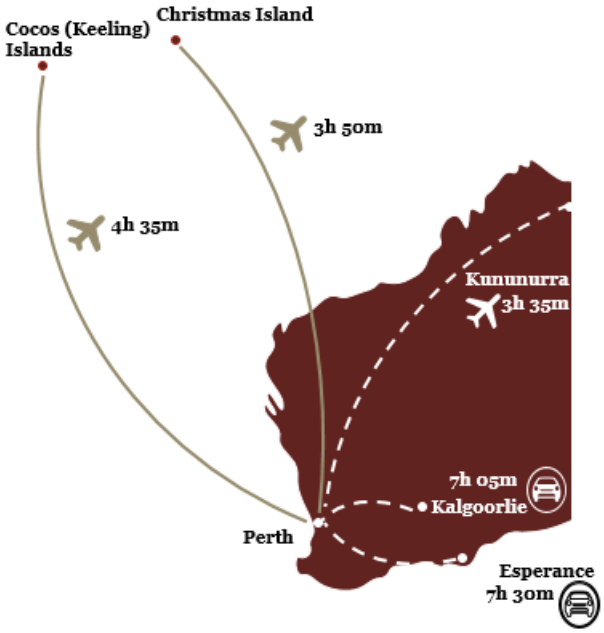
Christmas Island and Cocos (Keeling) Island are considered very remote regions of Australia, surrounded as they are by the Indian Ocean and with a flight time of 4 hours 35 minutes and 3 hours 50 minutes from

Christmas Island and the Cocos (Keeling) Islands to Perth respectively. The Accessibility and Remoteness Index of Australia (ARIA+) assesses them as two of the most remote locations in the country.

Populations living in remote and very remote areas generally have poorer access to and use of health services than people in regional areas and major cities.[10] In large part, this is due to the distance to available primary and secondary healthcare services. This often results in remote populations having an increased likelihood of utilising the tertiary services compared to urban populations.

Unlike many other rural and remote areas, the communities on both Christmas Island and the Cocos (Keeling) Islands have access to strong primary care clinics and acute services capable of stabilising patients in an emergency. However, the remoteness of the IOTs does mean that a range of secondary and tertiary services can only be accessed by flying to Perth on one of the two weekly flights. Currently, patients are required to fly to access these services on the mainland. This travel is time consuming and has a significant level of associated out-of-pocket expense for patients, in addition to representing a significant cost for Infrastructure (around 10% of the IOTHS budget).

Figure 11: Map of Christmas Island, the Cocos (Keeling) Islands and WA



According to the AIHW, Australians living in rural and remote areas tend to have shorter lives, higher levels of disease and injury, and poorer access to and use of health services compared to people living in metropolitan areas.[11] People living in remote areas are more likely to engage in behaviours associated with poorer health, including higher rates of smoking, alcohol intake, overweight and obesity, poor diet and lower levels of exercise. The level of these risk factors on the IOTs is explored in further detail in the Section 2.2.2 on Health Behaviours and Status.

The remoteness of the Islands has a significant effect on access to fresh food. Since Christmas Island and the Cocos (Keeling) Islands are a significant distance from Perth the cost of transportation is high, and fresh food

[10] AIHW, "Rural & remote health", 2017

[11] AIHW, "Rural & remote health", 2017

is significantly more expensive than on the mainland.[12] In 2012 food prices were 81.1% higher and 82.1% higher than Perth respectively. This may constitute a disincentive for people to purchase healthy foods over processed and packaged foods.

Conversely, the prices of tobacco and alcohol are lower than Perth, as they are duty free on the Islands. In 2012, the tobacco and alcohol prices on the IOTs were 61.7% and 85.2% of the price in Perth respectively. This may encourage people to smoke and drink alcohol at greater rates than would otherwise be the case, with consequent negative impacts on their health.

2.2.1.3 Social and economic environment

Key points:

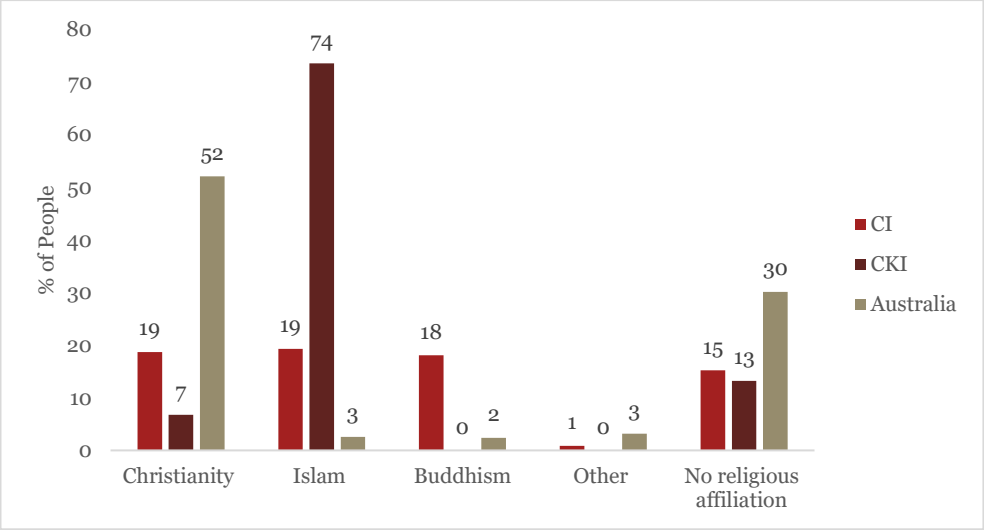
- Compared to mainland Australia, both Christmas Island and the Cocos (Keeling) Islands exhibit increased levels of cultural and linguistic diversity, with high rates of adherence to Islam and Buddhism, and 14% (Christmas Island) and 29% (Cocos (Keeling) Islands) of residents who do not speak English well or at all.
- Dwelling patterns on Christmas Island are similar to the mainland, while on the Cocos (Keeling) Islands there are many more large households with extended families living together.
- Unemployment rates on both Christmas Island and the Cocos (Keeling) Islands were lower than the mainland (Western Australia) in 2016. However the labour force participation rates were also lower, potentially reflecting the older population, and also the lack of childcare services on the Cocos (Keeling) Islands.
- Median incomes on the Cocos (Keeling) Islands are lower than in Western Australia, while they are higher on Christmas Island. Due to income pooling, household incomes are higher on both Islands than in Western Australia on average.
- The Cocos (Keeling) Islands are in the bottom 1-3 deciles of the 2011 SEIFA indices – at the lower end of the socio-economic scale. Christmas Island sits around the middle deciles on the indices. Analysis of these indices at the SA1 level indicate that there are marked socio-economic inequalities within the IOT communities. This would be associated with variations in risk factors across the community.
- Reported crime rates on the IOTs are significantly lower than in Regional and Metropolitan WA.

Cultural and linguistic diversity

The IOTs have a diverse cultural population comprising of three major religious affiliations, and a range of language proficiency levels and ethnicities. Figure 12 below shows the diverse range of religious affiliations. Christmas Island residents have roughly equal levels of adherence to Christianity, Islam, Buddhism and no religious affiliation. On the Cocos (Keeling) Islands, the majority of the population (74%) is affiliated with Islam, with 7% being affiliated with Christianity or maintaining no religious affiliation. It is important to take into account these religious affiliations as they may have an impact on individuals' behaviours which may impact on their health, or the way in which they engage with the health service.

[12] IOT Price Index Study in 2012 conducted by the Department of Regional Development and Lands (WA)

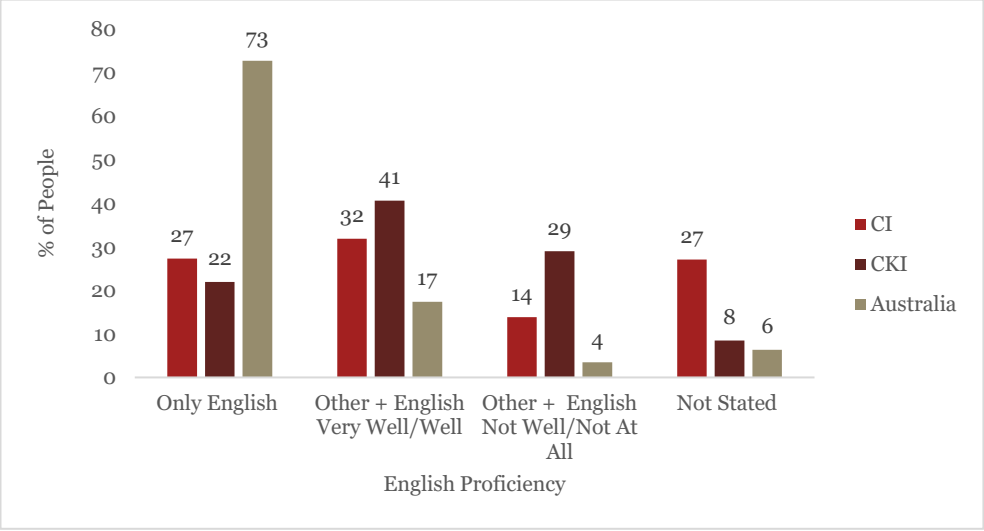
Figure 12: Religious Affiliations on Christmas Island and the Cocos (Keeling) Islands, 2016



Source: ABS Census of Population and Housing, 2016

Both Islands are also diverse linguistically with 14% and 29% of the population on Christmas Island and the Cocos (Keeling) Islands respectively not speaking English well or at all – significantly greater than in the general population. These figures may be understated on Christmas Island as the English proficiency level for a notable proportion of the population is not stated in the ABS data. The lack of English proficiency in these segments of the population may be a barrier to accessing IOTHS services.

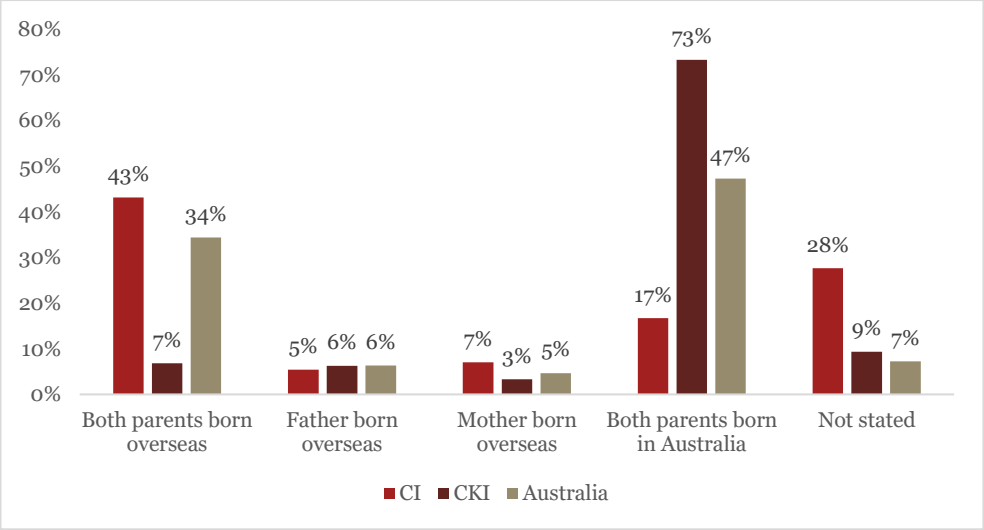
Figure 13: English Proficiency on Christmas Island and the Cocos (Keeling) Islands, 2016



Source: ABS Census of Population and Housing, 2016

In line with the linguistic diversity, the ethnicities present on Christmas Island and the Cocos (Keeling) Islands are diverse. On Christmas Island, 43% of the population had both parents born overseas.

Figure 14: Parents' birthplace, Christmas Island and the Cocos (Keeling) Islands, 2016

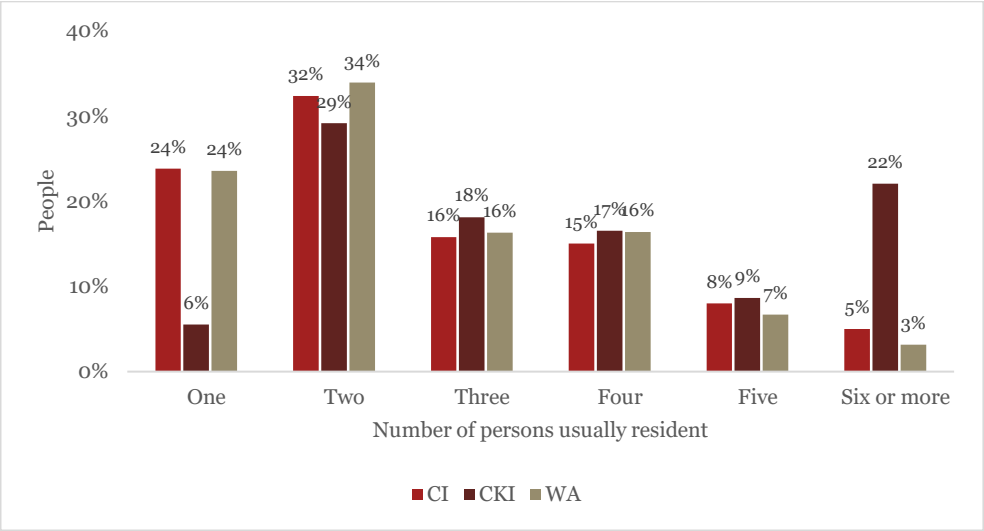


Source: ABS Census of Population and Housing, 2016

Dwellings

The figure below shows the household composition of Christmas Island, the Cocos (Keeling) Islands and WA. The spread of the population by household composition is very similar between Christmas Island and WA. The population on the Cocos (Keeling) Islands tend to live in much larger households with 22% of the population living in households with six or more people and only 6% of the population living in single person household.

Figure 15: Household composition on Christmas Island and the Cocos (Keeling) Islands, 2016



Source: ABS Census of Population and Housing, 2016

Socioeconomic status

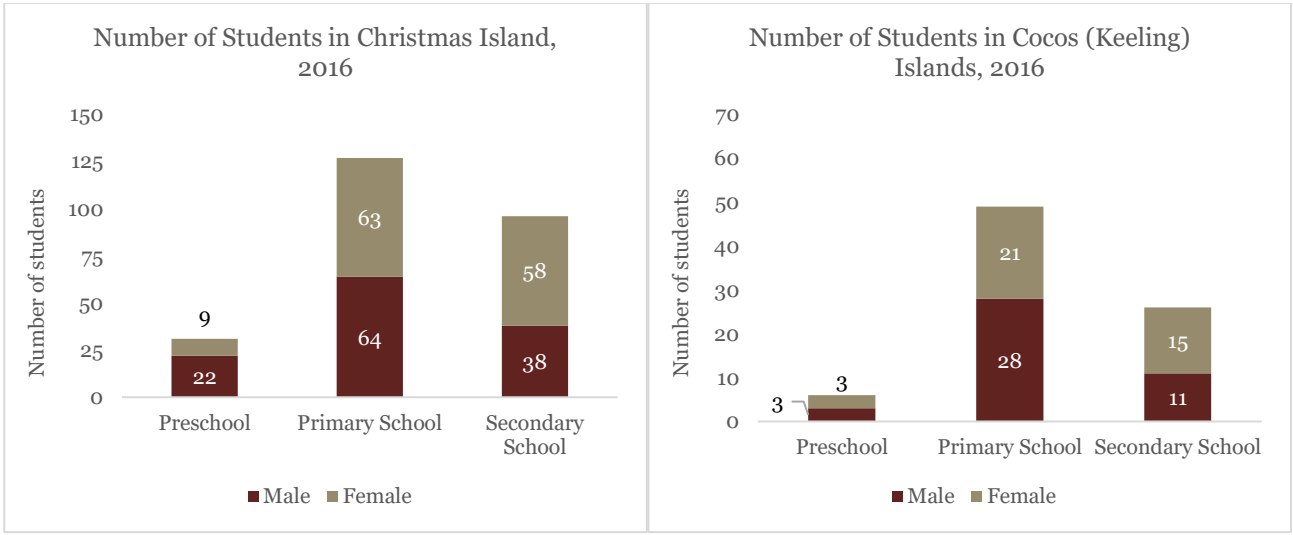
Socioeconomic factors are important determinants of health and wellbeing in Australia. In general, people with lower socioeconomic status are at greater risk of poor health, have higher rates of illness, disability and death, and live shorter lives than those who are more advantaged.[13] An individual or community's socioeconomic position can be understood by looking at different factors such as education, income, employment, or composite measures such as the SEIFA Index of Relative Socio-Economic Disadvantage (refer to Table 2 for more detail and definitions).

Education

Educational attainment is associated with better health throughout life as it equips people to achieve stable employment, have a secure income, live in adequate housing and help themselves and their family members to make better informed choices about health.

The level of education attainment is not reliably available for the IOTs, however, the number of students attending pre-, primary and secondary school is shown in the figure below. On both Christmas Island and the Cocos (Keeling) Islands, there are more children in Primary school than there are in Secondary school. This is likely due to students leaving for the mainland to complete high school as the schools cater up to Year 10 students (this would be voluntary on Christmas Island, but school only extends to Year 10 on the Cocos (Keeling) Islands).

Figure 16: Number of students in Christmas Island and the Cocos (Keeling) Islands



Source: ABS Census of Population and Housing, 2016

Income and employment

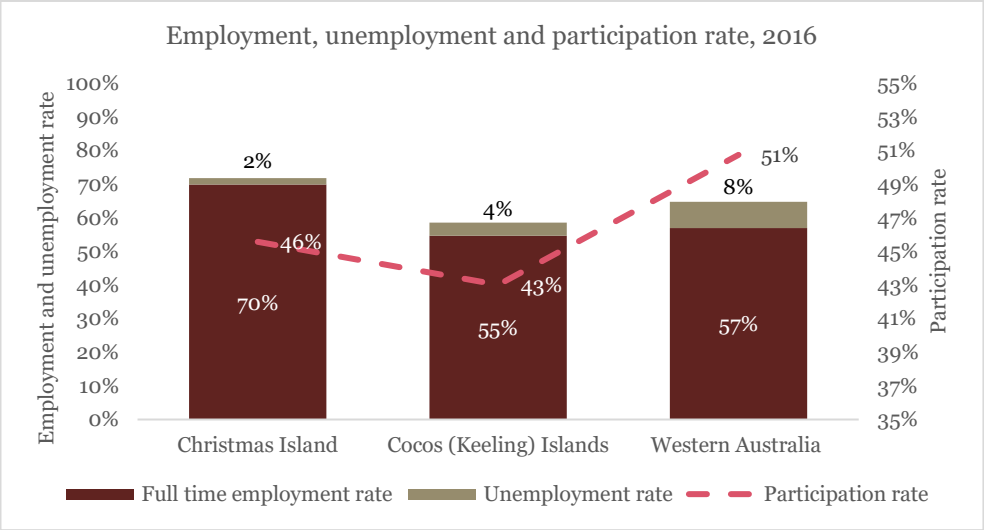
Employment and wealth are significant factors in determining socioeconomic position and therefore health. Higher income allows for greater access to goods and services that provide health benefits such as better food, housing, health care options, and other behaviours that may benefit health, such as gym usage.

Unemployment rates in both Christmas Island and the Cocos (Keeling) Islands are lower than that of WA. Christmas Island has a higher full time employment rate than WA while the Cocos (Keeling) Islands has a

[13] AIHW "Australia's Health 2017: Determinants of Health",2016

slightly lower full time employment rate compared to WA. However, the participation rates on both Christmas Island and the Cocos (Keeling) Islands are lower than in WA. It is estimated that 54% and 57% of the population are not part of the labour force on Christmas Island and the Cocos (Keeling) Islands respectively. This may be due to the ageing populations on the Islands, the IDC detainee population on Christmas Island, a lack of childcare services keeping some adults out the workforce, and cultural preferences for parent care of children.

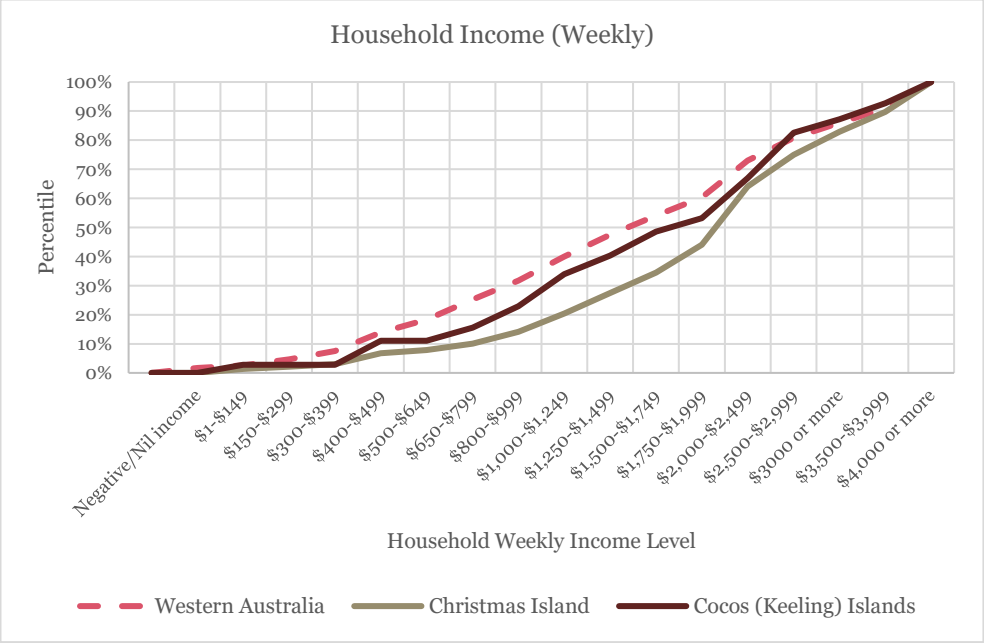
Figure 17: Employment, Unemployment and Participation rates



Source: ABS Census of Population and Housing, 2016

Figure 18 below indicates that both Christmas Island and the Cocos (Keeling) Islands have greater household incomes on average than WA as a whole.

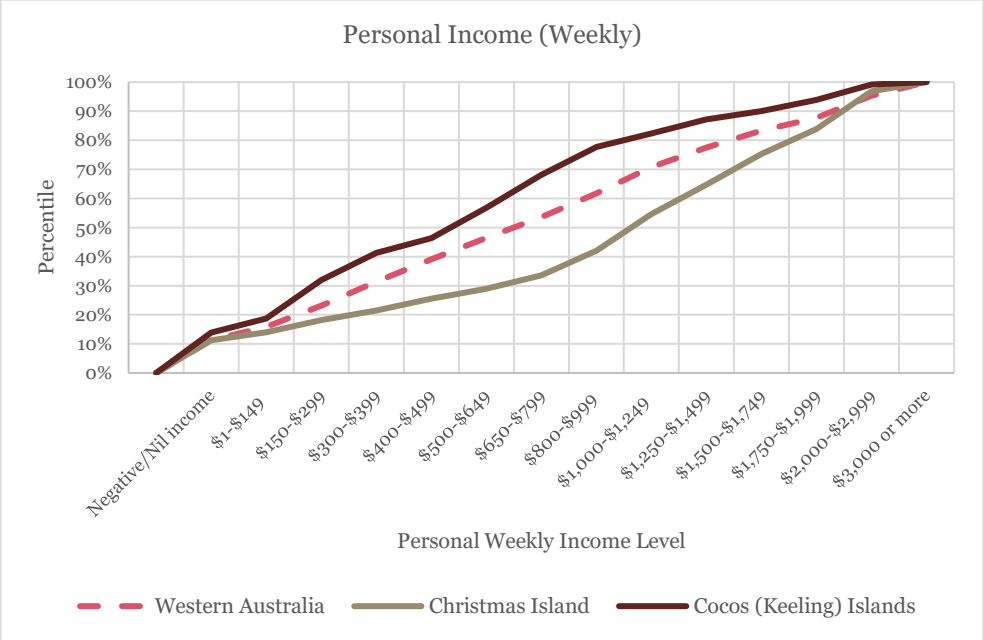
Figure 18: Household Weekly Income, CI, the Cocos (Keeling) Islands and WA 2016



Source: ABS Census of Population and Housing, 2016

However, looking more closely at individual income (see Figure 19), this pattern breaks down and becomes more nuanced. While personal incomes remain higher on Christmas Island than those in WA on average, the personal incomes of residents of the Cocos (Keeling) Islands fall behind. This reflects the larger household sizes on the Cocos (Keeling) Islands, Home Island in particular, which are pooling a set of lower incomes into a household income above the WA average.

Figure 19: Personal Weekly Income, CI, the Cocos (Keeling) Islands, and WA 2016



Source: ABS Census of Population and Housing, 2016

The table below shows the SEIFA for Christmas Island, the Cocos (Keeling) Islands and for the relevant comparator locations in WA, Queensland and other Australian Overseas Territories (refer to section 2.1.4 for more details). SEIFA is a product developed by the ABS which ranks areas in Australia according to relative socioeconomic advantage and disadvantage, economic resources, educational attendance and attainment, and occupation. There are four indexes measured:

- **Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD):** this index summarises information about the economic and social conditions of people and households within an area, including both relative advantage and disadvantage measures.
- **Index of Relative Socioeconomic Disadvantage (IRSD):** this index is a general socio-economic index that summarises a range of information about the economic and social conditions of people and households within an area. Unlike the other indexes, this index includes only measures of relative disadvantage.
- **Index of Economic Resources (IER):** this index focuses on the financial aspects of relative socio-economic advantage and disadvantage, by summarising variables related to income and wealth.
- **Index of education and occupation (IEO):** this index is designed to reflect the educational and occupational level of communities.

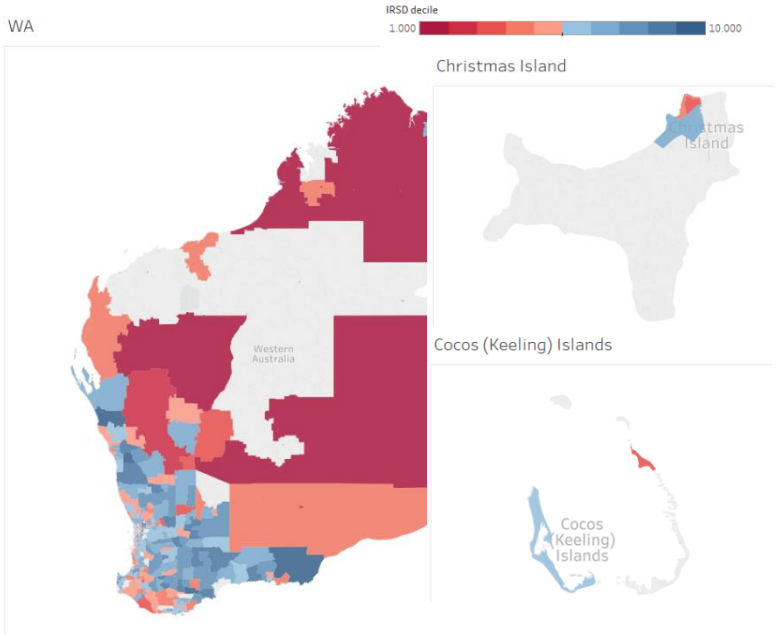
For all of these indexes, a low decile indicates a relatively higher level of socioeconomic disadvantage while a high decile indicates relatively less disadvantage. On all indexes, Christmas Island has higher scores than the Cocos (Keeling) Islands.

Table 2: Socioeconomic Indexes for Areas (SEIFA) for CI, the Cocos (Keeling) Islands and comparators

Location	*ABS Urban Centre & Locality population (2016)*	*SA2 name*	*SA2 usual resident population (2016)*	*Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) decile (2011)*	*Index of Relative Socio-economic Disadvantage (IRSD) decile (2011)*	*Index of Economic Resources (IER) decile (2011)*	*Index of Education and Occupation (IEO) decile (2011)*
Christmas Island	1,843	Christmas Island - OT	1,843	5	4	4	5
Carnarvon	4,426	Carnarvon	5,367	2	2	2	3
Fitzroy Crossing	1,141	Derby – West Kimberley	8,322	1	1	1	2
Halls Creek	1,546	Halls Creek	3,598	1	1	1	1
Norfolk Island	1,748	Norfolk Island – OT	1,748	N/A	N/A	N/A	N/A
Longreach	2,738	Longreach	3,727	5	5	4	6
Cocos (Keeling) Islands	544	Cocos (Keeling) Islands – OT	544	1	1	3	1
Meekathara	573	Meekathara	3,160	1	1	1	3
Kalumburu	421	Kununurra	7,496	2	1	1	5
Warmun	366	Kununurra	7,496	2	1	1	5
Boulia	273	Far Central West	2,114	2	2	2	3

Drilling down to the SA1 level (refer to Figure 20 below), it can be seen that there are also marked socioeconomic inequalities within the IOTs, evidenced by the variations in the IRSD within each Island. This indicates that there may be important differences in how sections of the community access healthcare or experience health outcomes. For example, inspection of the map of the Cocos (Keeling) Islands shows clearly the lower socioeconomic status of Home Island relative to West Island, as measured on the IRSD.

Figure 20: 2011 IRSD for Christmas Island, the Cocos (Keeling) Islands and Western Australia



People in the lowest socioeconomic group are on average more likely to have risk factors such as smoking, inadequate healthy food consumption (including fruit and vegetables), insufficient physical activity, overweight or obesity and high blood pressure. People in higher socioeconomic groups however, were more likely to exceed alcohol consumption guidelines compared to lower socioeconomic groups.[14]

The prevalence of some chronic diseases such as diabetes, heart diseases, lung cancer and mental and behavioural problems are also higher in lower socioeconomic groups compared to higher socioeconomic groups. These will be discussed further in the next Section 2.2.2 on Health Behaviour and Status.

Crime rates

Compared to mainland WA, the IOTs exhibit very low levels of reported crime. This finding is based upon a comparison of published WA Police data[15] on offences against property and the person, as well as drug offences, with IOTs data provided by the Australian Federal Police (AFP). Figure 21 shows clearly the difference between reported crime rates per 1000 inhabitants.

[14] AIHW, "Australia's Health 2016: Health across socioeconomic groups", 2016

[15] WA Police data for 2016-17 can be found at: https://police.wa.gov.au/Crime/CrimeStatistics#/

Figure 21: Offence rate comparison, WA and the IOTs, 2016-17

Sources: IOT crime statistics provided by AFP; WA Police published crime statistics; ABS population data for Regional and Metropolitan WA.

2.2.2 *Health behaviours and status*

The choices people make and their behaviours can have a significant impact on health. The resulting risk factors from unhealthy behaviours increase the likelihood that people will develop an illness or disability. In this section, the health behaviours and risk factors within the IOTs are explored along with the health status of the population.

2.2.2.1 Health behaviours

Key points:

- The combination of remoteness, an ageing population, the low socioeconomic status on Cocos (Keeling) Islands, and the middle socioeconomic status on Christmas Island, is reflected in elevated health risk factors tracked by the IOTHS. These elevated risks would contribute to an increased disease burden.
- The current smoking rates have been approximated from IOTHS activity data, and are similar to comparable remote and very remote communities. The proportion of current smokers on Christmas Island slightly exceeds the national benchmark, but the rate for the Cocos (Keeling) Islands is lower.
- The estimated proportion of IOT residents who are overweight or obese exceeds national and comparator community benchmarks.
- The high cost of freight to the IOTs results in higher prices for fresh foods than on the mainland. This may be a significant factor in the levels of obesity and excess weight in the population.

Due to the unique characteristics of Christmas Island and the Cocos (Keeling) Islands populations explored above, including high proportion of elderly people in the general population, the unusual remoteness of the Islands, and the low to middle socioeconomic status, several elevated risk factors may exist within the communities.

The Australian Burden of Disease Study 2011 found the leading risk factors contributing to the national disease burden were:[16]

- Tobacco use (accounting for 9.0% of the total burden);
- High Body Mass Index (BMI) (related to overweight and obesity, 7.0% based on enhanced analysis by the AIHW published in 2017 which used updated evidence of diseases associated with overweight and obesity and enhanced modelling techniques[17]);
- Alcohol use (5.1%);
- Physical inactivity (5.0%);
- High blood pressure (4.9%).

Analysis of IOTHS activity data and community consultations have identified tobacco and alcohol use, high BMI, and physical inactivity as important risk factors in the population. While the IOTHS does not conduct surveys to determine the rates of risky health behaviours, the relevant data on patient status is collected for a large proportion of the population. In order to approximate risky behaviour rates, IOTHS data on self-reported behaviours have been determined as a proportion of the population. This approach is likely to

[16] AIHW "Risk Factors to Health: Australian Burden of Disease Study", 2011

[17] AIHW, "Impact of overweight and obesity as a risk factor for chronic conditions. Australian Burdon of Disease Study", 2017

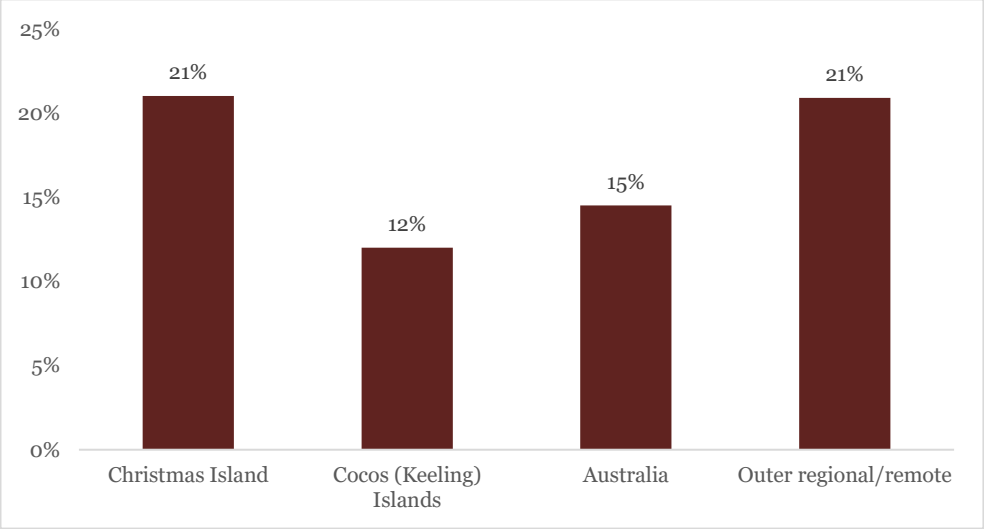
understate the rates somewhat, as the status of some patients is not recorded. Additional people engaging in a given behaviour adds to the numerator, while the denominator (the IOT population) remains the same.

Tobacco and alcohol

Based on the IOTHS activity data for 2015-16, an estimated 21% of patients in Christmas Island and 12% of patients in the Cocos (Keeling) Islands over 18 are reported to be current smokers. These figures may somewhat understate the actual proportion of smokers, as 20% of patients did not have a recorded smoking status (refer to the explanation above). Furthermore, the data only captured patients over 18 rather than the whole population; national smoking rates are based upon surveys which capture current smokers aged 14 and above.

The estimated proportion of smokers on Christmas Island is similar to the rate of outer regional and remote Australia, and exceeds the Australian average. The estimated proportion of smokers of the Cocos (Keeling) Islands is lower than Christmas Island and the Australian average.

Figure 22: Estimated proportion of current smokers[18]



Sources: PHIDU, 2018; IOTHS activity data 2015-16

In 2011, tobacco smoking was the leading risk factor contributing to death and disease in Australia and was responsible for 9% of the total burden of disease and injury. Tobacco smoking increases the risk of cardiovascular disease, respiratory diseases and other health problems. Alcohol was responsible for 5.1% of the total burden of disease and injury in Australia in 2011 and increases the risk of injury and diseases such as liver disease.

Australia has been successful in reducing smoking prevalence over many years through public health strategies such as advertising bans, price increases, restrictions on tobacco sales to minors, and public education and media campaigns.[19] As a result, fewer people both proportionally and absolutely are smoking now compared to 20 years ago. In 2013, the proportion of people aged over 14 smoking was 13%, which is almost half the proportion in 1991 (24%). It should be noted that the IOTs are not subject to the same levies on tobacco products as on the mainland, and are on average 15% (the Cocos (Keeling) Islands) and 38%

[18] Data on risk factors are not collected for very remote areas, and therefore only the remote comparators are included in this graph.

[19] AIHW, "Australia's Health 2016: Tobacco Smoking", 2016

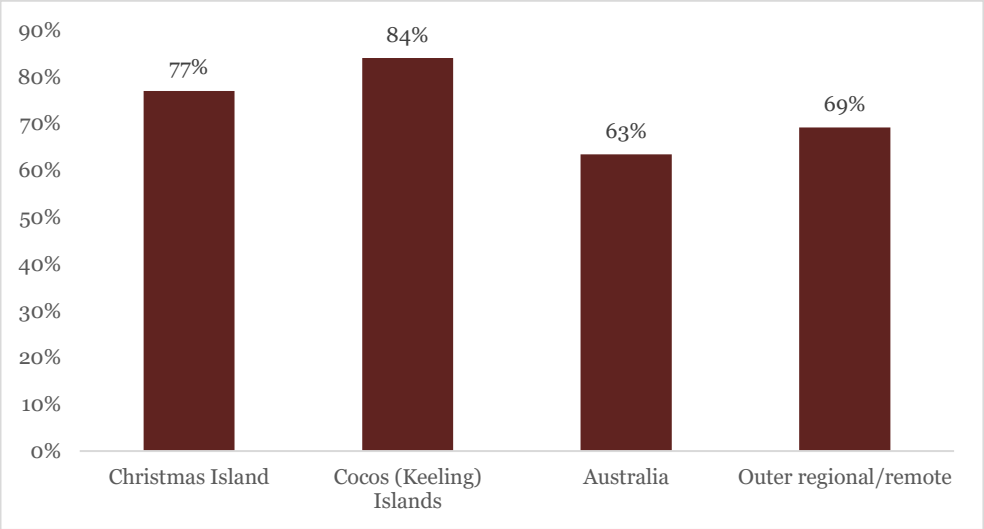
(Christmas Island) lower than tobacco prices in Perth.[20] Given current smoking rates on Christmas Island and the Cocos (Keeling) Islands are respectively above and below the Australian rate, this would seem to support a link between pricing and consumption. However, given the approximate nature of the estimated rates on the IOTs, and other potentially confounding factors, including the different demographic profiles on the Islands, it is difficult to draw firm conclusions on the effect, if any, of the absence of tobacco levies on smoking rates.

Consultations with clinical staff suggested smoking rates have decreased over the years due to the efforts of health education and promotion activities particularly in schools, although longitudinal evidence which supports this has not been identified. It was also commented that there are particularly low rates of alcohol consumption on Home Island due to the predominant religious and cultural norms amongst the Cocos Malay population. It was also noted in some clinical consultations that alcohol may be used as a coping mechanism for some mental illnesses.

Overweight, obese and physical inactivity

Overweight or obese refers to abnormal or excessive fat accumulation which presents health risks. A widely used indicator of overweight and obesity is the Body Mass Index. The IOTHS activity data for 2015-16 includes BMI estimates which indicate the overweight or obese proportion of the population is 77% and 84% in Christmas Island and the Cocos (Keeling) Islands respectively. This is significantly higher than the Australian average of 63% and higher than in relevant comparator communities.

Figure 23: Estimated proportion of overweight or obese population[21]



Sources: PHIDU, 2018; IOTHS activity data 2015-16

According to the AIHW, being overweight or obese increases the risk of diseases such as cardiovascular disease and diabetes, musculoskeletal problems, some cancers and mental health conditions.[22] There are two main factors that contribute to excess weight and obesity: poor diet, and inadequate physical activity.

The cost of food is high on Christmas Island and the Cocos (Keeling) Islands, particularly for fresh fruit and vegetables. Compared to Perth, it is estimated food costs are an average of 81.1% (Cocos (Keeling) Islands) and

[20] Infrastructure, "Indian Ocean Territories Price Index", 2012

[21] Data on risk factors are not collected for very remote areas therefore, only the remote comparators are included in this graph.

[22] AIHW, "Australia's Health: Overweight and Obesity", 2016

82.1% (Christmas Island) higher, based on a Regional Price Index study in 2012.[23] The high cost and limited availability of fresh food compared to packaged and processed foods serves as a disincentive for residents to eat healthy food.

During clinical consultations it was raised that there is an increasing rate of childhood obesity within the population. Childhood obesity increases the risk of high blood pressure and cardiovascular disease, insulin resistance and type 2 diabetes, breathing problems, and social and psychological problems. As a result, this increases the burden of disease on the individual throughout life, and on the population. According to community consultees there has been some education around healthy eating and some public health activities conducted through schools, but these have not been consistent.

There is no data that captures the general level of physical activity of the IOT population. Consultations with the clinical staff anecdotally indicated that the general level of physical activity has decreased over the years. Insufficient levels of physical activity are a significant contributor to overweight and obesity, resulting in an increased risk of developing certain diseases.

2.2.2.2 Health status

Key points:

- The health outcomes observed in the IOT are consistent with comparative populations that are remote with ageing populations. Many of the trends with respect to chronic disease are also similar to those across Australia.
- The rate of diagnosed Coronary Heart Disease (CHD) is lower than the national prevalence rate.
- The diagnosed rates of diabetes on Christmas Island and the Cocos (Keeling) Islands exceed the national prevalence rates. They are also higher than the diabetes prevalence rates for relevant comparable communities.
- The IOTHS could only provide rates of diagnosis from the patient population for communicable conditions, mental illness, oral health, injuries, maternal and child health, and mortality. Diagnoses of Coronary Heart Disease and Diabetes are recorded, but these can only provide an approximation of prevalence rates in the general community.
- The IOTHS data on other chronic diseases, mental health, maternal, child and oral health is limited to activity data drawn from Medical Director.

In the absence of IOTHS prevalence data derived from population surveys, the health status of the IOTs has been approximated by combining activity data from the IOTHS and the WA Department of Health (DoH) with population estimates. These data should not be interpreted as definitive prevalence rates. While diagnosis levels can point towards the underlying prevalence rate, they may not, for example, reflect unmet needs, especially from disadvantaged communities. The analysis has been complemented in some areas with qualitative insights drawn from consultations with medical staff and the general community on both Christmas and the Cocos (Keeling) Islands.

In general, the health outcomes observed in the IOT are consistent with comparative populations which are remote with ageing populations. Many of the trends with respect to chronic disease are also similar to those across Australia. The analysis in Section 2.2.3 shows the IOTHS is providing a comprehensive primary care service relative to comparator services.

[23] Infrastructure "Indian Ocean Territories Price Index", 2012.

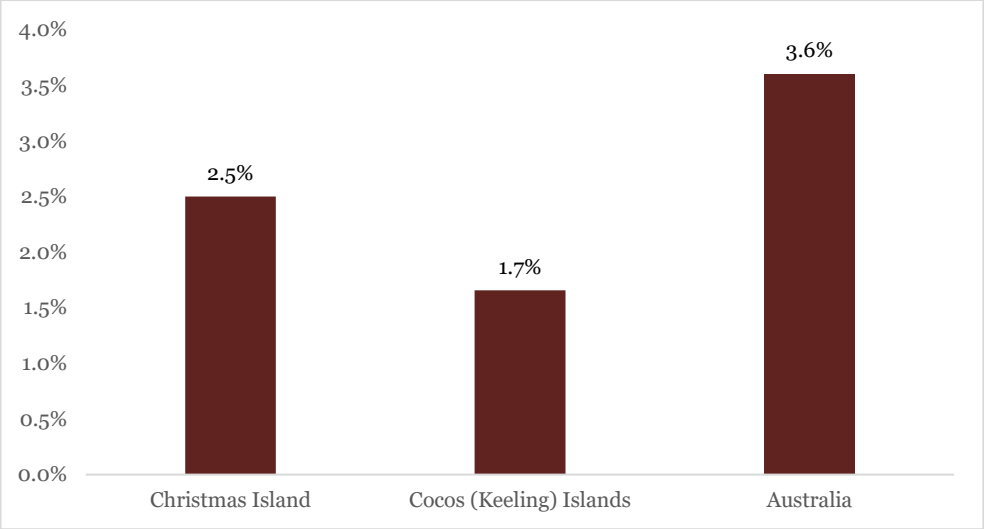
Cardiovascular disease

Cardiovascular disease (CVD) is a major cause of disease burden and death in Australia. In many cases it is preventable as many of its risk factors are modifiable.[24] The main risk factors for CVD are smoking, being overweight or obese, high blood pressure, high cholesterol, insufficient physical activity, poor nutrition and diabetes. Coronary heart disease (CHD) is the most common form of CVD and occurs when there is a blockage in the blood vessels that supply blood to the heart muscles.

In 2013, CHD was the single leading cause of death in Australia, accounting for 13% of all deaths and almost half of all CVD deaths.[25] Compared to those living in major cities, people in remote and very remote areas were 1.3 times as likely to die from CHD. Compared to those living in the highest socioeconomic areas, people living in the lowest socioeconomic areas were 1.4 times as likely to die from CHD.[26]

The estimated prevalence of CHD was calculated using a number of identified diagnosis in 2015-16 against to the 2016 population census, and well below the prevalence reported in the wider Australian population. There may be people who have CHD or CVD that have not been identified in this data if they do not make use of the service (this issue is similar to the approximation of risk behaviour rates discussed in Section 2.2.1).

Figure 24: Estimated Prevalence of Coronary Heart Disease



Sources: IOTHS activity data 2015-16; AIHW, 2016; ABS 2016 population Census; IDC detainee statistics

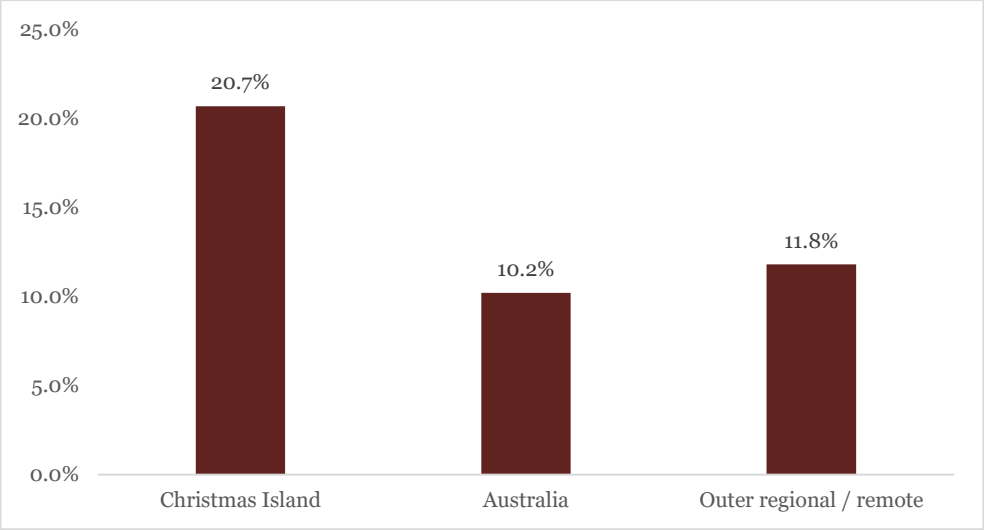
As noted above, a key risk factor for CVD is high blood pressure. Using diagnosis rates derived from the IOTHS's clinical software, the approximate prevalence rate for hypertension has been determined using the approach outlined above. For the same reasons, this may be somewhat understated. It is clear from an inspection of Figure 25 that the Christmas Island has a high rate of diagnosed hypertension compared to Australia and outer regional / remote areas.

[24] AIHW, "Heart, stroke & vascular diseases", 2017

[25] AIHW "Australia's health 2016: Coronary Heart Disease", 2016

[26] AIHW "Australia's health 2016: Coronary Heart Disease", 2016

Figure 25: Estimated Prevalence of Hypertension



Source: IOTHS diagnosis rate data for patient population, June 2018; NHS 2014-15; population projection (excluding projected IDC detainee population)

Diabetes

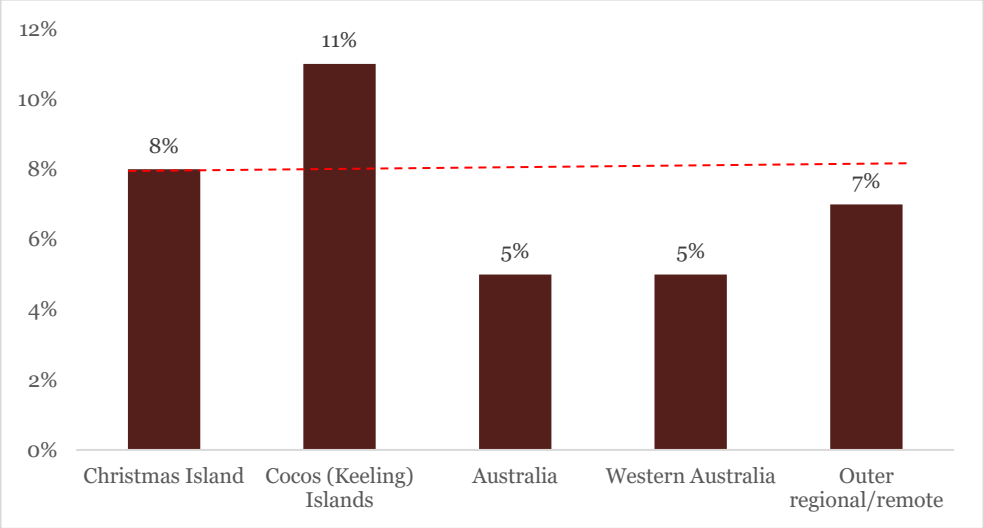
Diabetes is a chronic condition marked by high levels of glucose in the blood. There are two main types of diabetes, type 1 and type 2. Type 1 diabetes is a lifelong autoimmune disease that usually has an onset in childhood and is believed to be caused by an interaction of genetic and environmental factors. Type 2 diabetes however, is largely preventable by maintaining a healthy lifestyle. Risk factors for type 2 diabetes include insufficient physical activity, a high saturated fat intake, obesity, and tobacco smoking, all of which are present in the IOT population at rates comparable to or greater than the Australian average (See Section 2.2.2.1).

According to AIHW, the people living in remote and very remote areas were 1.9 times as likely to die from diabetes compared to those living in major cities and 1.8 times as likely to be hospitalised for diabetes.[27] The people living in the lowest socioeconomic areas were 3.6 times as likely to have diabetes, 1.8 times as likely to be hospitalised and 2.0 times as likely to die from diabetes compared to those living in the highest socioeconomic areas.

The prevalence of diabetes in Christmas Island and the Cocos (Keeling Islands) has been calculated using the number of identified diagnoses in 2015-16 against the 2016 population census data. These prevalence rates may be somewhat understated as the IOTHS data only captures patients that have used the health service rather than the whole population. In spite of this, the comparison against the estimated rates for Australia and other comparators show that Christmas Island and the Cocos (Keeling Islands) have higher proportion of diabetes than the general population.

[27] AIHW, "Australia's Health 2016: Diabetes", 2016

Figure 26: Estimated Prevalence of Diabetes[28]



Sources: IOTHS activity data 2015-16; AIHW, 2016; PHIDU, 2018; ABS population Census 2016; IDC detainee statistics

Clinical staff consulted confirmed that diabetes is a growing issue, particularly in relation to the increasing number of young patients being diagnosed with diabetes largely due to physical inactivity and poor diet. Diabetes may result in a range of health complications including heart disease, kidney disease, blindness and amputation.

Other chronic diseases

There are other chronic diseases likely to be prevalent on the IOTs based on the determinants of health and risk factors discussed in the sections above. These include conditions such as kidney disease, cancer and other chronic diseases linked to an ageing population.

The IOTHS provided diagnosis rates for cancer, chronic kidney disease (CKD), and a range of musculoskeletal problems. These diagnosis rates have been used to estimate prevalence as a proportion of the total population, and as a result rates may be understated, for reasons discussed previously. The approximated prevalence rates for Christmas Island and the Cocos (Keeling) Islands have been presented alongside rates for Australia and comparative regions where data is available.

Cancer

Cancer is a diverse group of several hundred diseases in which some of the body's cells become abnormal and begin to multiply out of control. Some of the most common risk factors for cancer include age, alcohol, diet, sunlight, and tobacco.[29] As the IOTs have an ageing population and exhibit many of these risk factors, cancer may potentially be a growing health issue in the future.

The increasing risk of cancer on the IOTs is aligned with the experience of health services across Australia. According to the AIHW, cancer was the highest-burden disease group in Australia in 2011, accounting for 19% of the overall burden of disease.[30] It was the leading category for both males (19%) and females (17%).

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[28] Prevalence of diabetes is not collected in very remote areas therefore, only the remote comparators are included in this graph.

[29] National Cancer Institute, "Risk factors for cancer", 2017

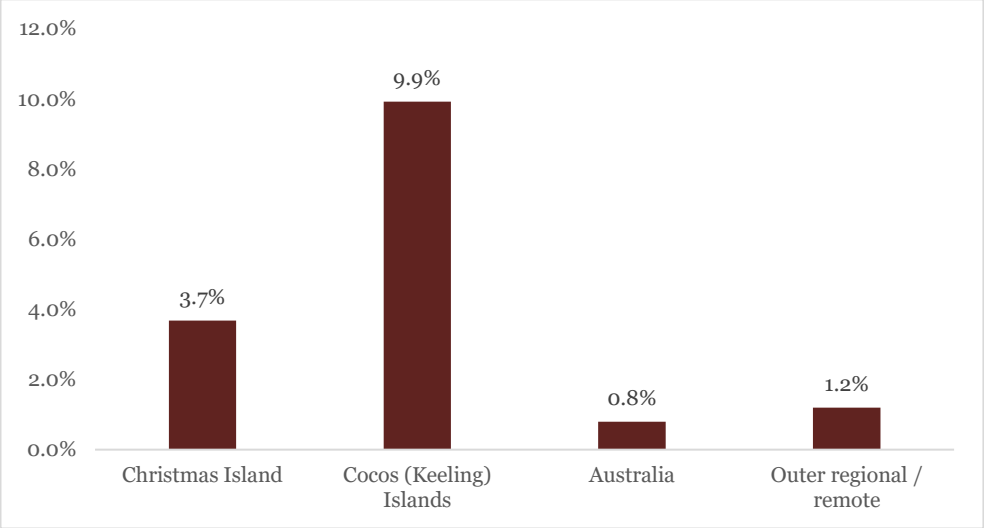
[30] AIHW, "Australia's Health": 3.1 Burden of disease and injury in Australia, 2016

Kidney disease

CKD occurs when a person has evidence of kidney damage or reduced kidney function lasting at least three months. The most severe form of CKD is end-stage kidney disease (ESKD), where kidney replacement or dialysis is required to survive. It is possible to prevent CKD as many of the risk factors can be mitigated with well-established means. These risk factors include smoking, high blood pressure and overweight or obesity. CKD often occurs with other conditions such as cardiovascular disease and diabetes and the prevalence of these diseases increases with age. As these risk factors and diseases are prevalent in the community, kidney disease is a potentially emerging risk.

Compared to those living in major cities, those living in remote and very remote areas were 2.2 times as likely to be hospitalised for CKD and 1.7 times as likely to die from CKD. Compared to those living in the highest socioeconomic areas, those living in the lowest socioeconomic areas were 1.9 times as likely to be hospitalised and 1.6 times as likely to die from CKD.[31]

Figure 27: Estimated Prevalence of Chronic Kidney Disease



Source: IOTHS diagnosis rate data for patient population, June 2018; NHS 2014-15; population projection (excluding projected IDC detainee population)

Diagnosis data from the IOTHS medical records system has been used to estimate the prevalence rate of CKD on Christmas Island and the Cocos (Keeling) Islands. The diagnosis data was provided in June 2018, and the population estimate is based upon the projections summarised in Section 2.2.1.

When compared to the prevalence rate for Australia and outer regional / remote areas (comparable data was not available for very remote areas), it is evident that the IOTs, and the Cocos (Keeling) Islands in particular, exhibit elevated rates of CKD. On the Cocos (Keeling) Islands, it is estimated that nearly 1 in 10 residents has been diagnosed with CKD. Consultations indicated that this is likely to be driven by low levels of physical activity and poor diet.

Chronic diseases related to ageing

As discussed in Section 2.2.1.1, the IOT population is ageing and therefore, there is also an increase in health needs specific to this population group. As the population ages, health conditions such as vision problems,

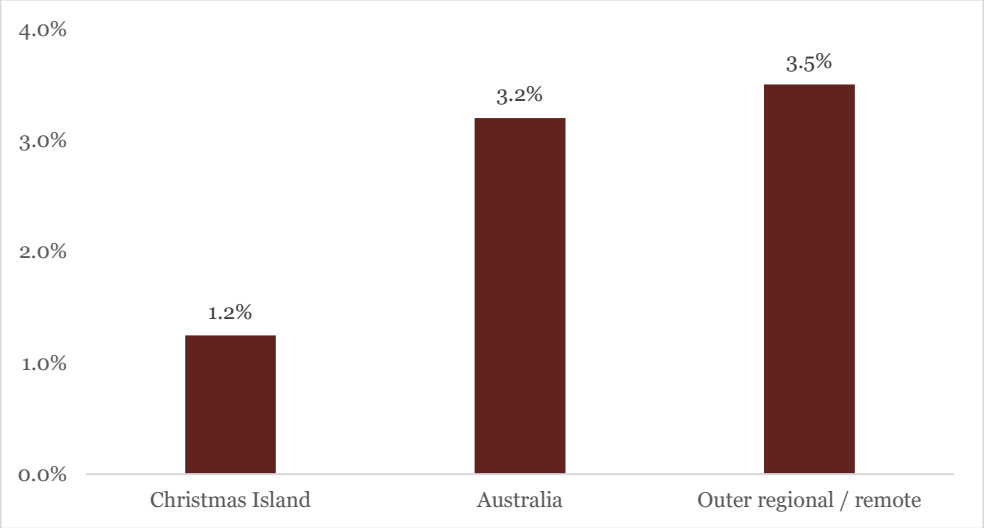
[31] AIHW, "Australia's Health: 3.8 Kidney Disease", 2016

arthritis, hearing loss, dementia and disability increases. Data from the ABS 2012 Survey of Disability, Ageing and Carers (SDAC) indicated that 53% of Australians aged over 65 had a disability.

The IOTHS extracted diagnosis data on arthritis and osteoporosis from the medical records. These are two of the chronic conditions which are typically associated with an ageing population. Prevalence rates were estimated with a similar approach to previous conditions, and the same note regarding potential understatement applies here.

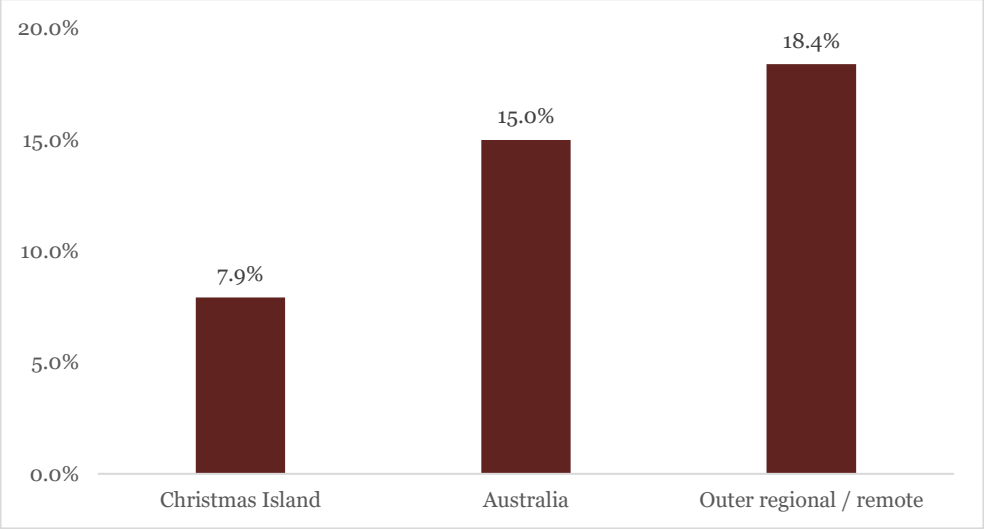
For these conditions data was only available for Christmas Island, and for both osteoporosis and arthritis the Island exhibited lower prevalence rates than Australia generally.

Figure 28: Estimated Prevalence of Osteoporosis



Source: IOTHS diagnosis rate data for patient population, June 2018; NHS 2014-15; population projection (excluding projected IDC detainee population)

Figure 29: Estimated Prevalence of Arthritis



Source: IOTHS diagnosis rate data for patient population, June 2018; NHS 2014-15; population projection (excluding projected IDC detainee population)

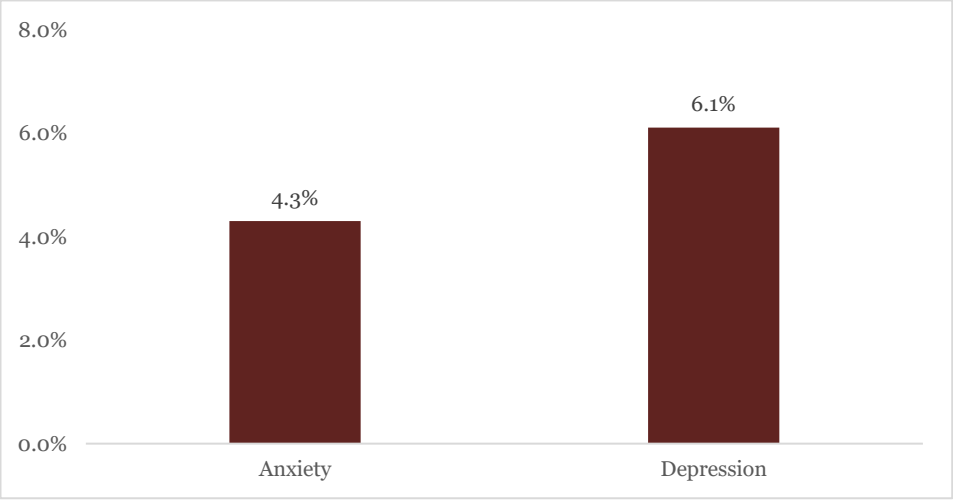
Mental health

Mental illnesses, such as depression and anxiety, can affect people of all ages. People in rural and remote areas face a range of stressors unique to living outside major cities. The prevalence of mental health problems in outer regional/remote areas is 19%, which is higher than the 17% estimated prevalence in major cities.[32] According to the National Rural Health Alliance Inc., access to mental health services is substantially more limited in rural areas than in major cities.[33] It is also reported there can often be apprehension around seeking help and a fear of the stigma that is sometimes associated with mental illness, particularly in small communities where individuals are more visible and confidentiality may be less assured. Diagnosis, treatment and ongoing management of a mental health condition in rural and remote areas is likely to occur later or not at all, often resulting in increased likelihood of hospitalisation and comorbidities.

Young people in rural and remote areas can often face pressure to conform to locally acceptable patterns of behaviour. A sense of pessimism about future prospects, unemployment, loneliness, loss of relationships and other factors, can exacerbate the risk of mental health problems. Older people in rural and remote areas are more likely to be living with a chronic condition, pain and/or disability. They are also more likely to experience challenges around mobility and social isolation.[34] However, it should be noted that youth behavioural issues associated with mental health challenges, such as crime and school truancy, were not raised as issues in community or clinical consultations.

The IOTHS records specific mental health diagnoses for patients on Christmas Island in its medical record system, including anxiety, depression, schizophrenia, bipolar disorder, ADHD, and autism. The AIHW data from the National Health Survey in 2014-15 records prevalence rates for "Mental and Behavioural Problems" – 17% in major cities and 19% in outer regional / remote areas. Direct comparison between the IOTHS data and Australian prevalence rates cannot be performed due to differences in mental health data collection methods between AIHW and IOTHS, and the likelihood of comorbidities which the IOTHS data does not capture. That is, it is likely that some of the IOTHS diagnoses are co-morbidities for the same patient. The rates of anxiety and depression for Christmas Islanders are presented in Figure 30 below.

Figure 30: Mental Health on Christmas Island



Source: IOTHS diagnosis rate data for patient population, June 2018; population projection (excluding projected IDC detainee population)

[32] AIHW, "Rural and remote health: Health conditions & remoteness", 2017

[33] National Rural Health Alliance Inc., "Mental Health in Rural and Remote Australia", 2017

[34] National Rural Health Alliance Inc., "Mental Health in Rural and Remote Australia", 2017

Maternity and child health

A newborn baby's health can be a key determinant of their health and wellbeing throughout life. Factors such as gestational age and birthweight can impact on their health and risk of developing disease in later life. A mother's attributes including age, weight, socioeconomic position and exposure to risk factors such as smoking and drinking, can also affect obstetric and perinatal outcomes.[35]

Accessing routine care, beginning in the first trimester, is known to contribute to better maternal health in pregnancy, fewer interventions in late pregnancy, and better child health outcomes. The Australian Antenatal Guidelines recommend that the first antenatal visit occurs within the first 10 weeks of pregnancy and that first time mothers with an uncomplicated pregnancy have 10 antenatal visits, and 7 in subsequent pregnancies.[36]

As the IOTs are very remote, some antenatal services and the births have to occur on the mainland. Mothers and an escort use the PATS service to access these services throughout their pregnancy. Many other antenatal services – including midwife check-ups – are provided on the Islands. Using the 2016 ABS census population data, the Australian birth rate is an average of approximate 6.5 births per 1000 population annually. On the Cocos (Keeling) Islands, there has been 3 -7 births from 2014 to 2017 with an average birth rate of 5.5 births.

Oral health

Good oral health is an integral part of good general health and enables people to eat, speak and socialise without pain, discomfort or embarrassment.[37] Oral health can also impact on general health as there is evidence oral infections are associated with deteriorating diet and compromised nutrition, such as heart and lung diseases, stroke and diabetes.[38]

The percentage of population for dental attendance shown in the figure below was calculated by using the number of appointments in 2016-17 in the IOTHS activity data and dividing it by the population in 2016 as reported by the ABS Census. According to this, 50% of the Christmas Island population and 48% of the Cocos (Keeling) Island population had a dentist appointment that year. However, this is an estimation as it is unclear from the data available whether individual residents made more than one appointment. These estimates are compared to the Australian estimate from 2013, where 64% of people aged over 5 had made a dental visit in the previous year.

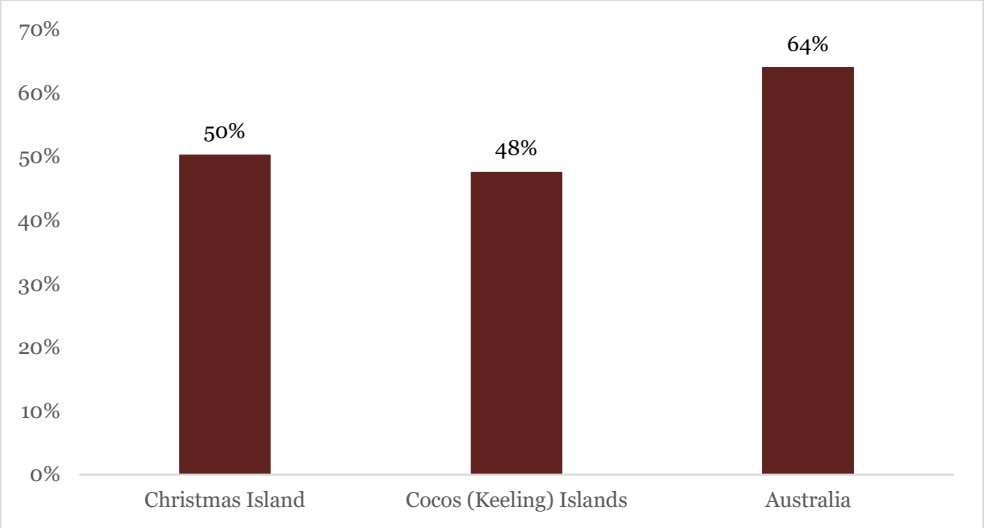
[35] WHO, "State of inequality: reproductive, maternal, newborn and child health", 2015

[36] AHMAC, "Clinical practice guidelines: antenatal care", 2012

[37] Oral Health Monitoring Group, "Healthy mouths healthy lives", 2015

[38] Department of Health, "Outcomes and Impact of Oral Disease", 2013

Figure 31: Proportion of population with a dental appointment annually



Source: IOTHS Activity data, 2016-17; AIHW, 2013; ; ABS population Census 2016; IDC detainee population data

2.2.3 Service needs

The purpose of the service needs analysis is to gain an understanding of the services and health infrastructure in the IOTs and to understand how this differs from other comparable regions in Australia. To do so, this section is divided into the following subsections:

- **2.2.3.1 Facility model and comparison**: this section gives an overview of the facilities available on Christmas Island, the Cocos (Keeling) Islands and its comparators. It also gives an overview of the service utilisation of the Christmas Island hospital facility.
- **2.2.3.2 Workforce mapping and comparison:** this section gives an overview of the staffing levels in relation to the size of the population and activity on Christmas Island, the Cocos (Keeling) Islands and its comparators.
- **2.2.3.3 Service mapping and comparison:** this section gives an overview of the services provided on Christmas Island, the Cocos (Keeling) Islands and its comparators. It also highlights the current use of services on island and on the mainland.

2.2.3.1 Facility model and comparison

Key points:

- The 24x7 hospital facility on Christmas Island is similar to most of its comparators.
- The Christmas Island health service inpatient facility is currently underutilised given the size of the local population and the facility capacity, and could operate with 2-4 beds. However, as one or two inpatient beds are utilised on just under 2/3 of nights for non-respite purposes, and given the remoteness of Christmas Island, there remains a strong case for maintaining a 24 hour facility.
- Both facilities on the IOTs have more comprehensive primary care services than their comparators, including mammography and pathology capabilities.
- On the Cocos (Keeling) Islands, a clinic open during business hours and an after-hours on call model is broadly aligned with its comparators.
- The Cocos (Keeling) Islands clinic offers more diagnostic and pathology services than its comparators.

Table 3 below compares the key facilities on Christmas Island to those of its comparators. The boxes shaded in green indicate that the facility is available at the location, and the boxes in grey indicate that the facility is not available at the location.

Key findings of the facility comparisons are:

- Christmas Island is similar to the majority of its comparators in having a 24x7 facility.
- Christmas Island does not have aged care facilities and currently uses some acute beds as respite and temporary residential care beds. Carnarvon and Norfolk Island have aged care facilities such as residential aged care beds in the hospital and an aged care hostel.
- Christmas Island does not have any maternity facilities, which is similar to many of its comparators. Carnarvon and Longreach have maternity facilities, however, each of these locations are the hub for their region with respect to this service and therefore service a much larger population.
- Christmas Island does not have a dialysis chair or offer dialysis service on-island unlike Carnarvon and Norfolk Island.
- Christmas Island is the only location with a mammogram machine compared to its comparators.
- Christmas Island has a pathology facility on island, similar to Carnarvon and Halls creek.

Table 3: Christmas Island and comparator facilities

Location	Remoteness	Population	24x7 Hospital	Dentist chair	Physio room	Ultrasound	Mammogram	X-ray	Pathology	Dialysis chair	Aged care	Maternity
Christmas Island	Very Remote	1,843										
Carnarvon	Remote	4,426 (5,367)										
Norfolk Island	Very Remote	1,748										
Longreach	Very Remote	2,738 (3,727)										
Fitzroy Crossing	Very Remote	1,141 (8,322)										
Halls Creek	Very Remote	1,546 (3,598)										

Inspection of Table 3 indicates that Christmas Island and all of the selected comparator services have a dental facility. In the WA comparator services (Fitzroy Crossing, Halls Creek, and Carnarvon), WACHS provides the facility, but the service is delivered by Dental Health Services, the publicly funded provider.

Key	
Facility Present	
No Facility	

Analysis of the occupied bed day utilisation at the Christmas Island hospital facility (based on anonymised patient admissions data for 2016-17) would suggest there are currently more acute beds than are required to meet the healthcare needs of the local population.

For a significant part of the year, none of the eight acute beds were in use. If the use of acute beds for respite care is excluded from the analysis, in 2016-17 there were no patients utilising a bed in the hospital on 21% of days throughout the year. On 68% of days only 1 or 2 beds were occupied. The number of occupied beds exceeded four on just one occasion throughout the year, when 5 beds were in use.

When the analysis is narrowed further to consider non-respite bed occupation overnight, even lower levels of activity are evident. In terms of non-respite overnight activity, there were no beds utilised for 32% of nights throughout the year – almost one third. On 65% of nights only 1 or 2 beds were occupied. The number of beds occupied at night exceeded 3 on just three occasions, when 4 beds were in use – on 93% of nights less than 3 beds were in use.

Based on these activity levels, it would appear that the Christmas Island hospital facility could be operated with 3 – 4 acute beds, with appropriate demand management strategies in place if there is a period with higher demand on inpatient activity.

Figure 32 Non-respite bed days utilised 2016-17

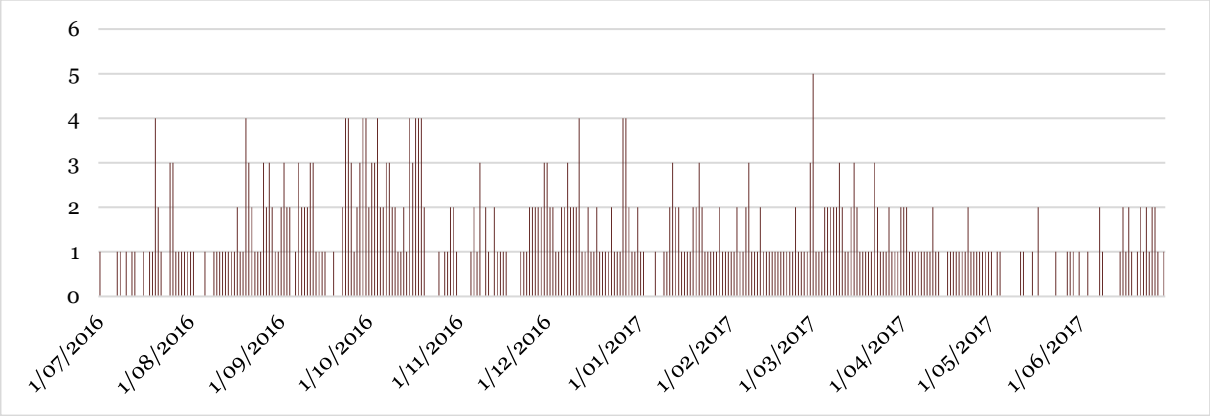
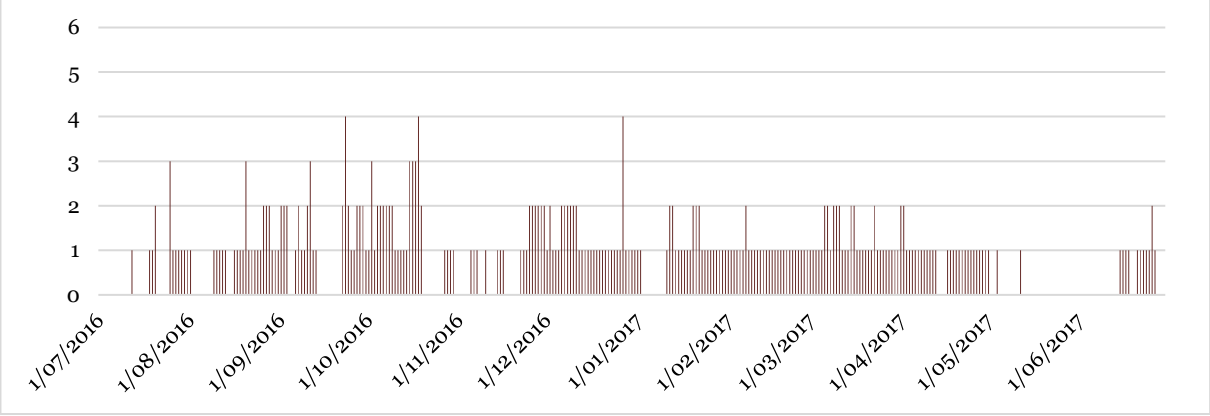


Figure 33: Non-respite overnight bed days utilised 2016-17



The underutilisation of the acute bed capacity on Christmas Island reflects the design of the facility, which was originally intended to service a population of up to 10,000 people. As shown above in the population analysis in Section 2.2.1, reasonable projections suggest that over the next 5 years the CI population is likely to remain stable at around 1,500 people.[39] A reduction in acute beds would still enable the service to meet community healthcare needs. Despite the underutilisation, it should be noted that at least one bed was occupied for non-respite purposes for 79% of the year at all times, and for two thirds of nights. This would support maintaining a 24x7 hospital service, in line with the comparator services considered above in Table 3.

It was noted in the discussion on page 50 the Christmas Island hospital currently uses acute beds for respite and residential care purposes on an ad hoc basis. Beds were being used for respite care on both site visits in April and May 2018. Analysis of comparator facilities indicates that several also offer residential care services.

[39] This is based on the 2016 population, 1,843, which includes the IDC detainee population of 242 in July 2016.

Table 4: Cocos (Keeling) Islands and comparator facilities below compares the facilities on Cocos (Keeling) Islands to of its comparators. Key findings of the facility comparison are stated below:

- Cocos (Keeling) Islands does not have any maternity or dialysis facilities
- Cocos (Keeling) Islands has more scanning equipment than its comparators and also offers some pathology services.

Table 4: Cocos (Keeling) Islands and comparator facilities

Location	Remoteness	Population	Hospital	Clinic	Nurse post	Aged care	Dental	Mammogram	Ultrasound	X ray	Pathology	Dialysis chair	Maternity
Cocos (Keeling) Islands	Very Remote	544											
Meekathara	Very Remote	573 (3,160)											
Boulia	Very Remote	273 (2,114)											
Kalumburu	Very Remote	421 (7,496)											
Warmun	Very Remote	366											

Key	
Facility Present	
No Facility	

2.2.3.2 Workforce profile

Figure 34 shows the composition of medical nursing and administrative staff that are employed by the IOTHS across Christmas Island and Cocos (Keeling) Islands. The breakdown of population per health staffing is demonstrated in Figure 35.

Figure 34: IOTHS staff profile.

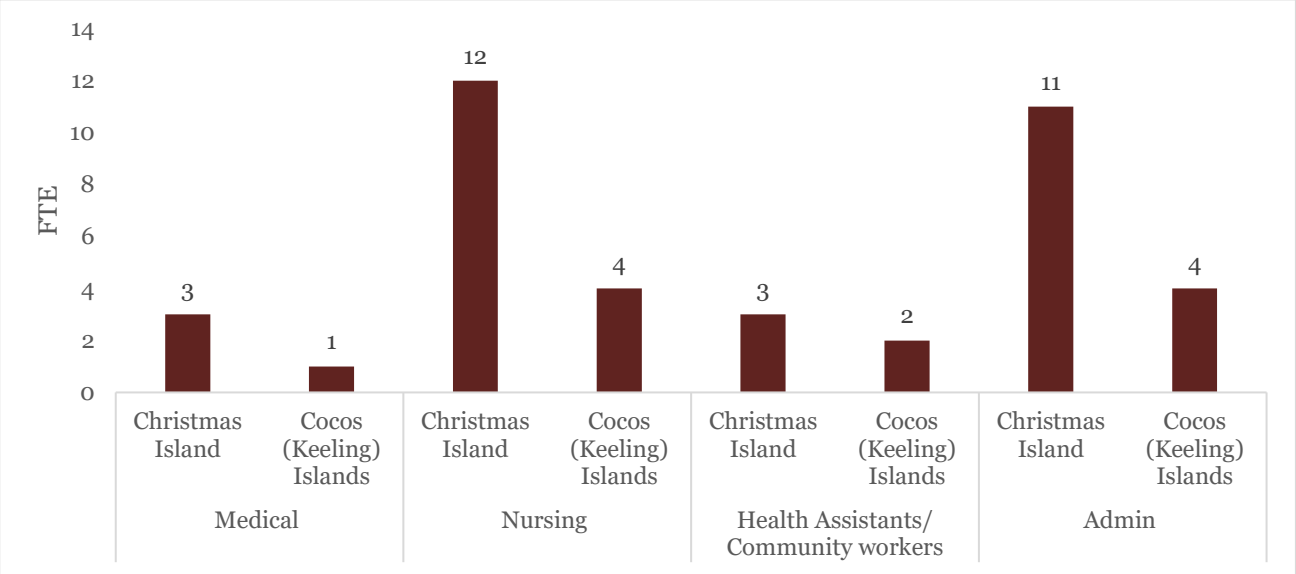
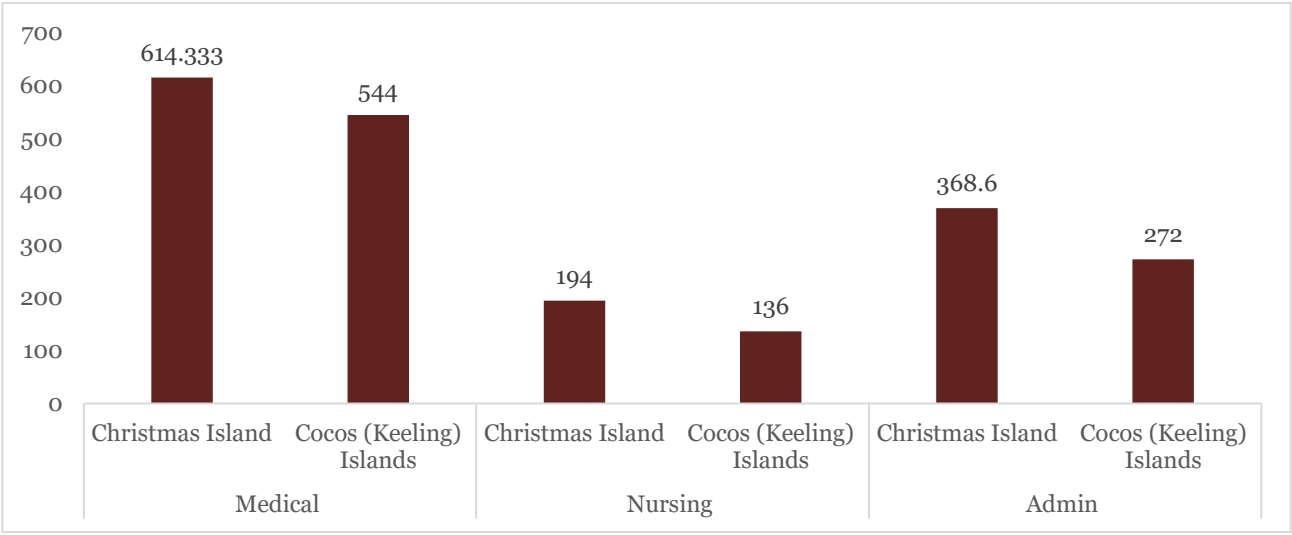


Figure 35: IOTHS population per Medical, Nursing and Admin FTE



3 GPs staff both the Christmas Island Hospital and outpatient services, which has increased from 2 in previous years. Cocos (Keeling) Island is serviced by 1 GP who offers clinics on the West Island and Home Island. A key feature of the nursing FTE on Christmas Island is the night rostering of 2 nurses to cover the 8 bed facility. 33% of staffing expenditure is for permanent health staff whereas 77% of expenditure is on medical, nursing locum staff. This reflects common issues experienced by rural and remote health services in the attraction and retention of staff.

The Christmas Island population is taken to be 1,843 in 2016, including residents and IDC detainees. This is reasonable as it reflects the occasional usage of IOTHS services by IDC detainees at that time.

2.2.3.3 Service utilisation and comparison

Key points

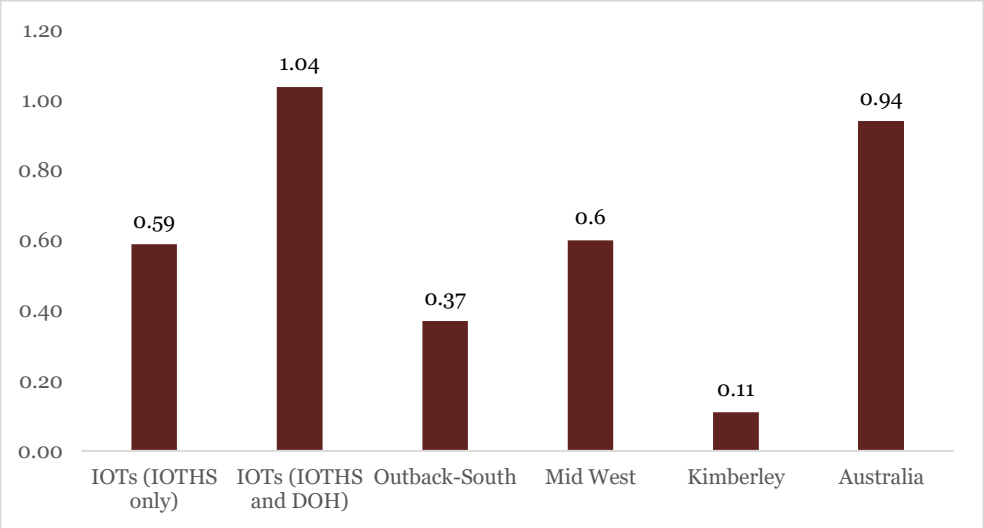
- The specialist attendance rates for residents from the IOTs are slightly higher the Australian average and significantly higher than rural and remote comparator regions.
- The GP attendances per person annually is lower than comparators and the Australian average, however, appointment times are also longer on average so this may not necessarily indicate a reduced level of care.
- The proportion of hospitalisations outside of region is comparable in the IOTs to other regions in WA.
- The average cost to the IOTHS per PATS trip is more than 8 times the cost of an average PATS trip to WACHS.

The main services provided in the IOTs and in comparator locations include primary health and general practice services, chronic disease management, communicable disease management, public health services, emergency services and others. This section outlines and compares the service utilisation of the main services provided in the IOTs and the mainland.

Specialist attendance

Figure 36 below displays the average specialist attendances per person annually of IOT residents and other comparators. When taking visiting and mainland-based specialists visits into account, the rate of specialist visits of IOT residents is comparable to inner city suburban areas, and higher than those of its rural and remote comparator services.

Figure 36: Specialist attendances per person

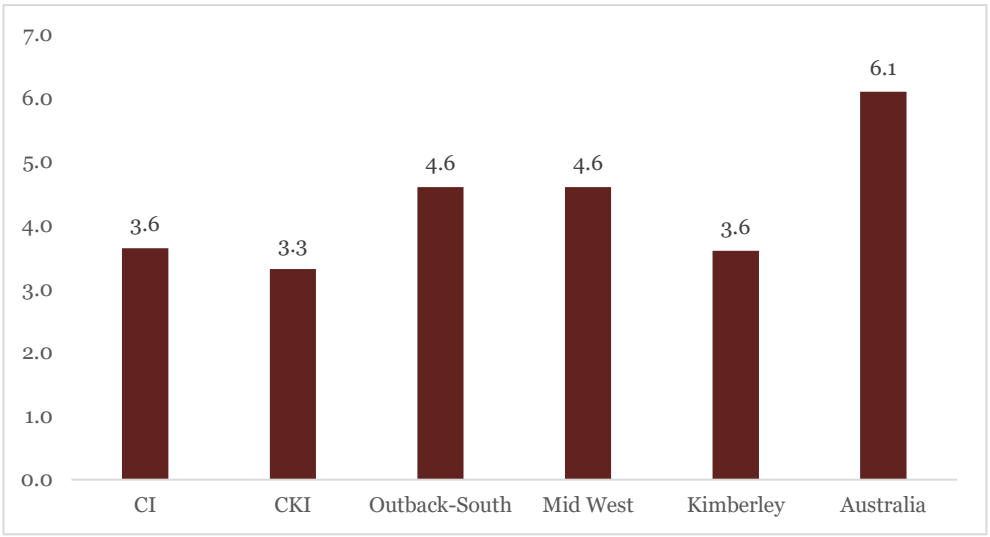


Source: AIHW Specialist attendances 2015-16, IOTHS Activity data

GP attendance

Residents of Christmas Island and the Cocos (Keeling) Islands both have fewer GP appointments per person annually compared to its comparators, at almost half the Australian average as shown in Figure 37 below. This may indicate lower level of utilisation compared to other locations. However, the GP appointments on the IOTs are 30 minutes long, which is 2 to 3 times longer than appointments in metropolitan areas on the mainland. This could indicate that while the GP appointments per person in the IOTs is lower than comparators, the time spent with a GP per person annually may be comparable. Reviewing the appointment duration and aligning to the rest of Australia may allow for more appointments to become available and for better utilisation of the general practice service. This could respond to a key concern raised by community consultees, which was the often limited ability to obtain a GP appointment within a week.

Figure 37: GP attendances per person annually



Source: WACHS 2016-17 Annual report, IOTHS Activity data; ABS population Census 2016; IDC detainee population data

Primary health checks

The IOTs have a heavy focus on primary and secondary health care including screening for cancer, chronic disease checks, child health checks and others. No data was received from comparators on these specific services. However, the breast cancer screening rates were obtained for Christmas Island, Australia and very remote Australia averages. As displayed in Table 5 below, the breast cancer screening rates in the IOTs is 82.4%, which is significantly higher than the Australia and very remote Australia averages.

Table 5: Breast Cancer Screening rates

Location	*Rate*
Christmas Island	82.4%
Australia	54.4%
Very Remote Australia	46.6%

Source: IOTHS Activity data, National Cancer Control Indicators

Patient Assisted Travel

There were 467 PATS trips in 2016-17 with an average cost of $3,600 per trip. This is more than 8 times the average cost of a WACHS PATS trip of $438. A large proportion of this average cost is due to the cost of flights from the IOTs for the patient and the escort. In 2016-17, approximately half of PATS trips had an escort.

Figure 38: Average cost of patient travel - IOTHS vs WACHS

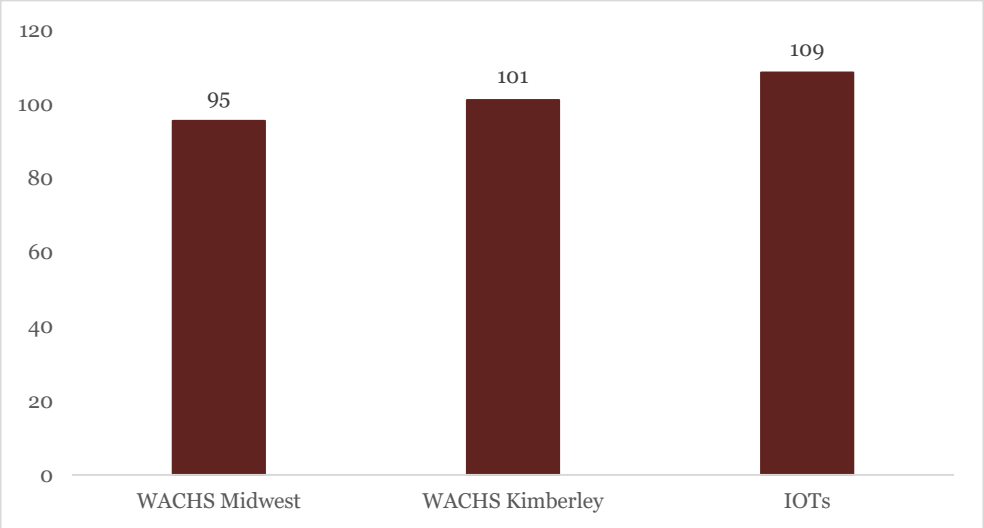
Source: IOTHS financial and PATS information; WACHS Annual Report 2016-17

There was some concern raised by the community that the PATS policy in the IOTs does not consider the unique remoteness of the islands, and the inconvenience to patients and families. While the PATS policy for the IOTs is broadly aligned to the WACHS policy, some considerations and allowances have been made to account for the unique location and distance from mainland Australia. In particular, the current IOT policy pays for an escort for all childbirth, which is different to the WACHS policy which states that, "unless there is a medical requirement for an escort, escorts for childbirth are not eligible for a PATS subsidy".

There was a lack of awareness amongst the community members consulted of the recognition and allowance the IOTHS PATS policy makes for the unique remoteness of the islands. These allowances could be more clearly communicated by the IOTHS.

The number of hospitalisations adjusted for population size in the IOTS is similar to that of comparators as shown in Figure 39 below. This would suggest that the level of patient travel for inpatient procedures is comparable to other regions. The somewhat higher level of hospitalisation outside of region for IOT residents would align with expectations, as both the Midwest and Kimberley districts have regional hospitals (e.g. Geraldton and Broome) which would limit the need for residents there to be hospitalised outside of region for some cases.

Figure 39: Hospitalisations outside of region per 1000 residents



Source: WACHS Kimberley and Midwest Health Profiles 2018

2.2.4 Community consultation summary

Between April 4 and May 22, a PwC team conducted systematic, structured community consultations on Christmas Island and the Cocos (Keeling) Islands. These were designed to elicit qualitative insights that could not be drawn from the quantitative data analysis alone. A range of stakeholders were consulted through one-on-one sessions and focus groups including:

- Representatives from local government
- Businesses
- Not-for-profit organisations
- Community bodies representing the different cultural groups
- Government
- Mothers', women's and seniors' groups,
- Public forums for the general community on Christmas, Home and West Islands

A full list of stakeholders can be found in Appendix C. Through these consultations, a wide range of perspectives on the IOTHS facilities and services were gathered. In particular, efforts were made to reach vulnerable and hard-to-reach stakeholder groups, including the elderly, women, and members of the Chinese and Malay communities, using interpreters where needed.

To align with the quantitative analysis of population health and activity data, the findings of the community consultations for Christmas Island and the Cocos (Keeling) Islands have been structured into health determinants, health behaviours and status, and health service needs and barriers to access identified by consultees. This detailed summary of the consultation findings can be found in Appendix C. The table below summarises the top 10 themes that emerged from the consultations.

Table 6: Top 10 themes from consultations on Christmas Island and Cocos (Keeling) Islands.

Theme	*Summary*
Need for aged care facility	• The need for an aged care facility was raised frequently as an area of increasing need due to the ageing population and lack of existing services. • The desire to stay on island in older age was expressed by a significant proportion of the community.
Maintain 24 hour hospital on CI	• There was very strong support across the Christmas Island community for the 24/7 hospital facility to be maintained even if there are future decreases in population.
PATS	• PATS was raised as a major source of concern on both Christmas Island and the Cocos (Keeling) Islands largely due to the lack of clarity regarding the escort policy and process, as well as the expense and inconvenience for the patient and family associated with travel. • The cultural and language barrier on the mainland was also raised as a significant issue.
Diabetes and dialysis treatment	• The increasing number of people with diabetes was raised as a concern particularly in children on the Cocos (Keeling) Islands. • There is a widespread view across the IOTs that kidney failures is an emerging area of health need due to the increasing prevalence of diabetes and the ageing population.
Mental health services	• There is a lack of understanding and awareness of mental health as an illness in parts of the community due to stigma/taboo. This may also have an impact on the willingness of the population to seek help from the health service. • It is believed that mental health illnesses such as depression and anxiety are prevalent in the community.
Nutrition, overweight/ obesity, physical activity	• A majority of consultees on the Cocos (Keeling) Islands raised that poor diet and nutrition was a significant issue on the island. It is thought that this could be due to the high cost of food on the Islands. • Overweight and obesity was also raised as an increasing concern, particularly amongst children. This could be due to poor nutrition and lower levels of physical activity.
Smoking and alcohol	• Smoking and alcohol was raised as a concern on both Christmas Island and the Cocos (Keeling) Islands and it is thought this could be due to the low price compared to the mainland, and could be a way to cope with some mental health issues.
Emergency services	• The response time of emergency situations was raised as a concern across the IOTs. In particular, the community on Christmas Island believe changing the hospital facility to an after-hours on call service will impact on emergency capabilities.
Engagement with health service	• The language barrier was raised as a significant challenge on Christmas Island and the Cocos (Keeling) Islands. • It was also raised that health service needs to be more understanding of local cultural preferences and sensitivities when engaging with patients/ the community.
Continuity of staff	• The high level of staff turnaround and use of locum staff was raised as having a negative impact on continuity of care for patients and impacts on the community's willingness to engage with the health service.

2.3 Assessment

This section outlines the relative priorities that have emerged from the analysis in the previous section. It assesses and determines health and service needs, priorities, opportunities and options, which can inform the future service planning for the IOTHS.

The approach taken to assessing and prioritising the needs identified in Sections 2.1 and 2.2 is broadly aligned with the PHN needs assessment guidelines, adjusted to reflect the specific circumstances of the IOTs.

The process of synthesis and triangulation involves the assessment of priorities using community and clinical consultation feedback, and the health and service needs analysis. A scoring system applied to these categories was used to guide the prioritisation of needs as being of high, medium and low priority.

The high and medium priority needs are then further assessed including the development of possible solutions to address these needs.

2.3.1 Synthesis and triangulation

The following approach was used to guide the prioritisation process of health and service needs for the IOTs.

The results of the needs analysis were assessed across three key areas:

1. Community feedback
2. Service provider feedback
3. Needs analysis
    a) Health needs analysis (Refer to Sections 2.2.1 and 2.2.2)
    b) Service needs analysis (Refer to Section 2.2.3)

Key health and service needs were triangulated with prioritisation informed by a weighted scoring system:

*	Rarely raised as an issue/not evidence in data
**	Raised as an issue/somewhat evident in data
***	Raised frequently as an important issue/concern evident in data
****	Raised frequently as a high priority or concern needing action/significant concern evident from data

Each need was given an overall rating of low, medium or high using the triangulated score as a guide.

Health needs

The following table outlines the categories of health needs which emerged from the needs assessment, assesses its priority status and gives a further explanation and justification of the issues identified and the associated prioritisation.

Table 7: Health needs

Health Need	*Community feedback*		*Service provider feedback*		*Data analysis*		*Identified priority*	*Issue and prioritisation justification*
	CI	*CKI*	*CI*	*CKI*	*CI*	*CKI*		
Ageing health and chronic disease	****	****	****	****	***	***	*High*	The population of the IOTs is ageing and the health outcomes associated with ageing including the prevalence of chronic diseases is expected to increase over the next 5 years. This issue was raised consistently by the community and clinical staff and is aligned with population projection analysis.
Poor Nutrition	**	****	*	***	**	**	*Medium*	The high fat and sugar diet of the population contributing to poor health outcomes such as obesity was raised as a significant issue on the Cocos (Keeling) Islands by the community and clinical staff. The high cost of fresh food due to freight may be a significant contributing factor.
Drug use	**	*	*	*	*	*	*Low*	Drug use was raised as an issue during some Christmas Island consultations however there is no quantifiable evidence of drug use or its impact on Christmas Island.
Smoking and alcohol	***	***	**	**	**	**	*Medium*	The increased risk of adverse health outcomes due to smoking and alcohol consumption was raised as an issue during consultations on both Christmas Island and the Cocos (Keeling) Islands. However this is of greater concern on Christmas Island and is somewhat evident in the IOTHS data. There is insufficient population data on smoking and alcohol to understand the full extent of this issue.
Overweight/obesity/ inactivity	*	***	*	***	***	***	*Medium*	The increased risk of adverse health outcomes due to the prevalence of overweight and obese residents was a concern particularly on the Cocos (Keeling) Islands. It was raised frequently during consultations on the Cocos (Keeling) Islands and it is evident in the data that the average BMI in the IOTs is higher than the Australian average.

Health Need	*Community feedback*		*Service provider feedback*		*Data analysis*		*Identified priority*	*Issue and prioritisation justification*
	CI	*CKI*	*CI*	*CKI*	*CI*	*CKI*		
Cardiovascular Disease	*	**	*	***	***	***	*Medium*	The increasing prevalence of CVD due to obesity, poor nutrition and the ageing population, was raised as an issue, particularly on the Cocos (Keeling) Islands. It is evident through the data that CVD is prevalent in the IOTs, and that key risk factors such as hypertension are high, suggesting the issue will continue to grow.
Diabetes and kidney failure	***	***	**	***	***	***	*Medium*	The prevalence of diabetes in the IOTs is currently higher than the Australian average and is expected to increase with time. It was raised frequently as a priority health need during consultations.
Mental Health	***	***	***	***	**	**	*Medium*	The lack of awareness and understanding of mental health as a health condition was raised frequently as an issue on both Christmas Island and the Cocos (Keeling) Islands. There is insufficient data to understand the prevalence of mental health issues however anecdotally it is an important area of need.
Maternal health	*	*	*	*	*	*	*Low*	Maternal health was not raised as a significant issue on Christmas Island and the Cocos (Keeling) Islands.
Child health	*	***	*	***	*	*	*Low*	Adverse health outcomes in children was raised frequently as an increasing issue, especially on the Cocos (Keeling) Islands due to lack of physical activity, poor nutrition and increase in childhood obesity. There is insufficient data to understand the full extent of this issue.
Oral health	**	**	*	*	*	*	*Low*	Oral health issues relating to toothaches and other oral discomfort was raised as an issue by the community on both Christmas Island and the Cocos (Keeling) Islands. There is insufficient data to understand the full extent of oral health issues.
Disability	**	*	**	**	**	**	*Low*	Whilst there are people with disability across the IOTs, it was not raised as an area of significant concern.

Service Needs

The following table outlines the categories of service needs that emerged from the needs assessment, assesses its priority status and gives a further explanation and justification of the issues related to each need.

Table 8: Service needs

Service Need	*Community feedback*		*Service provider feedback*		*Data analysis*		*Identified priority*	*Issue and prioritisation justification*
	CI	*CKI*	*CI*	*CKI*	*CI*	*CKI*		
Emergency	****	****	***	**	**	*	*Medium*	There is concern regarding the response time for emergency situations on both Christmas Island and the Cocos (Keeling) Islands. This was raised frequently during consultations, however, there is a lack of quantifiable evidence to understand the full extent of the emergency response issue.
Primary health/General Practice	**	*	**	*	*	*	*Low*	There was an overall consensus that the primary health service and general practice service was good and meets the communities' needs. It was raised in some consultations that the ability to obtain a second opinion and patient recall management hold opportunities for improvement. There is no quantitative evidence showing that the current primary and general practice service are areas of concern.
Dental	**	**	*	*	**	**	*Low*	The frequency of visits and type of services provided were raised as issues during community consultations. However, it was rarely raised as an issue by service providers. Assessment against Christmas Island's comparator communities and services indicate many have a WA public dental service, suggesting the IOTHS's service is aligned.
Public and community health services	**	**	**	**	*	*	*Low*	It was raised that health promotion and education activities and communications could be improved. Community services such as HACC and disability support are being utilised as evidenced through the data, and there is no evidence suggesting there is an issue with the current service.
Aged care	****	****	****	****	****	****	*High*	There is currently no residential aged care facility on Christmas Island and the Cocos (Keeling) Islands, unlike several comparator services with an ageing population. This was raised frequently as a priority need that is expected to increase with time.

Service Need	*Community feedback*		*Service provider feedback*		*Data analysis*		*Identified priority*	*Issue and prioritisation justification*
	CI	*CKI*	*CI*	*CKI*	*CI*	*CKI*		
Disability	*	**	**	**	**	**	*Low*	The current disability service may become insufficient with time, if there was to be a significant increase in the number of people requiring disability support. However, this was not raised as an area of significant concern.
Maternity	***	**	*	*	*	*	*Low*	The inability to have babies on island was raised as an issue particularly amongst the Malay community on Christmas Island. Maternity services are provided at some comparator locations. However these locations are the hub facility for the regions, unlike Christmas Island and the Cocos (Keeling) Islands.
Dialysis/ Kidney failure service	***	***	***	****	***	***	*Medium*	There is no dialysis service available on island and this was raised frequently as a growing area of future need. There is no current need for a dialysis service, however this is likely to be an area of emerging need due to the high prevalence of diabetes and the ageing population.
Mental health	**	****	***	****	**	**	*Medium*	There is a lack of mental health services available on Christmas Island and the Cocos (Keeling) Islands and the potential confidentiality conflict was raised as a potential barrier to effective use of this service. The need for a mental health service was raised frequently during consultations.
Visiting specialists	**	**	**	**	*	*	*Low*	The frequency of visits of visiting specialists such as physiotherapy was raised as an issue on Christmas Island and the Cocos (Keeling) Islands.
PATS	****	****	***	***	***	***	*High*	The degree of clarity of the PATS policy and high cost of PATS services was raised frequently as a priority issue during consultations. While the number of PATS trips is comparable to comparators after adjusting for population size, PATS expenses take up a significant proportion of the annual budget and therefore is a priority area.
Telehealth	**	**	****	****	***	***	*High*	While telehealth is a service currently being utilised, there was a general consensus through consultations that there is opportunity to increase its use to save on PATS trips. A barrier to the use of this service is the connectivity issues and disruptions during consultations – however this should be resolved with the internet upgrades (sub-sea cable) due to be realised in late 2018.

Service Need	*Community feedback*		*Service provider feedback*		*Data analysis*		*Identified priority*	*Issue and prioritisation justification*
	CI	*CKI*	*CI*	*CKI*	*CI*	*CKI*		
Pharmacy	*	**	*	**	*	*	*Low*	The process for obtaining scripts and availability of medication at the shop on the Cocos (Keeling) Islands was raised in some consultations as a potential issue. However, there is insufficient quantitative evidence to understand the extent of this issue.
Engagement with health service/community	****	****	***	***	*	*	*Medium*	The engagement of the health service with the community, particularly due to language and cultural barriers was raised frequently as an issue on both Christmas Island and the Cocos (Keeling) Islands. There is also evidence of inconsistency of understanding by the community of the services available.
Health Service staff	***	***	***	***	***	***	*Medium*	The lack of continuity of staff due to high turn overs and significant number of locum staff was frequently raised as an issue on both Christmas Island and the Cocos (Keeling) Islands. There was a significant overspend on the locum budget suggesting this is an area of significant need.
Triage service	***	*	**	*	*	*	*Low*	The roles and responsibilities of the reception staff including the process of triaging was raised as an issue particularly on Christmas Island. There is no quantifiable evidence to understand the full impact of this issue.

2.3.2 *Determining key priorities*

The high and medium needs triangulated from the section above are discussed in further detail in this section, including the identification of possible solutions to address each priority need. These solutions are developed in further detail in Section 5 (Strategic Initiatives), which also draws on the service model options developed in Section 3 and the strategy development work in Section 4, which covers technology use, staffing and governance, and service provider options.

Table 9: Possible solutions to address needs and issues

Need	*Issue*	*Possible solutions*
There is an increasing need for **aged care services due to the IOTs' ageing population.**	• The population of the IOTs is ageing and the health outcomes associated with ageing including the prevalence of chronic diseases is expected to increase over the next 5 years. • This issue was raised consistently by the community and clinical staff and is aligned with population projection analysis. • There is currently no aged care facility on Christmas Island, unlike several comparator services with an ageing population. • This was raised frequently as a priority need that is expected to increase with time.	a) Introduce residential aged care facility. b) Aged care beds in hospital. c) Increased community aged care services.
There is a need to clarify the **PATS** policy and governance.	• The degree of clarity of the PATS policy, governance, and the high cost of PATS services was raised frequently as a priority issue during consultations. • While the number of PATS trips is similar to comparators after adjusting for population size, PATS expenses take up a significant proportion of the annual budget and therefore is a priority area.	a) Increase use of telehealth. b) Clarify and publish PATS policy and process (including monitoring, process for appeal).
There is a need to review the opportunity to increase the use of **telehealth.**	• While telehealth is a service currently being utilised, there was a general consensus through consultations that there is opportunity to increase its use to save on PATS trips. As a comparison telehealth services in Western Australia have grown from providing 4,624 appointments in 2012 to 18,224 in 2017.[40] • A barrier to the use of this service is the connectivity issues and disruptions during consultations and technology improvements are required (which are planned to be in place by late 2018). • There are also current security and privacy concerns regarding the use of telehealth that must be addressed. • The current policies and process around the use of telehealth and arrangements are also unclear.	a) Increase use of telehealth. b) Develop policy of how telehealth is used.

[40] WACHS, http://www.wacountry.health.wa.gov.au/fileadmin/sections/telehealth/eDoc_-_CO_-_2018-06-12_To_the_moon_and_back_FINAL.PDF

Need	*Issue*	*Possible solutions*
There is a need to address the health behaviours including smoking/alcohol, nutrition, overweight obesity that are increasing the risks of adverse health outcomes within the population.	• Risky health behaviours, in particular those contributing to obesity and diabetes, were raised as being prevalent through community and clinical consultations. This consistent with trends in the wider Australian population but is of concern as it increases the risk of developing adverse health outcomes. • Smoking rates were of particular concern on Christmas Island (see Figure 22) with levels similar to comparator communities, but above the national rate. • The high fat and sugar diet of the population contributing to poor health outcomes such as obesity was raised as a significant issue on the Cocos (Keeling) Islands. • It is evident through the data that overweight and obese residents is an issue on both Christmas Island and the Cocos (Keeling) Islands.	a) Education / health promotion and prevention programs.
There is a need to clarify the emergency response process and educate the community on this.	• The current process for emergency calls to be directed to the health service does not enable a consistent emergency triaging process (as would be provided through the 000 service). • Some consultees suggested that the process creates a delay in the response time due to the time it takes for the health service to contact the ambulance, AFP and mobilisation time. • In acute emergencies, such as a cardiac arrest, the 000 service would also provide more effective guidance to first aiders.	a) Education on calling 000 first rather than health service. b) Emergency telehealth. c) 24 hour hospital on Christmas Island.
There is a need to address the mental health issues within the community.	• The lack of awareness and understanding of mental health as a health condition was raised frequently as an issue on both Christmas Island and the Cocos (Keeling) Islands. • While there is a lack of data to understand the prevalence of mental health illnesses, it was also raised by community members and clinical staff that it is prevalent in the community. • There is a lack of mental health services available on Christmas Island and the Cocos (Keeling) Islands and the potential confidentiality conflict was raised as a potential barrier to effective use of this service.	a) Telehealth mental health services. b) Clinical psychologist services on island (permanent or visiting). c) Education / health promotion.
There is a need to improve the current engagement of the health service with the community.	• The engagement of the health service with the community, particularly due to language and cultural barriers was raised frequently as an issue on both Christmas Island and the Cocos (Keeling) Islands. • There is also a lack of understanding by the community of the services available.	a) Work with community to provide appropriate interpreters. b) Develop communications strategy (Online presence – CI blackboard, Facebook). c) Increase community participation in health service workforce. d) Publish services provided.

Need	*Issue*	*Possible solutions*
There is a need to improve the continuity and governance of the health service staff.	• The lack of continuity of staff due to high turn overs and significant number of locum staff was frequently raised as an issue on both Christmas Island and the Cocos (Keeling) Islands. This has an impact on continuity of patient care and may have an impact on the health status of the community. • There was significant overspend in the 2016-17 budget on locum staff. • There is a lack of robust clinical and corporate governance, which creates risk for the service.	a) Training/orientation. b) Staff satisfaction management. c) Clinical governance. d) Redesign workforce policy/contracts. e) Utilisation of staff pools (e.g. WACHS).
There is a need to address the increasing need related to diabetes and kidney failure.	• The prevalence of diabetes in the IOTs is currently higher than the Australian average and is expected to increase with time. It was raised frequently as a priority health need. • There is no dialysis service available on island and this was raised frequently as a current issue and an increasing need. • The increasing need to address kidney failure is evident through the high prevalence of diabetes in the health analysis (refer to Figure 26).	a) Plan for a service that meets the emerging need of kidney failure.

2.3.3 Strategic initiatives responding to priority needs

Nine strategic initiatives have been recommended based on the findings and identified priorities of the Needs Assessment. They are presented in Section 3.3 following the development and evaluation of four service model options summarised in Sections 3.1 and 3.2.

3 Service model options and evaluation

3.1 Options development

The service model options set out in this section are based around two strategic choices regarding the Christmas Island hospital facility and aged care service. These have been identified as strategic choices as they have the potential to significantly impact on the way the service is operated.

As the four options developed broadly align with the 2016-17 budget, a review of the resourcing model was also undertaken to allow for additional services to be implemented. A suite of strategic initiatives have been recommended based on the Needs Assessment in Section 2, as well as the assessment of each strategic work stream in Section 4. These strategic initiatives are expanded in further detail in Section 5 and can be implemented alongside any of the service model options presented in this section.

The service changes associated with each option, and the budget and staffing implications, are discussed in the sections below. The four options that have been developed and evaluated in this section are as follows:

- **Option 1:** Maintain the 24x7 hospital facility with reduced acute bed capacity, and introduce an aged care facility for patients with high care needs on the IOTHS site.
- **Option 2:** Transition to an after-hours on-call model and introduce a 24x7 aged care facility for patients with high care needs on the IOTHS site.
- **Option 3:** Maintain the 24x7 hospital facility with reduced acute bed capacity, and expand the IOTHS HACC service.
- **Option 4:** Maintain the 24x7 hospital facility with reduced acute bed capacity, introduce an aged care facility for patients with high care needs on the IOTHS site, and expand the IOTHS HACC service.

Another possible option would be to maintain the 24x7 facility with no change to the nursing roster, and to introduce an aged care facility on the IOTHS site. This option has not been developed in detail as it will not be aligned to the IOTHS budget.

Each of the four options represents a different response to the increasing need for aged care services on Christmas Island. Residents of the Cocos (Keeling) Islands may be able to access the residential facility for patients with high care needs if Infrastructure chooses to implement options 1, 2, or 4. However, in all of these scenarios there will be occasions where the IOTHS will no longer be able to provide aged care to some patients, because of the complexity of their care needs, or capacity constraints (i.e. four high-care needs patients are currently using the facility). The IOTHS must therefore develop a policy to determine the point at which IOT residents from Christmas Island and the Cocos (Keeling) Islands need to be transferred to the mainland to access aged care services.

3.1.1 Option 1: Maintain 24x7 hospital facility and introduce residential aged care facility

Service changes

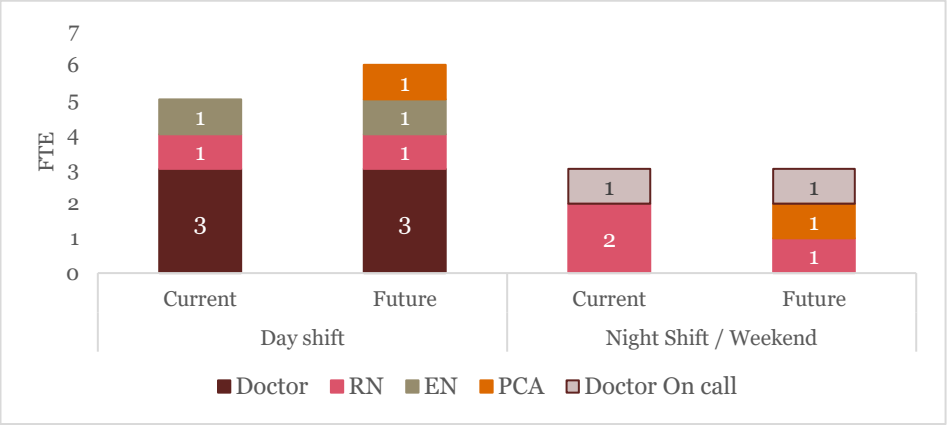
The first service model option would maintain the 24x7 hospital facility on Christmas Island and would introduce a residential care facility for high-care needs patients on the existing IOTHS site. This would involve reducing the number of acute beds in the hospital from 8 to 4, and the establishment of a residential aged care facility with up to 4 beds, as well as social and therapeutic facilities. It would also restructure the acute nursing roster to allow for appropriate 24x7 staffing for the residential aged care facility (involving a reduction in the Registered Nurse complement and the introduction of Patient Care Assistants).

Staffing implications

To operate the new aged care facility, 1 Patient Care Assistant (PCA) is required 24x7, which equates to 4.5 FTE PCAs to run the roster. By rostering PCAs after-hours, the requirement for 2 Registered Nurses (RN) to cover night shifts and weekends in the hospital facility would be decreased to 1 RN. This will reduce the number of RNs and Enrolled Nurses (EN) in the nursing complement from 6 to 4.5 and 3 to 2.5 respectively, while maintaining the current standard of having a minimum of two staff working on the IOTHS site at all

times. The change in staffing complement for this option is shown in Figure 40 below. It would meet aged care staffing requirements which mandate a nursing presence at aged care facilities.

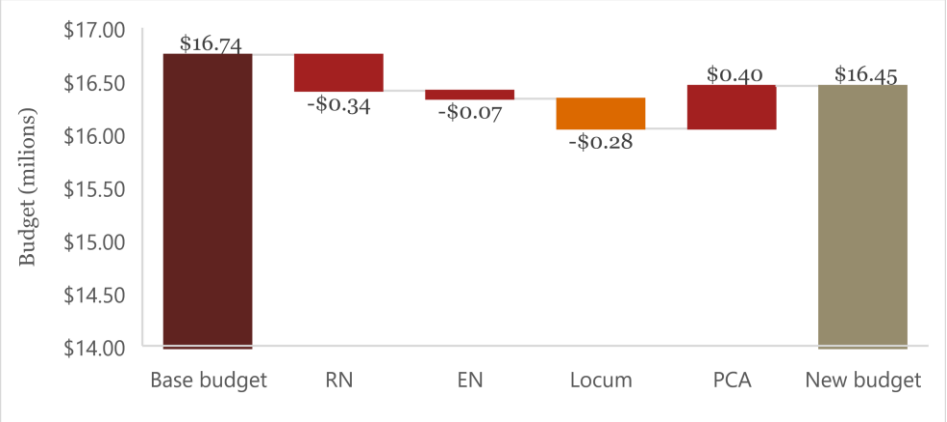
Figure 40: Option 1 staffing complement



Budget implications

As shown in Figure 41, introducing 4.5 new PCA FTEs will cost approximately $400k. The reduction in EN complement by 0.5 FTE is expected to save approximately $75k, and the reduction in the RN complement by 1.5 FTE is expected to save approximately $340k p.a. Based on these estimates, Option 1 is expected to be cost neutral, with potential additional savings to be achieved through reduced locum nurse spend.

Figure 41: Option 1 budget



Other considerations

Currently, there are some RN positions that are filled by locum RNs. However, comparison of actual locum expenditure with projections developed on the basis of nurse salaries indicates this does not have an appreciable impact. In other words, nursing salaries (including allowances) appear to be similar to the annualised cost of staffing a role with a locum for a full year. The estimations of the budget implications of Option 1 have been based on the cost of permanent staff. It is expected that hiring permanent nurses, instead of filling positions with locum nurses, may bring additional savings at least in terms of avoided travel costs. To understand the true extent of this saving potential, data quality and management needs to be improved to enable the extraction of data that enables this analysis.

The capital expenditure required to adapt the current IOTHS facility to incorporate residential aged care, and the non-staffing costs of operating an aged care service as opposed to an in-patient facility, have not been accounted for in this analysis.

3.1.2 Option 2: Move to after-hours on-call model and introduce residential aged care facility

Service changes

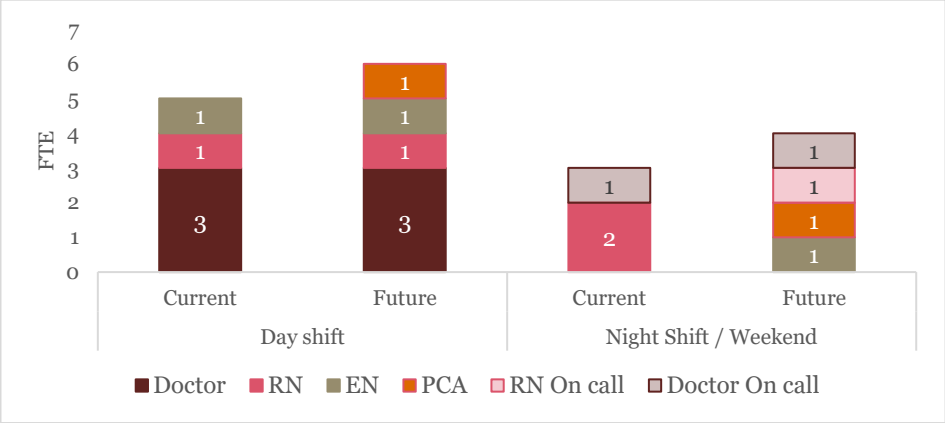
The second service model option would transition Christmas Island to an after-hours on-call service, with an RN and doctor on-call 24x7 to respond to emergencies. This option also introduces a 24x7 residential facility for high-care patients on the existing IOTHS site. The option reduces the number of acute beds from 8 to 4, and establishes a residential aged care facility with up to 4 beds, as well as social and therapeutic facilities.

Staffing implications

The residential aged care facility would require 1 PCA at all times, with 1 EN working night shifts, weekends and public holidays to meet clinical and staff safety requirements for aged care facilities. This roster for the aged care facility would require the introduction of 4.5 new PCA FTEs as well as an increase to the current EN complement by 1.5 FTE. Moving to an after-hours on-call model would reduce the number of RNs required from 6 to 3 or 4 FTEs, depending on the level of demand management the service implemented.

Figure 42 illustrates the staffing complement for Option 2. In this option, the number of FTEs rostered on duty or on-call for nightshifts and weekends is greater than the current roster.

Figure 42: Option 2 staffing complement



Budget implications

As noted above, the number of RNs required to staff Option 2 depends on the level of demand management implemented by the IOTHS for overnight and weekend activity to reduce RN callouts. In 2016-17 at least one bed was occupied for non-respite purposes on 67% of nights throughout the year: this level of demand would require 4 RN FTE to maintain the on-call roster. However, if demand was managed so that overnight beds or call-outs are used on just 25% of nights throughout the year, this could be reduced to 3 RNs.

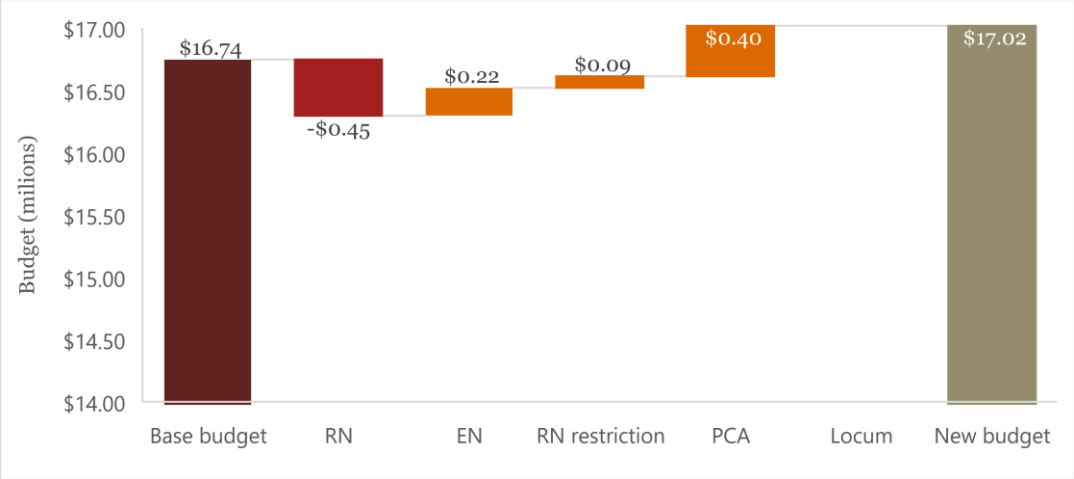
Table 10 below displays the estimated savings from RNs depending on the level of demand management and overnight utilisation. The savings are based on reducing the number of RNs from 6 in the current complement, to 3 - 4 RNs across three demand management scenarios.

Table 10: Estimated savings on RNs based on level of demand management

Demand management – overnight utilisation	*RN FTE required*	*Estimated savings*
67% (Current)	4	-$450k p.a.
50%	3.5	-$562k p.a.
25%	3	-$675k p.a.

Figure 43 illustrates the budget impact of Option 2. The introduction of 4.5 PCAs and 1.5 ENs to run the 24x7 aged care facility is estimated to cost approximately $400k and $225k respectively. Overall, this option is estimated to result in a cost increase of around $60k p.a. (3 RN scenario) or $270k p.a. (4 RN scenario).

Figure 43: Option 2 budget (4x RN scenario)



Other considerations

As discussed in Option 1, this analysis does not take into account the potential locum savings which could be realised with a reduced RN complement. The capital expenditure to renovate the current IOTHS facility to incorporate residential aged care and the non-staffing costs of operating an aged care service as opposed to an in-patient facility have not been accounted for in this analysis.

3.1.3 Option 3: Maintain 24x7 hospital facility and increase HACC services

Service implications

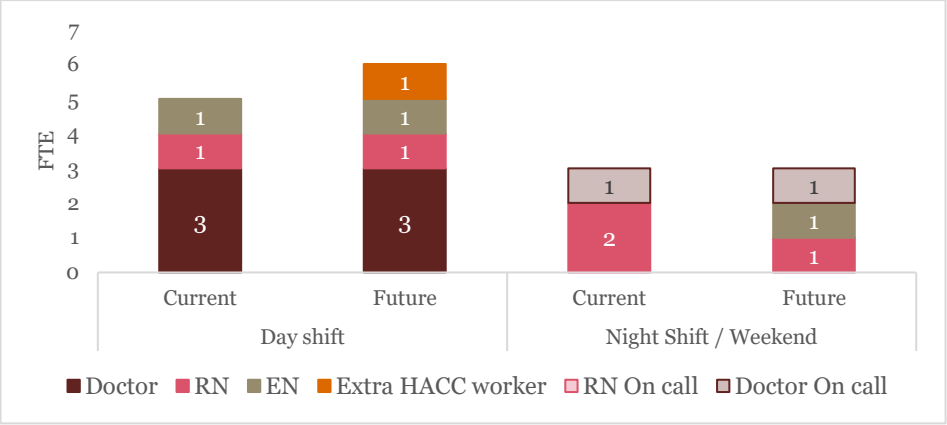
The third service model option would maintain the 24x7 hospital facility on Christmas Island and expand the existing HACC services provided by the IOTHS. It is still recommended the number of acute beds in the hospital be reduced from 8 to 4 to align with activity levels and reduce operation and maintenance expenses. If this option is selected, further exploration of potential operational and maintenance savings by the IOTHS should be explored.

Staffing implications

To meet the clinical and safety requirements of the IOTHS, this option would amend the roster to place 1 EN and 1 RN on night shifts, weekends, and public holidays, instead of 2 RNs, as per the current practice. This will increase the number of EN FTEs required by 1.5, and reduce the number of RN FTEs by 1.5. This would result in ongoing savings, as RNs cost approximately 1.5 times more than ENs. This saving would enable for investment in one additional HACC worker to meet the increasing aged care needs in the Christmas Island community. The staffing complement for this option is outlined in Figure 44 below.

If this option is chosen, it is recommended a review of the aged care needs be conducted at a future date, as more than one additional HACC worker may be required beyond this strategic period depending on the level of demand in the future. Increasing community aged care services may not meet the full extent of the needs related to ageing in the population. It is anticipated with this option that residents may still need to leave the island for residential aged care services.

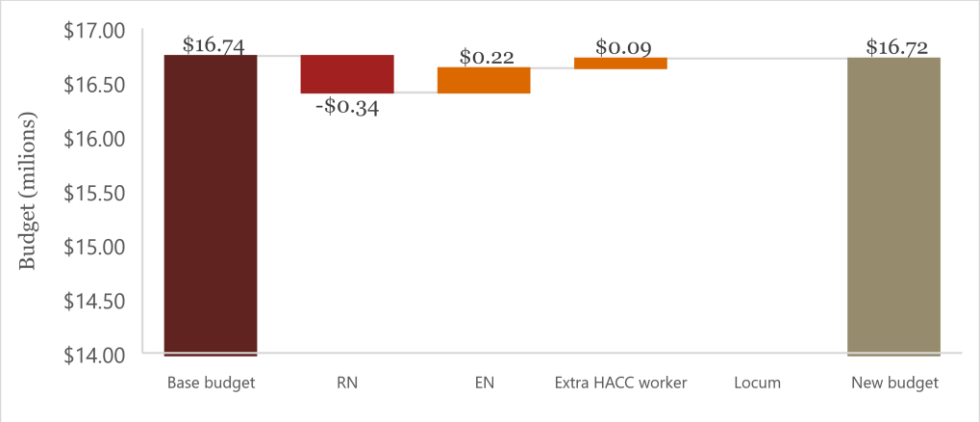
Figure 44: Option 3 staffing complement



Budget implications

The reduction of 1.5 RN FTEs is estimated to save approximately $350k p.a. This would enable an increase of 1.5 EN FTEs and 1 HACC worker, at an estimated cost of approximately $220k p.a. and $90k p.a. Overall, this option is expected to achieve an ongoing saving of approximately $20k p.a. This does not take into account the potential additional operational and maintenance savings from reducing the number of acute beds in the hospital facility.

Figure 45: Option 3 budget



Other considerations

As discussed above, this analysis does not take into account any potential locum savings from a reduced RN complement. This analysis also does not take into account the potential additional operational and maintenance savings from reducing the number of acute beds in the hospital facility.

3.1.4 Option 4: Maintain 24x7 hospital facility, introduce residential aged care facility, and increase HACC services

Service implications

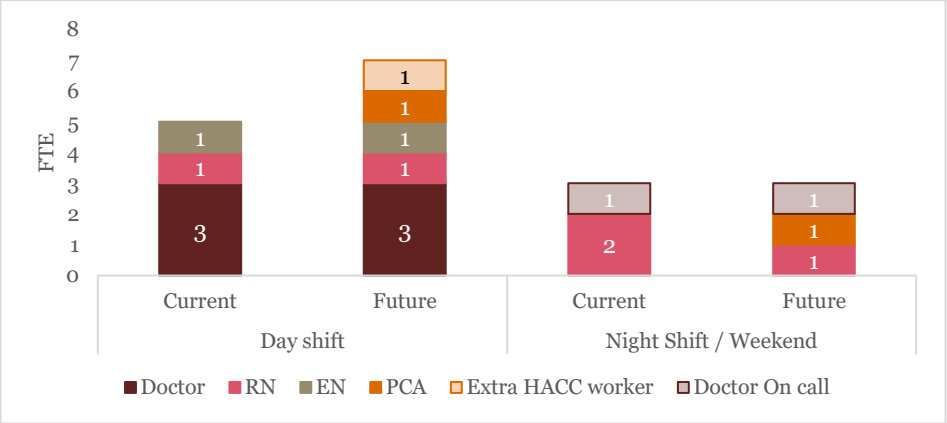
The fourth option would maintain the 24x7 hospital facility on Christmas Island, introduce an aged care facility on the existing IOTHS site, and expand the existing HACC services provided by the IOTHS. It is still recommended the number of acute beds in the hospital be reduced from 8 to 4 to align with activity levels and reduce operation and maintenance expenses. If this option is selected, further exploration of potential operational and maintenance savings by the IOTHS should be explored.

Staffing implications

To operate the new aged care facility, 1 Patient Care Assistant (PCA) is required 24x7, which equates to 4.5 FTE PCAs in total to run this roster. By rostering PCAs after-hours, the requirement for 2 Registered Nurses (RN) to cover night shifts and weekends in the hospital facility would be decreased to 1 RN. This will reduce the number of RNs and Enrolled Nurses (EN) in the nursing complement from 6 to 4.5 and 3 to 2.5 respectively, while maintaining the current standard of having a minimum two staff working on the IOTHS site at all times. The saving achieved with this roster change would mitigate around 10% of the investment in one additional HACC worker to meet the increasing aged care needs in the Christmas Island community. The staffing complement for this option is outlined in the Figure 46 below.

If this option is chosen, it is recommended that a review of the aged care needs is conducted as more than 1 additional HACC worker may be required depending on the level of demand in the future. This would result in increased staffing expenditure.

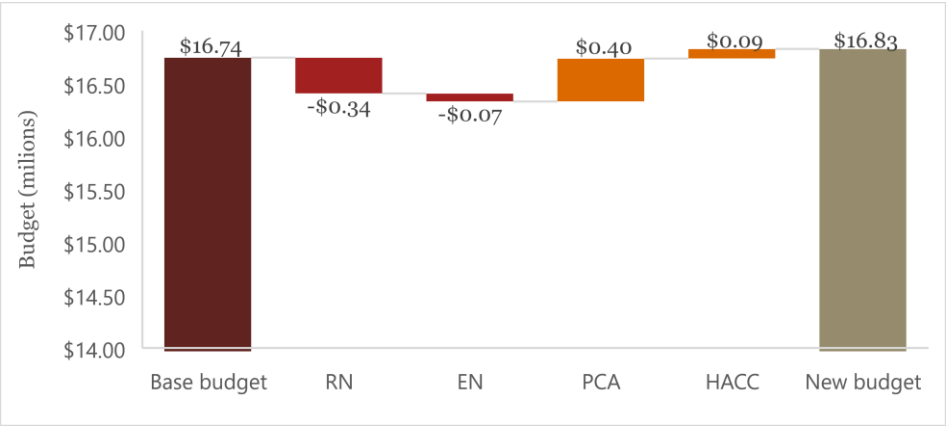
Figure 46: Option 4 staffing complement



Budget implications

The reduction of 1.5 RN FTE is expected to save approximately $340k p.a., and the 0.5 FTE reduction in the EN complement another $75k. Introducing 4.5 new PCA FTE will cost approximately $400k. With a new HACC FTE cost of approximately $90k, this results in a budget increase of around $80k.

Figure 47: Option 4 budget



Other considerations

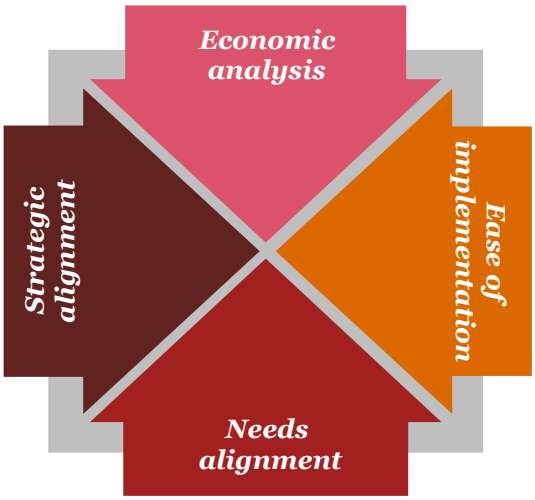
As discussed previously, this analysis does not take into account potential locum savings from a reduced RN complement, or potential operation and maintenance savings from the acute bed reduction.

3.2 Options evaluation

3.2.1 Options evaluation framework

The options are evaluated against 4 criteria:

The resource and cost requirements of each option were assessed, based on resources required to meet service obligations. Other economic benefits were also included.



Each option was evaluated against the IOTHS vision, mission, values and strategic objectives.

The complexity of transitioning from the current service model to the future model was assessed. This included an assessment of time, investment required, risk and potential stakeholder resistance.

Each option was assessed to determine the extent to which it aligned with the projections for current and future needs on the IOTs, based on the Needs Assessment summarised in Section 2.

3.2.2 Options assessment

The table below assesses each option against the evaluation criteria as set out in Section 3.3 above. Each option is given a score based on the strength of the alignment to each criteria where 5 is the most aligned and 1 is the least aligned.

Key points

- Options 1 or 4 are equally preferred on the basis of a comparative assessment, as they are most aligned with the priority needs identified in the needs assessment. They are both broadly cost neutral (Option 1 is around $90k p.a. less), and exhibit economic benefits and operational efficiencies. They both address growing community need for aged care services in a manner **similar to comparator services.**
- Due to the need to staff the aged care facility with 2 FTEs after-hours, and the increased loadings to RN on-call salaries, Option 2 will result in ongoing cost increases. Option 2 also has fewer efficiencies associated with the staffing roster in comparison to Option 1.
- Option 3 – to maintain the hospital and expand IOTHS HACC services – is the easiest to implement, and could be a transitional service to an aged care facility in the future to meet growing aged care needs in the community. However, Option 3 is likely not to be sustainable in the long term if it does not reduce the respite and residential care burden currently experienced in the IOTHS, which the service is not currently set up to meet in an appropriate, efficient or effective manner.

Table 11: Options assessment against evaluation criteria

Option / Criteria	*Option 1: Maintain 24x7 hospital facility and introduce residential aged care facility*	*Option 2: Move to after-hours on-call model and introduce residential aged care facility*	*Option 3: Maintain 24x7 hospital facility and increase IOTHS HACC services*	*Option 4: Maintain 24x7 hospital facility, introduce residential aged care facility, and increase IOTHS HACC services*
Strategic alignment	**4**	**3**	**2**	**5**
	Aligns to the focus area 4.2 regarding service delivery as the aged care service is a response to a current service gap and growing need in the community for high-care services for the ageing population. Aligns with focus area 2 on developing and maintaining a workforce as the reduction on reliance on RNs and locums will increase employment opportunities for local employment and development.	Aligns to the focus area 4.2 regarding service delivery as the aged care service is a response to a current service gap and growing need in the community. Aligns with focus area 2 on developing and maintaining a workforce as the reduction on reliance on RNs and locums will increase employment opportunities for local employment and development. Moving to an after-hours on-call model may result in increased risk compared to Option 1.	Aligns to the focus area 4.2 regarding service delivery as increasing HACC is a response to a current service gap and growing need in the community. However, increasing the Christmas Island HACC service will not address the growing need for high-care services. Compared to Options 1, 2 and 4, this option has a larger gap in service delivery due to not providing a residential aged care facility.	Aligns to the focus area 4.2 regarding service delivery as the aged care service is a response to a current service gap and growing need in the community, both in terms of high-care and community aged care. Aligns with focus area 2 on developing and maintaining a workforce as the reduction on reliance on RNs and locums will increase employment opportunities for local employment and development.
Needs assessment	**4**	**4**	**3**	**5**
	This option aligns strongly with needs assessment which identified an emerging need for aged care services, and the provision of residential aged care facilities by comparator health services.	The aged care facility aligns with the needs assessment as it is expected that there will be a need for a residential aged care. There may be minimal disruption to service provision from moving to an after-hours on-call model.	Meets identified health needs on Christmas Island to some extent. However, as it is expected that there will be a need for residential aged care services in the future, some people may be required to leave the island when they require a higher level of care.	This option aligns strongly with needs assessment which identified an emerging need for aged care services, and the provision of residential aged care facilities by comparator health services. Additional HACC services will improve aged care beyond the high-care focused residential facility.

Option / **Criteria**	***Option 1: Maintain 24x7 hospital facility and introduce residential aged care facility***	***Option 2: Move to after-hours on-call model and introduce residential aged care facility***	***Option 3: Maintain 24x7 hospital facility and increase IOTHS HACC services***	***Option 4: Maintain 24x7 hospital facility, introduce residential aged care facility, and increase IOTHS HACC services***
Economic analysis	**4**	**2**	**3**	**2**
	Approximate saving of $8k p.a. Efficiencies in the nursing roster due to having a PCA working 24x7 on site at the aged care facility. Increase local employment through hiring local PCAs.	This option is expected to be an increase in cost of $60k p.a. (3 RNs) or $270k p.a. (4 RNs). Saving potential dependent on the ability to manage demand in terms of the number of overnight stays and consequent RN call-outs. Increase local employment through hiring and training local PCAs. Offers less value for money due to a reduction in service for more cost.	Approximate savings of $20k p.a. Depending on the level of demand for HACC services, this amount could potentially be greater.	This option is expected to increase staffing costs by around $90k p.a. The cost of additional aged care resources will be offset to a large extent by efficiencies in the nursing roster due to having a PCA working 24x7 on site at the aged care facility. Increased local employment through hiring local PCAs and HACC workers.
Ease of implementation	**3**	**2**	**4**	**3**
	This option will be widely accepted by the community. Work will be required to convert part of the current health facility to be an aged care facility and to hire and train PCAs. Initial budget impact involved with capex.	Moving to an after-hours on-call model will be difficult to implement in terms of community acceptance. Work will be required to convert part of the current health facility to be an aged care facility and to hire and train PCAs.	This option is the easiest to implement as it entails minimal changes to the current health service, and will not be perceived to be a reduction in services by the community. This option could be implemented as a transition to Option 1, 2 or 4 to meet the need in the short term.	This option will be the most widely accepted by the community. Work will be required to convert part of the current health facility to be an aged care facility and to hire and train PCAs and HACC workers. Initial budget impact involved with capex.
Score	***15***	***11***	***12***	***15***

3.3 Service model strategic initiatives

The following strategic initiatives are recommended based on the findings and identified priorities of the Needs Assessment. The first two strategic initiatives respond to the identified priorities around increasing aged care services to the IOTs while aligning with the existing budget where possible without compromising patient safety or quality of outcomes. The IOTHS has a range of options which would enable it to meet these priorities informed by some key strategic choices. The options are explored in more detail in Section 3.1 and 3.2, and the two strategic initiatives are summarised briefly here:

- **SI 1:** increase aged care services to meet the needs of the ageing population. This initiative is discussed as one of two strategic choices regarding service model options.

- **SI 2:** restructure the IOTHS staffing model to enable greater efficiencies while continuing to meet the community health and service needs. This initiative is discussed as the second of two strategic choices regarding service model options.

The next set of strategic initiatives can be implemented in any service model option chosen for the IOTHS:

- **SI 3:** amend PATS budgeting assumptions to reflect the actual average cost of IOTHS PATS trips, inclusive of patient and escort airfares and accommodation.

- **SI 4:** develop a health promotion and education program to encourage healthy behaviours within the IOTs community and increase awareness of health risks, focused on diabetes prevention, health eating, exercise and activity.

- **SI 5:** redesign the process for responding to emergency situations and communicate change to the relevant stakeholders.

- **SI 6:** consider providing an improved interpreter service to overcome the current language barrier experienced by some community segments, and improve the engagement between the health service and the community.

- **SI 7:** develop an annual communications strategy for the health service to ensure important messages and information are effectively communicated.

- **SI 8:** plan for services that may be required to meet the emerging need to address kidney disease.

- **SI9:** consider potential improvements to mental health services on the IOTs, including addressing community awareness and understanding of mental health and confidentiality concerns.

The three Strategic work streams (1: Use of technology; 2: Governance and Staffing; 3: Private sector provision) are discussed in greater detail in Section 3.3. The full suite of recommendations are outlined in Section 5.1, which takes into account the service model recommendations from the Needs Assessment.

4 Strategic Development

4.1 Use of technology

Key points

- The current IOTHS clinical management system, Medical Director, appears to be fit-for-purpose as the functionality of the system is comparable to other management systems used across Australia, and is compatible with My Health Record.
- If Infrastructure elects to extend the Service Delivery Arrangement (SDA) with WA Health to encompass health care delivery on the IOTs, a case may emerge for replacing Medical Director with Communicare to align with WACHS, which is currently rolling this software out across its facilities.
- Recording Medicare item numbers in the IOTHS's clinical management system may improve data collection and analysis (refer to *Strategic Initiative 10*), although there are limitations to this (for example, a Level 23 consultation will not convey information about an event).
- The IOTHS should expand the use of telehealth services for specialist consultations. In line with the experience of SIHI in WA, this would be expected to deepen the level of service and address unmet health needs of the population. However, given the strong level of primary care already provided by the IOTHS, the expansion of telehealth services also has the potential to reduce patient travel expenditure – a major element of the IOTHS budget. Refer to *Strategic Initiatives 11 and 12*.
- The IOTHS should introduce an ETS aligned to the WACHS system to reduce clinical risks in acute circumstances. Refer to *Strategic Initiative 13*.
- The governance of IOTHS ICT is currently based on the Australian Public Service (APS) ICT framework, which is not well adapted to health service ICT. There is a need to establish clearer accountability for ICT within the IOTHS (refer to *Strategic Initiative 14*).

An assessment of IOTHS technology use was undertaken to understand the current level of effectiveness and efficiency for the service, and to identify areas of opportunity to improve the service and to align with the current and emerging needs of the population. In particular, the assessment considered the IOTHS clinical management system, the use of telehealth, and ICT governance.

4.1.1 Clinical management system

4.1.1.1 Clinical management system current state

Current system used in the IOTs

The IOTHS uses Medical Director as its clinical management system for the general practice clinics. Medical Director is a clinical software package that provides tools such as electronic health records, patient management, billing, scheduling, care coordination, and medicine information. Its suite of platforms are used by over 17,000 health professionals across Australia. These professionals include GPs, specialists, aged care facilities, hospitals, and nurse practitioners. The IOTHS makes of use of the full suite of Medical Director software packages, including Helix for clinical management, Pracsoft for practice management, and PenCAT for health data analytics.[41]

In terms of record management in the Christmas Island hospital, records are printed and transported with the patient upon admission, and later scanned into Medical Director as part of patient records after discharge. This paper-based management is similar to current practice in most WA public hospitals. WA Health has implemented a digital medical record system, BOSSnet, with paper scanning and eForms capability.

[41] Medical Director, Products, 2018

4.1.1.2 Clinical management system fitness-for-purpose assessment

Other clinical management systems

There are a broad range of clinical management systems used by general practitioners across Australia. For example, WACHS currently use MMEx. This system is currently in the process of being replaced by Telstra's product, Communicare, across WA as the Community Health Information System, with the objective of streamlining consistent health care across WA and promoting better regional health outcomes.[42] To assess the fitness-for-purpose of Medical Director for the IOTHS, a functionality comparison and a comparative assessment of compatibility with My Health Record have been conducted below.

Functionality Comparison

An assessment of the key functions of a clinical management system has been conducted for Medical Director, Communicare and MMEx. It indicates that all three systems have similar capability in terms of patient record management, medication management, diagnostic requests and results, prescriptions, templates, outstanding recall and reminder management, referrals, messaging capability, reporting, data analytics and insight capability, appointments management, My Health Record readiness, and preventative health information management. Table 12 summarises the functionality comparison findings.

Table 12: Functionality comparison between clinical management systems

Function	*Medical Director[43]*	*Communicare[44]*	*MMEx[45]*
Patient record			
Medication management			
Diagnostic requests and results			
Prescription			
Templates			
Recalls, reminders and referrals			
Messaging capability			
Reporting			
Data analytics / insights			
Appointments			
My Health Record link			
Preventative health			

During consultations with some members of the clinical staff of the IOTHS, some issues were raised regarding the lack of interoperability functions between Medical Director and other systems used by IOTHS. These are

[42] Government of Western Australia, New system to support better care for rural Australia, 2017

[43] Medical Director, Online Help User Guide, 2018

[44] Telstra Health, Communicare, 2018

[45] MMEx, User Manual, 2018

relatively common issues experienced in health services across Australia. Some consultees also suggested that the data analytics function of Medical Director could be improved – an issue which has been partially addressed by the introduction of the PenCAT software since PwC's initial round of consultations. Another potential approach to improve Medical Director's data analytics capabilities would be to code activity by Medicare item numbers.

A further review of the functionality and requirements of the health service may need to be undertaken by IOTHS to understand if a different clinical management software may be more appropriate for the service in the future, especially if Infrastructure elects to extend the existing SDA with WA Health to encompass health care service delivery on the Islands. At present, however, the current solution appears fit-for-purpose and there is not a compelling reason to change.

My Health Record compatibility

My Health Record is a digital medical record system being launched by the Australian Digital Health Agency. It will contain individualised information about patients including health summaries, discharge summaries, prescription and dispense records, pathology reports and diagnostic imaging reports. This information can be accessed by patients and healthcare providers around Australia. In 2019, every eligible Australian will have a My Health Record account, unless they choose to specifically opt out by 31 January 2019.[46]

Table 13 summarises a comparison of the clinical management systems for its compatibility to My Health Record requirements.[47] As the table illustrates, Medical Director has the most functions conformed to My Health Record. By sharing patient information to My Health Records, important information of patients from the IOTs can be shared with specialists on the mainland.

Table 13: Compatibility of clinical management systems to My Health Record

Function	*Medical Director*	*Communicare*	*MMEx*
eReferrals			
Event Summaries			
Shared Health Summaries			
Specialist Letters			
Diagnostic Imaging Report			
Pathology Report			
Prescription Records			
Dispense Records			
Assisted Registration			
Prescription and dispense view			
My Health Record download			
Health record overview			

[46] Australian Digital Health Agency, https://www.myhealthrecord.gov.au/for-you-your-family/opt-out-my-health-record

[47] Australian Digital Health Agency - Australian Government, Software Products conformant to My Health Record requirements, 2018

Function	Medical Director	Communicare	MMEx
Pathology report view			
Diagnostic imaging report view			

4.1.1.3 Clinical management system strategic initiatives

The following strategic initiative is recommended based on the findings of the clinical management system current state analysis:

- **SI10:** record Medicare item numbers in patient notes to enable better data analysis, insights and sharing.

Refer to Section 5.2 for more detail on this strategic initiative, and proposed implementation activities and timeframes.

4.1.2 Telehealth

4.1.2.1 Telehealth current state

The term 'telehealth' refers to the use of ICT to provide healthcare over a distance by transmitting images, voice, data and videoconferencing between two or more sites. Telehealth technologies can be used to deliver specialist consultations, emergency support to physicians working in remote locations, remote patient monitoring, and the delivery of clinical training. With recent technological advances, telehealth has experienced significant growth, including in Western Australia, with the WACHS Statewide Telehealth Service (STS) and ETS.

Telehealth is currently used only to a limited extent by the IOTHS, however, consultations with clinical staff and analysis of the PATS activity data have identified opportunities to increase the scope of its use.

The use of telehealth to conduct consultations with specialists based in metropolitan areas has a range of benefits for regional health services and patients living in remote areas, including travel time and inconvenience for patients, as well as out-of-pocket costs, and significant savings in reduced patient travel subsidies for the health service. In 2016-17, patient assisted travel costs alone accounted for around 10.5% of actual IOTHS expenditure.

The IOTHS is currently making limited use of a videoconferencing setup to conduct some telehealth specialist consultations. In 2017 the IOTHS conducted 119 telehealth consultations, which is represents rapid growth from 37 consultations in 2016, albeit from a very low base. In consultations with clinical staff some consultees commented that telehealth is used where possible, however, there are a number of barriers and challenges including:

- A lack of appropriate technology and poor internet connectivity, which has disrupted video-conferenced consultations in the past.
- A lack of clarity in the IOTHS policy and processes for decision making with respect to the use of telehealth or PATS when a patient has been referred to a specialist by an IOTHS GP.
- A lack of awareness on the part of IOTHS GPs of which specialists in different discipline areas have the willingness and capability to conduct telehealth consultations.

4.1.2.2 Telehealth opportunities for expansion

Telehealth for specialist consultations

Consultations with IOTHS clinical staff have identified opportunities to increase the use and scope of telehealth for consultations with mainland specialists. The expansion of the telehealth service for specialist consultations could have several benefits including:

- Reductions in the need for patient assisted travel, with consequent cost savings for the IOTHS and reduced out-of-pocket expenses for patients, as well as avoidance of the travel time and inconvenience for patients.
- Increased opportunities for IOT residents to obtain second opinions. In several community consultations, some individuals expressed frustration with the limited options for seeking alternative advice, and expanded telehealth would be a relatively cost-effective approach to enable a deepening of care at the margins in these cases.
- Improvements in patient confidentiality for mental health consultations and treatment. In consultations some community members expressed concern that the physical layout of the service does not currently facilitate confidentiality when meeting with the counsellor or visiting specialists. The use of the IOTHS telehealth facility for remote mental health consultations would offer greater confidentiality.

To determine the potential for patient-assisted travel cost savings, the following assumptions were made:

- Any patient-assisted travel undertaken which involved a procedure (in-patient admission) or a visit to an emergency department (ED) would need to take place even if telehealth services were expanded.
- A significant proportion of the specialist consultations attended by IOT residents in WA could potentially have been conducted as telehealth consultations.
- Any patient-assisted travel where IOT residents only used out-patient services (e.g. pre- and post-operative consultations) could potentially be conducted as a telehealth consultation. This would represent the maximum potential for immediate patient-assisted travel savings, although it is likely that specialists would deem that a proportion of these remain as face-to-face consultations.
- A PATS trip costs the IOTHS around $3,600 on average.

In line with these assumptions, the analysis produced two outputs:

- An estimate of the proportion of PATS trips conducted in 2016-17 on which IOT residents only accessed out-patient services at WA Health facilities. According to the 2015-16 AIHW Non-admitted Patient Care report, 30% of all outpatient activity are medical consultations. It was assumed that only this proportion of travel to access outpatient services could potentially be avoided.
- The estimated potential savings to the Infrastructure budget which could be achieved by avoiding 30% of the IOTHS PATS trips taken to utilise outpatient services (i.e. only those trips whose sole purpose was for the patient to have a medical consultation), through the use of telehealth.

Potential for avoidance of patient travel with expanded telehealth

The starting assumption of this analysis has been that there is currently little, if any, potential to avoid patient assisted travel where a patient requires an IP procedure. Therefore it has been assumed that there is only potential to substitute patient travel with telehealth when a patient is using OP services.

However, some OP services will still need to be conducted in person, for example if a minor procedure is required (for example, an antenatal ultrasound). To refine the estimate of potentially avoidable PATS trips, the analysis was guided by the 2015-16 AIHW Non-admitted Patient Care report, which noted that 30% of all outpatient activity are medical consultations.

Assuming that only 30% of OP-only patient assisted trips could be diverted, this modifies the range of potentially avoid able PATS trips in 2016-17 to 45 at the lower bound, and 82 at the upper bound.

Summary

As shown in Figure 38, the average cost per PATS trip was around $3,600 in 2016-17. Based upon an assumed 30% diversion rate of OP-only PATS trips, potential savings in the range of $162-295k could be achieved. Table 14 summarises the key outputs of this analysis.

Table 14: Potential PATS savings from telehealth expansion

	OP-only proportion	*Scaled OP-only PATS trips*	*30% diversion via telehealth*	*Potential patient travel saving*
All trips	33.9%	151	45	$ 162,000
Matched trips only	60.9%	272	82	$ 295,200

It should be noted again that the estimates only represent the potential patient travel savings that could be achieved with different levels of substitution of face-to-face consultations with telehealth consultations at the current rate.

Service "deepening"

Some evidence suggests the Southern Inland Health Initiative (SIHI), which included an expansion of telehealth services alongside other investments in primary care, has experienced service "deepening" – i.e. increased use of services by previously under-serviced groups. Since the commencement of the SIHI, a plateau has been observed in the level of patient assisted travel, without yet starting to decline. The number of PATS trips remained stable in the southern WA while it has increased by 8% in northern WA over the same period.[48] This would seem to bear out the "health care deepening" hypothesis, with SIHI and telehealth addressing a backlog of unmet need.

While there is potential that the IOTHS might experience a similar trajectory, there are reasons to believe that expansion of telehealth on the IOTs would lead to reductions in patient assisted travel rather than a plateau. The IOTHS already delivers strong primary care to IOT residents, and IOT residents visit specialists at a similar rate to Australians in inner-urban areas (see Figure 36). This would seem to make it less likely that a similar deepening effect to the SIHI area would be witnessed on the IOTs.

The IOTHS have video-conferencing facility in place, and the key changes that need to occur to expand the use of telehealth for specialist consultations are focused on improving policies and processes for scheduling. Telehealth consultations can also occur through multiple modes of communication that do not necessarily need to involve a videoconference, including combinations of telephone, image forwarding, and instant messaging.[49]

Emergency Telehealth Service (ETS)

The WACHS ETS helps to save lives by providing specialist emergency medicine to support clinical staff treating acute patients in rural and remote areas. Currently, IOTHS clinicians can receive emergency support through telephone consults to ETS specialists based at Royal Perth Hospital, but they do not have access to the sophisticated fixed camera videoconferencing setup used by WACHS.

The ETS technology currently has the capability of providing 24x7 videoconference emergency medicine support to 79 hospitals, health services and nursing posts across the Wheatbelt, Great Southern, Goldfields, South West, Kimberley, Pilbara and Midwest regions. This ETS was first introduced in 2012 due to unacceptable levels of clinical risk in some small towns in WA. There has been significant growth in WACHS' ETS service with 17,014 ETS consultations in 2017, up from 564 consultations in 2012. The ETS program is highly regarded and is considered one of the leading examples of telehealth practice globally.

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[48] SIHI, Telehealth infographic with summary statistics

[49] WACHS, Telehealth Design: points to consider, 2014

Currently, emergency services on the IOTs are highly dependent on the emergency and remote skills of the doctors on the Islands. Some IOTHS clinicians consulted suggested they were not comfortable with this level of clinical risk. It is recommended the IOTHS aligns with WACHS ETS to reduce clinical risk on both Christmas Island and the Cocos (Keeling) Islands. This would involve putting in place the technology and equipment to the following specifications to enable a high quality videoconferencing capability:

- High definition videoconferencing equipment (HDX8000, Polycom) installed in ED resuscitation bays at receiving sites. One above the foot of the bed for birds-eye view and the other at 45 degrees.
- ETS clinicians use Polycom VC units and have full control of the cameras at the receiving site
- Videoconference calls are transmitted using internet protocol at 1Mbps delivering video at 1080 resolution.

As noted above, some consultees referred to the inconsistency of network access as a barrier to upgrading the IOTHS's telehealth capabilities. This should not present an obstacle to the investment, as the reduction in clinical risk due to the introduction of the ETS when the network is functioning would be significant and should be sufficient justification.

4.1.2.3 Telehealth strategic initiatives

The following strategic initiatives are recommended based on the findings of current state analysis of the IOTHS use of telehealth for specialist and mental health consultations, and emergency care support. It also draws on comparison with the telehealth systems and practices WACHS has put in place in remote and rural WA.

- **SI11:** increase the use of telehealth services for specialists and mental health consultations.

- **SI12:** refine the PATS process to align with policy intent of using telehealth in place of travel where it is reasonable to do so, and provide clearer referral guidelines to clinicians regarding scheduling telehealth consultations.

- **SI13:** introduce equipment and technology to enable an ETS model aligned to WACHS to complement existing 24h emergency capability.

Refer to Section 5.2 for more detail on these strategic initiatives, and proposed implementation activities and timeframes.

4.1.3 ICT Governance

4.1.3.1 ICT governance current state

There is currently a lack of clarity around the governance structure and accountability for the ICT systems within the IOTHS, with responsibility broadly resting with the Health Service Manager and the Business Manager. In general, ICT governance sits within the APS framework, but this is not well suited to a health service, given the limited experience of the Commonwealth in operating health services (with the exception of some areas, such as Defence). There is a need to put in place a decision making and oversight framework for prioritising and managing the IOTHS' health ICT investments.

WA Health outlines its ICT Governance Structure in its ICT Strategy 2015-2018. The ICT Governance Structure outlines the decision making framework for WA Health's ICT investment. It clarifies the roles, responsibilities and accountability of all parties involved in the planning, delivery and management of ICT programs and projects.[50]

[50] Department of Health, WA Health Information and Communications Technology (ICT) Strategy 2015-2018

- The **ICT Executive Board** provides oversight and leadership in WA Health's ICT investment, ensuring that it appropriately supports the achievement of WA Health's strategic and operational objectives. The ICT Executive Board is accountable for the delivery of the strategy.

- The **ICT Program Committee**, accountable to the ICT Executive Board, identifies and prioritises ICT programs/projects and ensures that they are delivered on time, budget and according to scope.

- **Individual Project Boards** manage individual projects and report to the ICT Program Committee. The Clinical Reference Group and the Consumer Reference Group will be established by April 2015. These groups will provide advice to the ICT Executive Board on the planning and delivery of ICT across WA Health. They will also assist in developing Annual Implementation Plans and reviewing progress against the strategy.

- **Business User Groups** will continue to provide advice to the Health Information Network or other service providers about individual applications.

While this structure is likely to be too complex for an organisation of the IOTHS's size, it illustrates the key elements which should be built into an improved ICT governance architecture for the IOTHS, including clear lines of oversight, accountability, and decision-making, along with the roles of health service management, the board, and clinical leadership. The detailed decisions around ICT governance structures and accountability will also depend on decisions made with respect to the broader governance architecture (refer to Section 4.2.1).

4.1.3.2 ICT governance – principles for improvement

The WA Health ICT Strategy also sets out principles to guide decision-making on ICT investments.[51] These principles provide useful direction for the IOTHS in improving the ICT governance structure:

- Investments in ICT must be used to improve safety and quality; improve patient outcomes; create a better patient journey or experience; build knowledge to inform research and changes to clinical practice; or improve efficiencies and financial sustainability.

- Information sharing needs to focus on the best outcomes for the patient, including sharing information across the health care sector and not just in acute settings or within WA Health. Information sharing should be safe and secure and with patient consent. Opportunities to innovate need to be balanced with the need to maintain patient privacy and confidentiality.

- Business (corporate) systems need to demonstrate value for money and improve efficiency by streamlining operations, better management information and ease of use for WA Health's workforce.

- Systems need to be intuitive and easy to use, integrated, patient-centred, carer inclusive and aligned to clinical workflows and models of care. A set of standard infrastructure and applications should be available across WA Health.

- Clinical leadership is critical to establishing systems that deliver better care. Effective governance and decision-making depends on regular, ongoing and responsive clinical, consumer and carer engagement.

- WA Health should remain flexible and take advantage of new and emerging technologies.

- Clinical advances and workflows should drive process improvement.

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[51] Department of Health, WA Health Information and Communications Technology (ICT) Strategy 2015-2018

- ICT projects and funding for ICT must be well managed in order to deliver better care and better value. Opportunities to leverage off existing investments need to be explored.

- Expertise and learnings from around the world should be harnessed where possible and opportunities to partner with other State Government agencies explored.

4.1.3.3 ICT governance strategic initiatives

The following strategic initiative is recommended based on the findings of the current state analysis of the IOTHS ICT governance, and WACHS practice:

- **SI14:** establish an appropriate ICT governance framework for the size of the IOTHS.

Refer to Section 5.2 for more detail on this strategic initiative, and proposed implementation activities and timeframes.

4.2 Governance and staffing arrangements

Key points:

- There is a lack of clarity around governance roles and responsibilities in the existing structure, with role confusion for senior clinical and management staff.
- The IOTHS does not have an independent board in line with corporate and health care governance best practice in Australia. The recently established Health Advisory Groups (HAGs) on Christmas Island and the Cocos (Keeling) Islands do not address the governance deficits. The intention of the HAGs is to establish a community forum for IOT community health issues and provide guidance to IOTHS.
- ACHS accreditation documents note that the IOTHS risk register is comprehensive and regularly monitored through an Executive Quality Committee (EQC), and that good outcomes are being achieved in terms of review of risks on the *RiskMan* software database. However this is currently dependent on key individuals
- Consultations with senior staff suggested that establishing an effective organisational culture, especially amongst clinical staff and management, is challenging due to the high levels of transient staff.
- Based on an analysis of the current IOTHS organisational structure, and other relevant data, a set of six staffing initiatives have been identified which could be implemented alongside any of the service model options presented in Section 3.1

As part of the approach to developing the IOTHS five year strategic plan, the efficiency and effectiveness of the existing staffing structure has been assessed in terms of its ability to meet the health needs of the community on the IOTs, and also the alignment of the governance arrangements with principles of good governance and the practice of public and private comparators. These are related but distinct considerations, and the assessments of governance and staffing, and the associated recommendations for strategic initiatives, have therefore been summarised in separate sections below.

4.2.1 Governance arrangements

4.2.1.1 Governance current state assessment

In the existing IOTHS governance structure the Minister has ultimate accountability for the health service, but has limited access to specialist advice as health service delivery accounts for a very small proportion of Infrastructure's activities and expertise.

The Health Service Manager, along with the Business Manager and the Directors of Medicine, Nursing and Dental services from the IOTHS, and IOTA and Infrastructure Directors, fulfil a range of conflicting governance and management roles. There is no dedicated body in place with a responsibility for governance, oversight, and strategy.

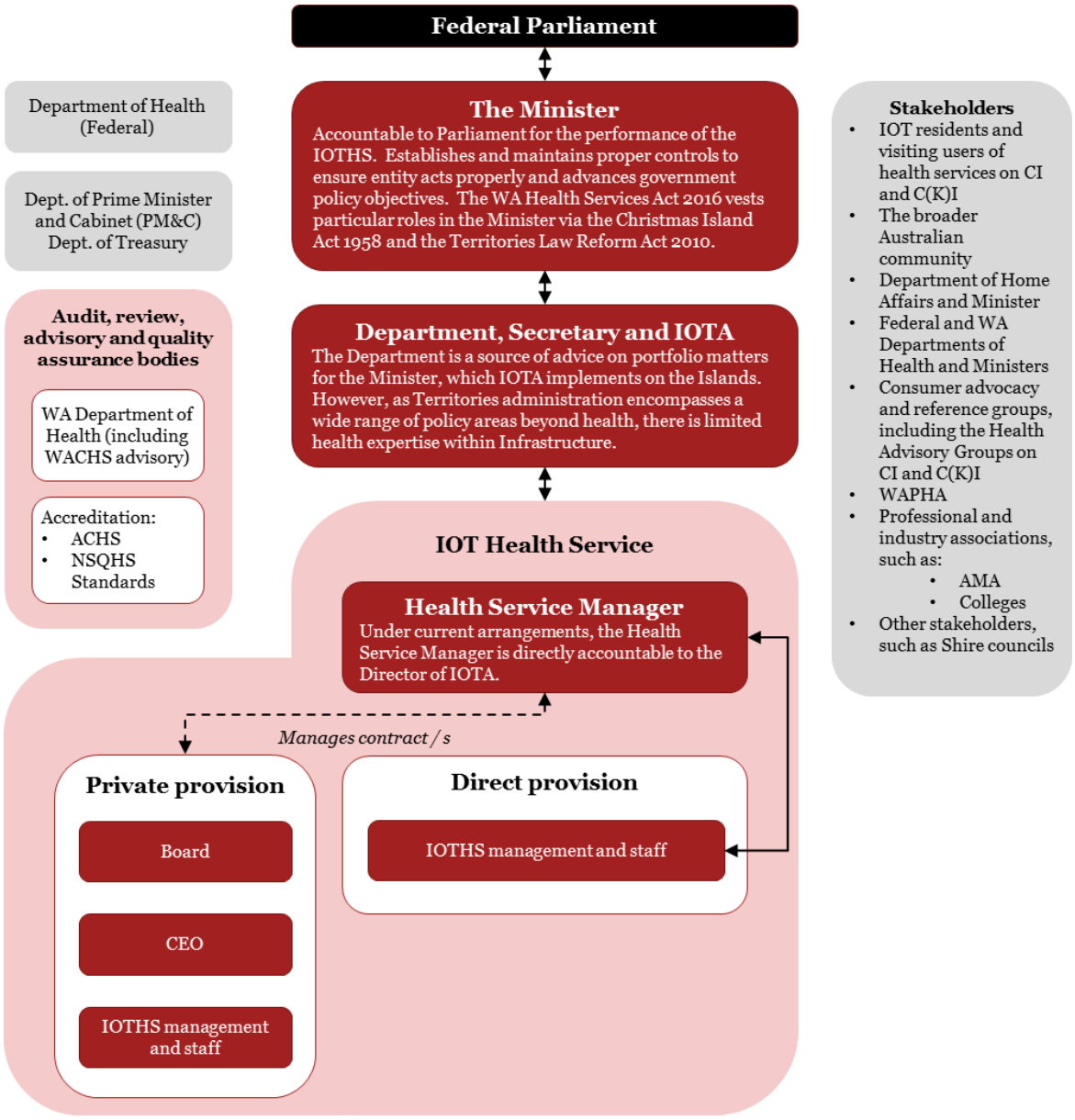
It should be noted that the ACHS released the NSQHS Standards 2nd Edition in November 2017, which are scheduled to commence on 1 January 2019. They address gaps identified in the first edition, including mental health and cognitive impairment; health literacy; end-of-life care; and Aboriginal and Torres Strait Islander health. They also update the evidence for, and consolidate and streamline, standards and actions to make them clearer and easier to implement with less duplication

It will be important for Infrastructure to ensure that the IOTHS is aligned with these Standards in advance of future health service accreditation processes. In terms of governance, the key NSQHS standard is Standard 1: Clinical Governance, which aims to ensure that there are systems in place within health service organisations to maintain and improve the reliability, safety and quality of health care.

The main change to the NSQHS Clinical Governance standard is the explicit recognition of the importance of leadership and culture in establishing clinical governance systems to maintain and improve the safety and quality of care, with descriptions of the roles of the governing body and health service clinical leaders. The revised Standard also incorporates new elements such as e-health and emergency and disaster management.

Finally it recognises that health services need to measure and act on differences in clinical practice, and to provide an environment that promotes safe and high-quality care.

Figure 48: IOTHS current state governance structure



The current state of IOTHS governance has been assessed based on the ten principles of good governance for non-profit organisations which have been developed by the Australian Institute of Company Directors.[52] The ten principles have been modified to be appropriate in the context of a publically-run remote health service.

[52] Good Governance Principles and Guidance for Not-for-Profit Organisations, Australian Institute of Company Directors, 2013

Table 15: Principles of Good Governance

Principle	*Summary*
1. Roles and responsibilities	There should be clear communication and understanding regarding board and management's governance responsibilities and roles both internally and externally.
2. Board composition	A board needs to have the right group of people, having particular regard to each individual's background, skills and experience, and how the addition of an individual builds the collective capability and effective functioning of the board.
3. Purpose and strategy	There needs to be a clear alignment between the organisation's vision and mission and its purpose. The vision and mission should in turn flow through to clear strategic plans which outline how this vision will be achieved. There should be ownership of this strategy at the board and management level.
4. Risk management	There should be a robust risk management framework which outlines how risks will be identified, classified, monitored and mitigated. Clarifying responsibility for risk management and oversight, including clinical risk, is also essential.
5. Organisational performance	An organisation should have clear performance measures and regular and robust internal and external reporting. The process for how performance issues and challenges will be identified and managed should also be clearly defined.
6. Governance structure	There should be clarity regarding the overall governance structure, including the content and structure of governance meetings, governance arrangement documentation, monitoring, and auditing.
7. Integrity and accountability	The organisation must have in place a system of information flow to the leadership to aid decision-making, with transparency and accountability to external stakeholders, and safeguards to the integrity of financial statements and other key information.
8. Organisation building	An organisation should have clear policies and procedures for professional development and capacity and capability development.
9. Culture and Ethics	There should be clear policies and procedures which outline ethical requirements and codes of conduct for behaviour within the organisation.
10. Engagement & communications	The organisation should have a clear approach for stakeholder engagement and communication internally and externally, including how stakeholders should be informed, consulted and involved in key decision making within the organisation.

The Australian Commission on Safety and Quality in Health Care (ACSQHC) National Model Clinical Governance Framework (the Framework) describes the context for clinical governance as an integrated component of corporate governance in organisations delivering health care services. According to the Framework, corporate governance, "encompasses the establishment of systems and processes that shape, enable and oversee management of an organisation. It is the activity … of formulating strategy, setting policy, delegating responsibility, overseeing management, and ensuring that appropriate risk management and accountability arrangements are in place throughout the organisation."[53] The Framework defines the clinical governance of a health service as a component of the broader system of corporate governance, involving, "a

[53] National Model Clinical Governance Framework, ACSQHC, 2017, p3

complex set of leadership behaviours, policies, procedures, and monitoring and improvement mechanisms that are directed towards ensuring good clinical outcomes."[54]

The table on the following page assesses the IOTHS's corporate and clinical governance. Overall, deficits in the governance structure, particularly the lack of an independent board with a diverse, experienced set of members, and the ad hoc approach to managing clinical risk which is driven by key staff and not supported by central policy and corporate services functions, contribute to low scores against the 10 principles of governance. These are set out in Table 16.

54 Ibid, p5

Table 16: Current state assessment of the IOTHS governance arrangements

Principle	*Corporate*	*Clinical*	*Rationale*
1. Roles and responsibilities			• From a corporate governance perspective, the IOTHS has an unusual structure of roles and responsibilities, with the Health Service Manager reporting directly into Infrastructure's IOT Branch. • The Health Service Manager reports to the IOTA Director, and while they oversee many aspects of IOTHS performance, they do not have full operational responsibility for the service: – For example, the Director of IOTA holds responsibility for budget setting and amendments, and the appointment, evaluation and termination of IOTHS staff, who are direct employees of Infrastructure, as opposed to the IOTHS. • All senior IOTHS staff, and all responsible public servants in the IOT Branch, have various management responsibilities for the operation of the service. This creates an element of basic role confusion with the governance responsibilities they also bear. • There are consequently low levels of awareness of specific, agreed responsibilities and expectations with respect to governance among the senior IOTHS and Infrastructure staff in the following areas: – Determining, reviewing and maintaining the vision, purpose and values of the organisation. – Approving short and long term strategies. – Risk oversight, including clinical risks. – Clinical governance in terms of policy setting and accountability. – Financial reporting integrity. – Monitoring of service activity to ensure that the service is properly managed. – Supporting effective engagement with stakeholders.
2. Board composition		N/A	• The IOTHS does not have an independent board in line with corporate and health care governance best practice in Australia. • The delegation of accountability within Infrastructure's departmental structure does not substitute for the independent, stand-alone governance mechanism of a board, which should be assembled with individuals with a diverse and relevant range of experience, skills, and backgrounds: – Boards often employ a "skills matrix" to ensure that members possesses a diverse range of experience and qualities to avoid the groupthink and blind spots that arise from a homogeneity of perspective over governance issues. – To ensure adequate oversight of clinical risk is put in place, a health service board should include medical practitioners, alongside individuals with other relevant skillsets.

Principle	*Corporate*	*Clinical*	*Rationale*
3. Purpose and strategy			• The IOTHS Strategic Plan 2017-2020 sets out the organisation's vision, purpose, values, and strategic objectives. It gives a clear articulation of why the service exists, what it does, for whom it does things, and how it will do them. • It does not set a framework for tracking and measuring its success in achieving the goals set out in the strategy, or for defining who holds responsibility for delivering different aspects of the strategy. • This strategic plan can inform the existing strategy, particularly in the workforce and governance Focus Areas (2 and 3), with time-bound, measurable strategic initiatives which enable the organisation to achieve its strategic goals to promote community health and wellbeing and providing clinical services.
4. Risk management			• ACHS accreditation documents note that the IOTHS risk register is comprehensive and regularly monitored through an Executive Quality Committee (EQC), and that good outcomes are being achieved in terms of review of risks on the *RiskMan* software database. • Consultations with clinical staff indicated that the Director of Nursing manages the risk register, and that this process is working reasonably well in terms of outcomes, but that register maintenance and governance oversight are the responsibility of the same set of staff on the EQC. This is an example of the role confusion referred to above, and this oversight risk is currently one of the key governance issues for the IOTHS. • The Director of Nursing maintains a database of policies on risk, safety, quality, and clinical practice, along with records and processes for maintaining staff competencies. However, the Director of Nursing and other senior staff referred to the administrative burden of maintaining this database, which would normally be supported by the policy and corporate services divisions of a State Department of Health.
5. Organisational performance			• In terms of organisational performance, the ACHS was generally complimentary of the IOTHS in its accreditation summaries, particularly with respect to primary care and clinical outcomes. In general, this view was supported in both the clinical and community consultations conducted as part of this strategic planning process. • Ongoing challenges in managing financial performance and the IOTHS budget include the consistent under-budgeting of patient assisted travel costs and contracted services, particularly driven by locum usage. • In terms of clinical performance, in general the outcomes being achieved appear to be strong, but there are concerns related to the governance and oversight of practices and performance. The measurement structures have not been in place to track improvement in strategy focus areas – although recent additions to the IOTHS record management software should enable better tracking and measurement of clinical outcomes.

Principle	*Corporate*	*Clinical*	*Rationale*
6. Governance structure			• As noted above, due to the unique characteristics of the IOTHS as a directly-run Federal government health service, there are significant deficiencies in the organisation's governance structure, in particular, the lack of an independent board, and the role confusion of management and senior clinical staff. • The IOTHS has an Executive Quality Committee (EQC) which meets monthly and fulfils a range of governance and management functions. As noted in some categories above, this structure is currently achieving good organisational and clinical outcomes, but deviates from good governance best practice. The performance currently being achieved would be put at risk due to its reliance on the staff currently in place. • The recently instituted Health Advisory Groups (HAGs) on Christmas Island and the Cocos (Keeling) Islands do not address the governance deficits. The intention of the HAGs is to establish a community forum for IOT community health issues and provide guidance to IOTHS.
7. Integrity and accountability			• In terms of a routine flow of information to the governance body, the lack of an independent board means that the typical systems in line with best practice governance do not seem to be in place. In support of the development of this strategic plan, the IOTHS has been able to provide clinical and financial information of the kind which would be used by a board to support decision making, however there is a need for some improvements to enhance integrity and accountability: – Recent extensions of the capability of the Medical Director RMS in the form of PENCAT software will enable more detailed clinical data extraction and analysis which could be formalised in regular risk and strategic reporting. – The IOTHS administration is currently able to provide the detailed financial data which sits behind financial summaries, including for example on transactions related to locum nurse and medical staff. Anecdotally these are a major driver of contracted services, the category which accounted for over a quarter of the IOTHS budget in 2016-17. Such transaction coding would enable a board and management to exercise effective oversight of the IOTHS budget. • As the IOTHS is currently directly operated by Infrastructure, it does not publish annual reports with audited financial statements. From a governance perspective introducing these practices would improve transparency and accountability to external stakeholders. • Some consultees noted a lack of community awareness of IOTHS complaints procedures, and in particular, there was a perception expressed by some consultees that the process lacked independence (i.e., complaints may be reviewed by their subject). IOT residents are currently able to submit complaints through the WA Health and Disability Services Complaints Office (HaDSCO), which is an independent process. However the IOTHS may wish to take steps to ensure that community awareness of this arrangement is increased. • There is also a Departmental complaints process in place within Infrastructure. However, no consultees expressed awareness of this process and, if relevant, it would need to be made more accessible to IOT residents.

Principle	Corporate	Clinical	Rationale
8. Organisational building			• The Director of Nursing (and the Nurse Manager on the Cocos (Keeling) Islands) run orientation and induction programs for all staff, including locum and agency staff, and this includes safety and quality through the National Standards. • The Director of Nursing has put in place a process for maintaining staff competency and this is captured on a register. • Evidence that similar structures were in place for non-clinical staff was not made available, if it exists. This is an area for improvement. • As noted above, there is no centralised policy or corporate support services function making an input to these organisation building activities, and the structures are therefore reliant on individuals in their current roles. While the ACHS accreditation praised the outcomes being achieved by the IOTHS, senior staff consulted acknowledged that the governance of the service was not in line with best practice.
9. Culture and Ethics			• Consultations with senior staff suggested that establishing an effective organisational culture, especially amongst clinical staff and management, is challenging due to the high levels of transient staff. The lack of clear lines of accountability, aligned with governance best practice, also contributes to this deficit. IOTA staff also rotate regularly, so there is a lack of a consistent cultural exemplar which would often be set by an independent board. • An issue which emerged frequently in consultations with IOT community members on Christmas Island and the Cocos (Keeling) Islands was the "customer service" experience when dealing with reception. To achieve improvement in this dimension requires cultural change led from senior management and a board if one is introduced. • A cultural understanding of health practice staff, especially locum and casual doctors and nurses, is required to build trust with patients and to encourage interaction of the community with the health service. This should be embedded in organisation induction and orientation processes.
10. Engagement and communications			• The need for improved communication and engagement with the communities on Christmas Island and the Cocos (Keeling) Islands has been identified amongst the IOTHS staff consulted. In general, staff and community consultees agreed that the level of information provided at the health service sites was good, but the IOTHS can do more to bring service and public health information to the community through public forums and social media. • There is no clear communications and engagement plan and as a whole, the IOTHS' communications and engagement are currently ad hoc.

Governance assessment key:

Strong | Potential for improvement | Weak

4.2.1.2 Governance structure of comparators

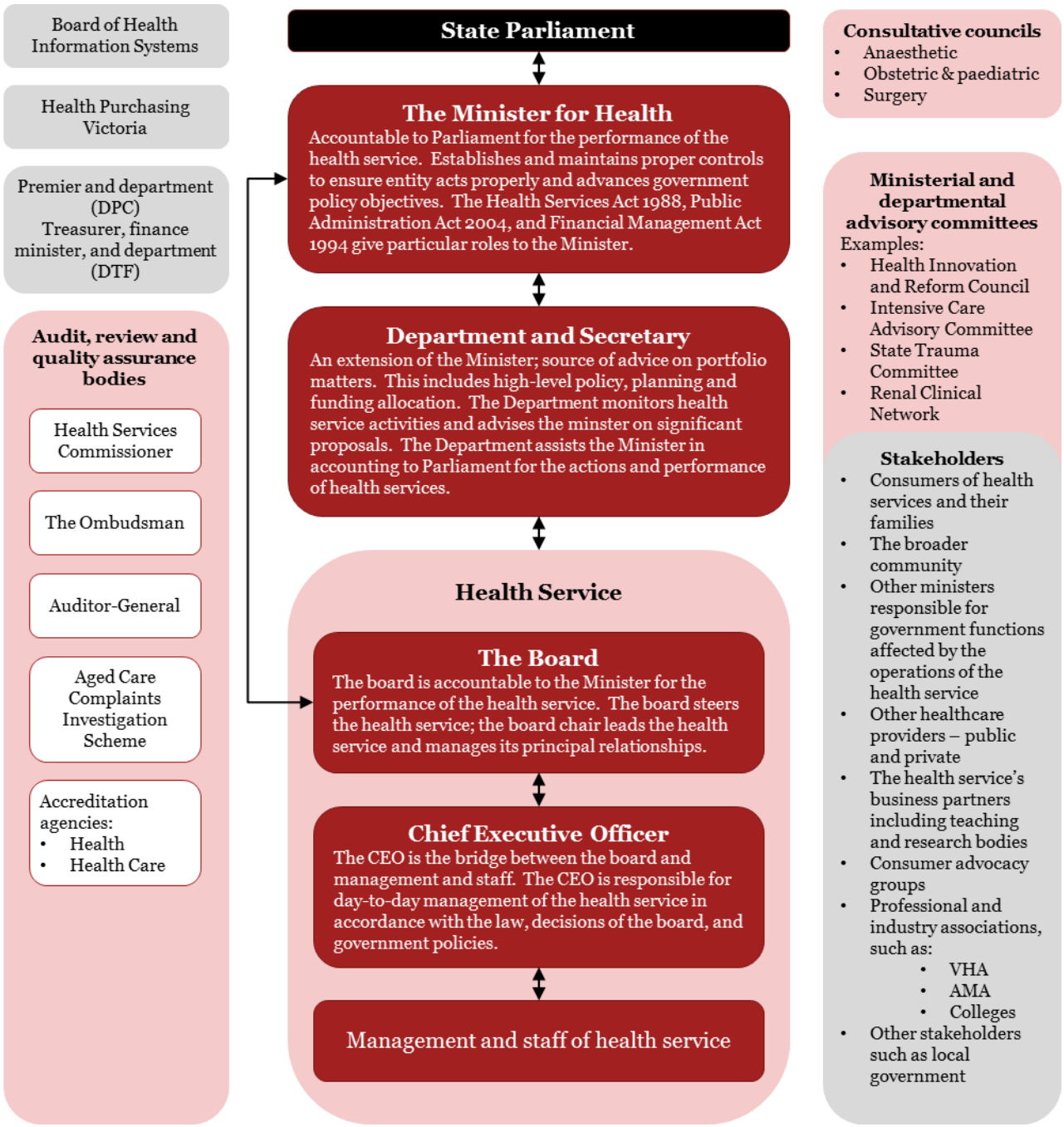
The analysis of current clinical and corporate governance structures and practice at the IOTHS against the principles of good governance show there are opportunities for improvement, and that there is a need to bring them into closer alignment with the practices of other public and private organisations in the health care sector.

In particular, the lack of a board with accountability to the Minister for health service performance, and a Chief Executive with a background in day-to-day health service management, are key structural deficits. The lack of these structures inhibits good clinical and corporate governance practices, and creates confusion within the IOTHS leadership around roles, and ultimate responsibility for aspects of performance and outcomes.

To identify potential governance structure improvements, PwC has researched four governance models, which are presented over the following pages, along with their key features. The entities selected include:

- Two examples of the Local Health Network structure, implemented by State governments across mainland Australia:
  - The **Victorian Local Health District** model.
  - The **WA Health Service Provider** model.
- **Ramsay Healthcare Limited**, a listed private sector health provider.
- **St John of God Healthcare**, a not-for-profit incorporated association.

Figure 49: Victoria Local Health District governance structure

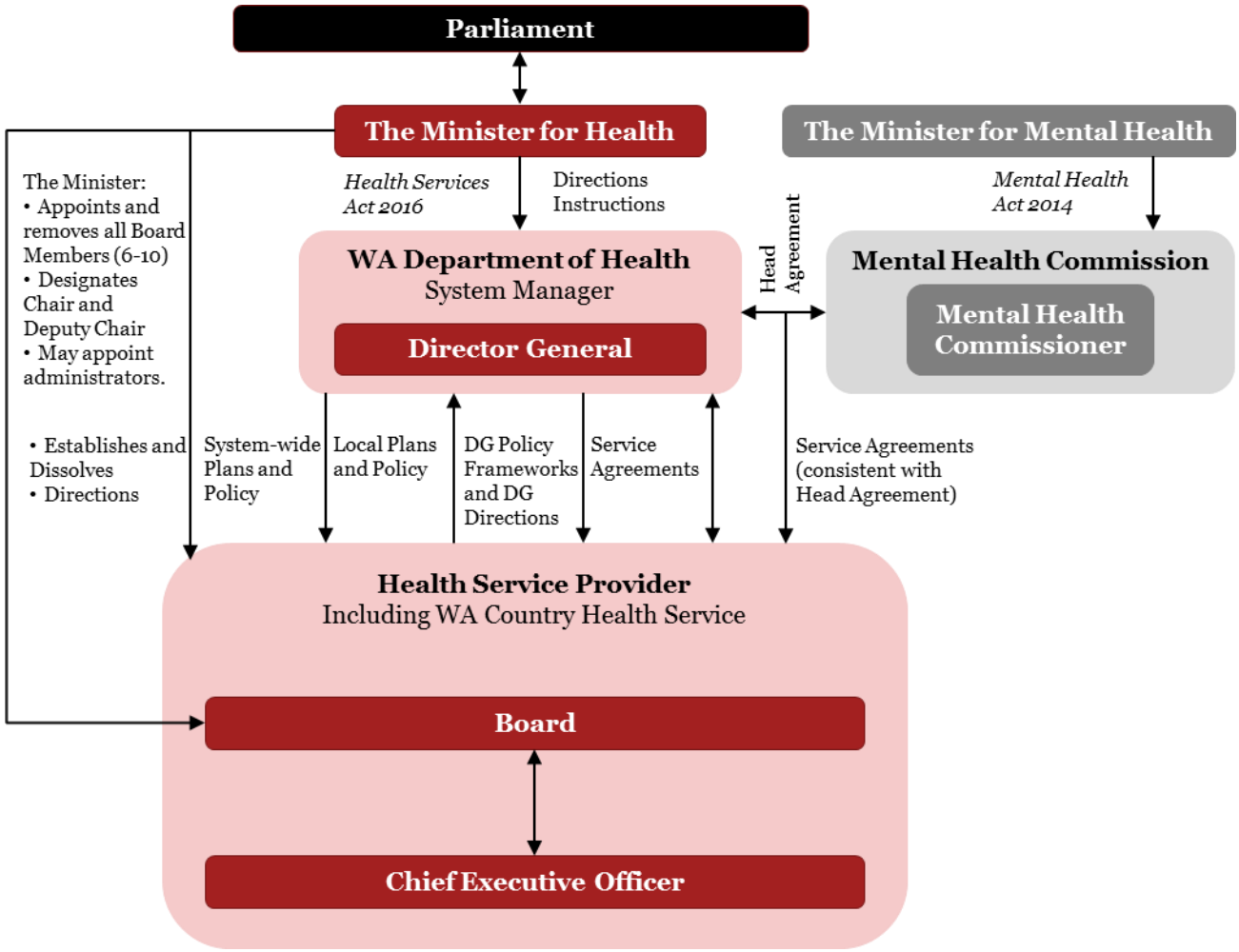


Source: The Victorian health services governance handbook, Victorian Department of Health, 2012.

Key features of the Victorian LHD governance structure:

- Extensive Ministerial and departmental advisory structures are in place to ensure informed oversight.
- The Department and Secretary advise the Minister for Health (who has overall responsibility for the health system); develop policy; fund and purchase health services; and collect and analyse data.
- Independent health service boards are directly appointed by and accountable to the Minister.
- Health services prepare annual strategic plans for the Minister's approval, and the board agrees an annual Statement of Priorities (SoP) with the Minister or Secretary.
- Performance is monitored and assessed on a quarterly basis, and a range of health service data is published quarterly to inform the community about the activity and performance of the health service. An annual quality of care report is prepared and published.

Figure 50: WA Country Health Service governance structure

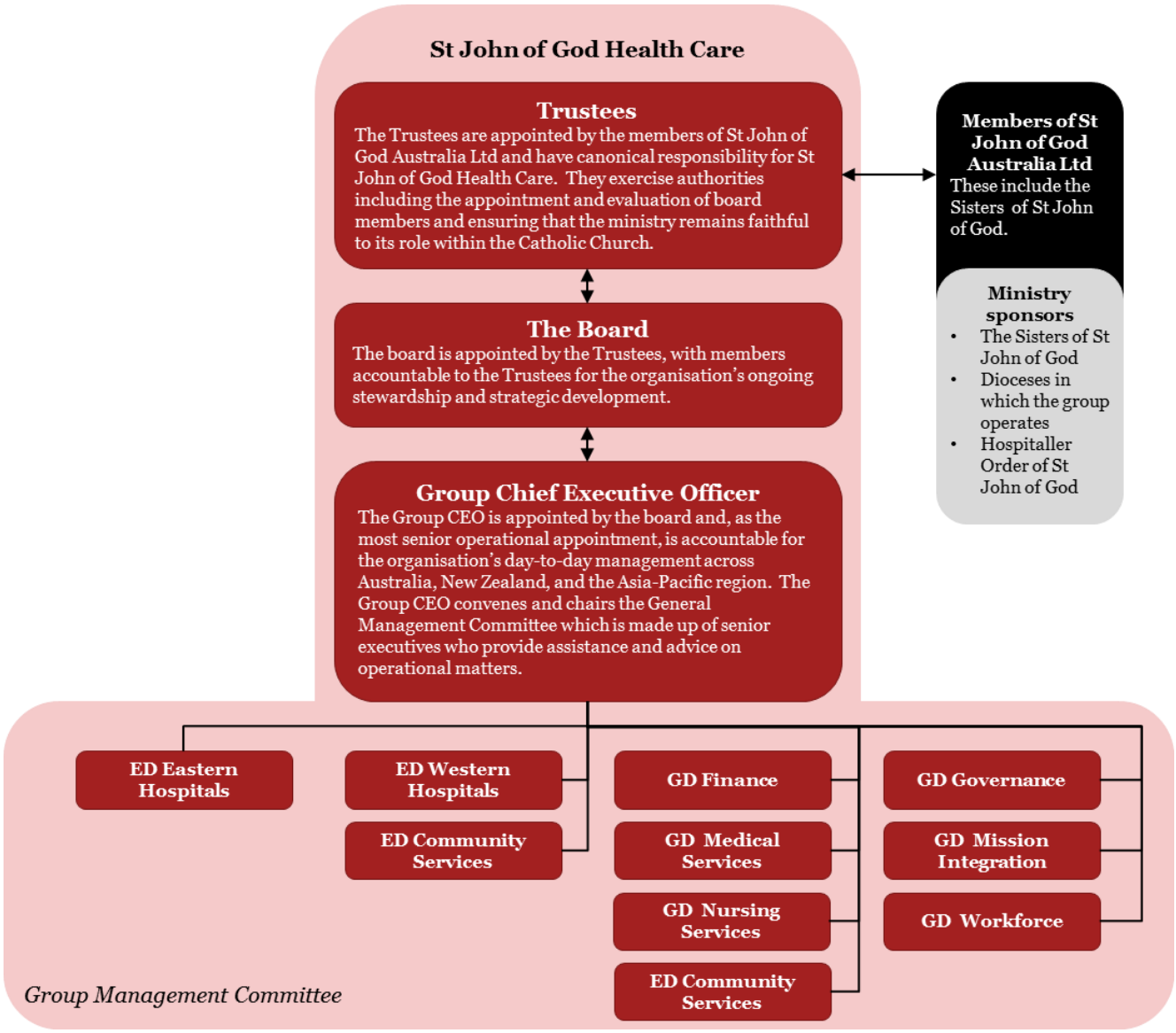


Source: Health Service Provider Boards – Governance Policy, WA Department of Health, 2017.

Key features of the WA health service governance structure:

- Unlike the Victorian health system, which has 87 health services varying in size from small rural health services (some similar in size to the IOTHS, for example Boort District Health with six acute beds) to metropolitan and major regional hospitals, WA has five Health Service Providers (HSPs, not including Health Support Services) covering areas which include many sub-districts and facilities.
- The Minister for Health has overall responsibility for the WA health system.
- The WA Department of Health and its Director General have a "system manager" role. They are responsible for strategic leadership, oversight, performance, planning, and policy setting. The Department enters into Service Agreements with HSPs, and monitors their performance.
- The Department appoints and dismisses Chief Executives of HSPs. This is a point of distinction from Victoria, where the board appoints a CEO and determines, subject to the Secretary's approval, remuneration and terms and conditions of their employment.
    - The WA arrangement is not typical of governance best practice, where the board appoints the Chief Executive, who is then accountable to the board for their performance.
- Independent health service provider boards are appointed by and accountable to the Minister for Health. They are responsible for setting the strategic direction of the health service, and ensuring that the HSP, as Statutory Authorities, are compliant with WA health system policy frameworks, legislation, regulations, policies and standards. They oversee the activities of the chief executive, and are consulted by the Director General on matters of executive performance management.
- WACHS covers all non-metropolitan facilities over seven Districts, led by a Regional Director reporting to the Chief Executive.

Figure 51: St John of God Health Care governance structure

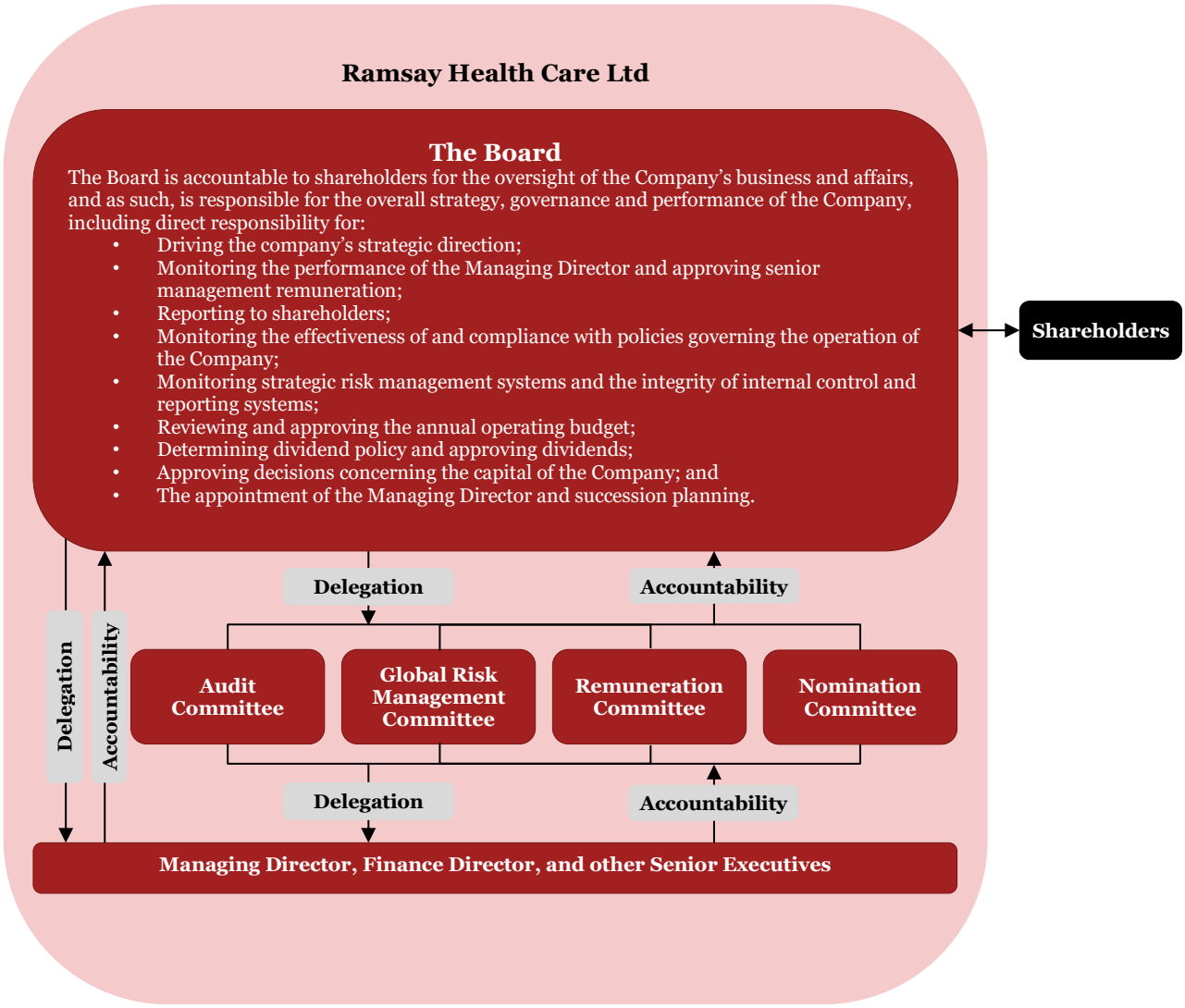


Source: Governance structure summary developed based upon information in the St John of God Health Care 2016-17 Annual Report.

Key features of the St of God Health Care governance structure:

- St John of God Health Care Inc. (SJGHC) is an incorporated Association, the members of which are the Directors of St John of God Australia Ltd, a civil and canon law entity established in 2004 to sponsor the ministry that was previously sponsored by the Sisters of St John of God.
- SJGHC has a board of Trustees appointed by the members of St John of God Australia. They are responsible for appointing and overseeing the board, and ensuring that the organisation remains faithful to its mission.
- The Board of Directors of SJGHC, appointed by the Trustees, are responsible for setting the strategic direction of the organisation and ensuring that it is financially sustainable; monitoring risks and compliance with organisational policies; and appointing and monitoring the performance of the Group Chief Executive Officer.
- As a non-profit with a steering body (the Trustees) sitting above and appointing the board, the SJGHC governance structure has some relevance for the IOTHS. It illustrates the principles of delegation of authority and oversight central to good governance practice.

Figure 52: Ramsay Health Care Limited governance structure



Source: Ramsay Health Care Ltd 2016-17 Annual Report.

Key features of Ramsay Health Care's governance structure:

- Ramsay Health Care's (RHCL) governance structure is typical of a listed company.
- The Board of Directors are elected by and accountable to the company's shareholders.
- The Board is responsible for setting the strategic direction of the organisation and ensuring that it is financially sustainable; monitoring risks and compliance with organisational policies; and appointing and monitoring the performance of the Managing Director and the executive team.
- It is another example of the principles of governance, but lacks some of the specific features present in the Victorian LHD and WA HSP models, which are particular to publicly operated health services.
- RHCL, like many other private sector health providers, will integrate clinical governance into its risk monitoring and management structures. One benefit of private sector provision would be the opportunity to harness this integrated clinical governance. However, it would not negate the need for the introduction of an IOTHS board to monitor the performance of the service on behalf of the Minister, nor the need for improved Ministerial advisory structures.

4.2.1.3 Governance structure options for consideration

The current state assessment of IOTHS governance against the ten principles shows a clear need to implement strategic initiatives which bring the organisation's corporate and clinical governance structures more closely into line with best practice. There are several key areas in need of reform, including in particular:

- Clearer separation of governance and management roles and responsibilities.
- The introduction of an independent board with appropriately diverse, skilled, and experienced directors.
- Improved oversight of corporate and clinical risk management systems.
- Stronger leadership of a health culture from an independent board and senior management team.

The governance comparator examples above illustrate different aspects of governance structures for public and non-public health services, including Ministerial advisory structures; independent health service boards with relevant expertise, accountable to a Minister, Trustees or shareholders; Chief Executive Officers leading a team of health management professionals and accountable to the board; and clear structures of delegation and accountability. Reforming the governance structure, building on the strengths of comparator models such as these, is key strategic initiative that the IOTHS should undertake.

There are several options for governance structure reform which the IOTHS could implement, including:

1. **The adoption of a Local Health Network (LHN) governance structure for the IOTHS**, introducing an independent board appointed by the Minister, and new ministerial advisory structures with specialist remote health service expertise.
2. **Extension of the SDA with the Government of Western Australia to run the IOTHS as part of WACHS,** with oversight provided by the independent WACHS board and alignment of corporate and clinical governance practice with WA Health.
3. **Introduce an advisory board**, composed of relevant experts in remote clinical practice, health administration, and governance, to advise the Minister and Infrastructure officials and to provide oversight and challenge to the IOTHS management.

These options represent alternative approaches for a transition towards a governance model with stronger independent oversight, consistent with State government practice on mainland Australia. The key differences between each suggested option relate to the varying levels of board authority and delegation. A brief outline of the key aspects to be considered for each option is presented below:

- **Option 1** would involve establishing new structures particular to the IOTs, modelled on the governance structure of Victorian Local Health Districts and WA Health Service Providers, but adapted to the unique arrangements of Territories Administration within Infrastructure. This would include:
    - The creation of an independent board, with delegated responsibility for IOTHS governance, oversight and strategy. The board would be appointed by and accountable to the Minister.
    - The introduction of a Hospital Administrator position, filled by an experienced health service management professional. The Hospital Administrator should be appointed by and accountable to the Board.
    - Creation of a Ministerial Health Advisory Committee which would support the Minister and Secretary.
    - Infrastructure could continue direct service provision under this governance model, or explore private and not-for-profit provision options, which may bring further improvements in clinical governance.
- **Option 2** would delegate the role of the independent board to the WACHS board under an extended SDA with WA Health. The extended SDA would encompass the direct operation of the IOTHS on Christmas Island and the Cocos (Keeling) Islands by WACHS. It is recommended that Infrastructure obtain legal advice on the feasibility of extending the SDA and raise the possibility of WACHS operating the IOTHS as part of the ongoing negotiations with the WA Government. The willingness of WA to extend the SDA in this manner should also be explored. This option would include:

  - Extension of the SDA to encompass health service provision on the IOTs by WACHS. The Minister would delegate responsibility for the IOTHS to the WA Health Minister, and to the WACHS board in turn. The Board would assume responsibility for the governance, oversight and strategy of the service.
  - Creation of a Ministerial Health Advisory Committee which would support the Minister and Secretary.
  - WACHS could continue direct service provision under this governance model, or explore private and not-for-profit provision options, which may bring further improvements in clinical governance. This may be less desirable if the IOTHS clinical governance systems are aligned with those of WACHS.

- **Option 3** would not alter the delegations of authority currently in place, which are in line with existing APS and Departmental rules and practices, but would instead introduce an advisory and oversight structure in the form of an independent advisory board. This option would include:

  - The creation of an independent advisory board, appointed by and accountable to the Minister. The board would provide advice to the Minister and Infrastructure officials with respect to health service management and governance, along with oversight and challenge to the IOTHS management and IOTA leadership.

  - The board would not have delegated responsibility for IOTHS governance and strategy. These would remain within the current APS and Departmental rules and practices.

  - The introduction of a Hospital Administrator position, filled by an experienced health service management professional. The Hospital Administrator would be appointed by and accountable to the IOTA Director, as per current practice.

  - Infrastructure could continue direct service provision under this governance model, or explore private and not-for-profit provision options, which may bring further improvements in clinical governance.

For all three of these options the establishment of robust Ministerial advisory committees is recommended (in Option 3 this would be one of the roles of an independent advisory board), along similar lines to those in place in Victoria, to ensure that the Minister is able to readily consult relevant experts on matters related to oversight of the IOTHS, including alignment of the health service with the NSQHS Clinical Governance standard.

Under all of these options, Infrastructure (or WACHS) could opt for direct, private, or not-for-profit delivery of some or all of the services on the IOTs. Such an approach would bring benefits in terms of clinical governance through the central corporate and policy services associated with large providers. It is recommended that Infrastructure conduct market soundings to explore whether private provision of services under Option 1 or Option 3 would offer Value for Money in comparison to Option 2 (an extended SDA with WACHS).

Finally, all of these options would bring governance of the IOTHS more closely into line with public, private and non-profit practice in the health service delivery sector. These options should be considered further by Infrastructure in terms of a range of factors including their cost, appropriateness, the willingness of WACHS to become involved in IOTHS governance, and any legislative implications.

4.2.1.4 Governance practice improvements

A range of governance practice improvements must flow from the structural changes associated with the three governance options presented above, and these will depend on which option Infrastructure elects, if any. However, these will include some common elements, such as:

- Documentation which maps the organisation's governance structure.
- A board charter and supporting documentation setting out sub-committee structures and responsibilities.
- Role descriptions for board members and the board Chair.
- Board skills matrix.

- Governance policies and processes.
- Delegations of authority and documentation setting out the reporting requirements of the management to the board.

There is also a need to improve the governance policy architecture around clinical, safety, and quality policy and risk management. Consultations with IOTHS staff indicated that this is currently driven by key individuals but is not sufficiently formalised with clear roles and responsibilities for clinical governance.

It is recommended that the IOTHS align its clinical governance and policy architecture with an established health service and the revised NSQHS standards. WACHS, as an example, has a corporate services structure to support these functions, which is only incompletely addressed within Infrastructure's structure. If Infrastructure elects to proceed with the second governance structure option (i.e. extension of the SDA to cover IOT health services as part of WACHS) then this recommendation would be implemented as part of that option.

4.2.1.5 Governance strategic initiatives

The following strategic initiatives are recommended based on the findings of current state analysis of the IOTHS governance structure against the ten principles of good governance. It also draws on the assessment of the governance structures of four public, private, and non-profit health service providers.

- **SI15:** reform IOTHS governance structure to clarify roles and responsibilities and ensure that robust controls and oversight are in place to reduce and manage risks to the health service, including the introduction of an independent board.

- **SI16:** align clinical, safety and quality policy and risk management systems and databases with WACHS practice and the revised NSQHS standards.

- **SI17:** where necessary, clarify the roles and responsibilities of reception staff in terms of triage and customer service, and ensure that staff are given appropriate training.

Refer to Section 5.3 for more detail on these strategic initiatives, and proposed implementation activities and timeframes.

4.2.2 Staffing arrangements

The IOTHS employs around 45 FTE staff to fill 50 medical, dental, nursing, management, administration and support service, and community social work positions. Figure 54 shows the staffing organisation as endorsed by the IOTA Director on 13 September 2017.

Broadly, the IOTHS staffing structure is not significantly out of alignment with comparator services for medical, nursing and administrative functions (refer Section to 2.2.3.2 for more detail on this analysis). While some of the support services which add to the IOTHS FTE headcount would often be contracted – cleaning services for example – the small size of the Islands means that contracting these services in line with mainland practices would be less likely to represent value for money. This is due to the limited range of suppliers present on the IOTs.

There is some scope to reduce the number of GPs on Christmas Island from 3 to 2, as discussed in Section 4.2.2.2 below. Changes to the IOTHS service model and their potential impacts on staffing are also outlined in each service model option in Section 3.1. These include reductions in the complement of registered nurses and the introduction of PCA and additional HACC workers. These changes are summarised in Table 18.

Staffing represents a significant cost item for the IOTHS, accounting for a large proportion of the annual budget. There are two principal components of staffing costs – permanent employee expenses (33% of total IOTHS expenditure in 2016-17), and the costs associated with locum nurses, doctors, and visiting specialists (77% of contracted services expenditure in 2016-17). Due to the difficulty of attracting staff to a remote location, employee allowances are on average equal to base salaries (i.e. the average final salary including allowances is 1.98 x the base salary). This is not unusual in remote health services.

Figure 53: Locum expenditure by category and financial year

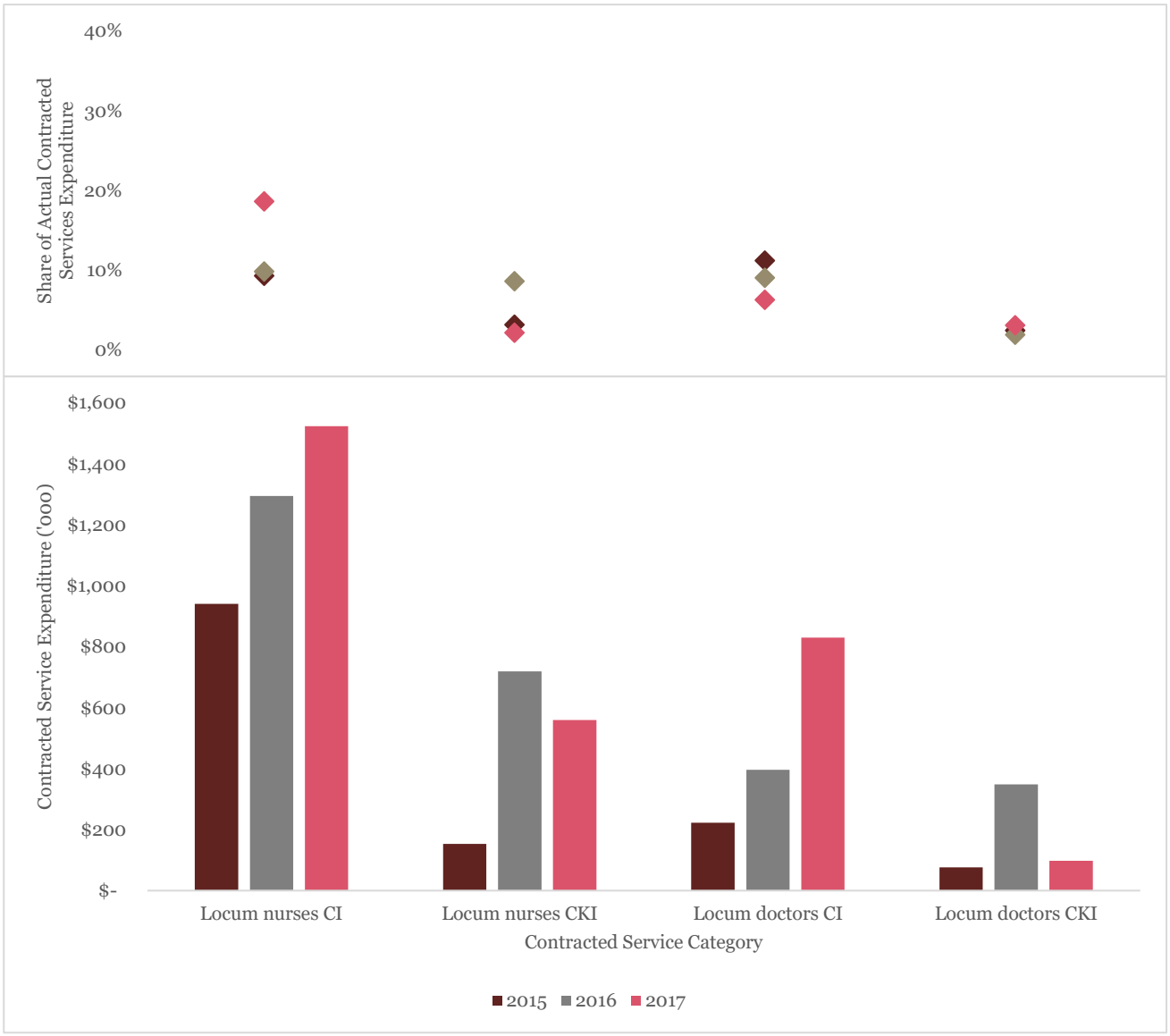
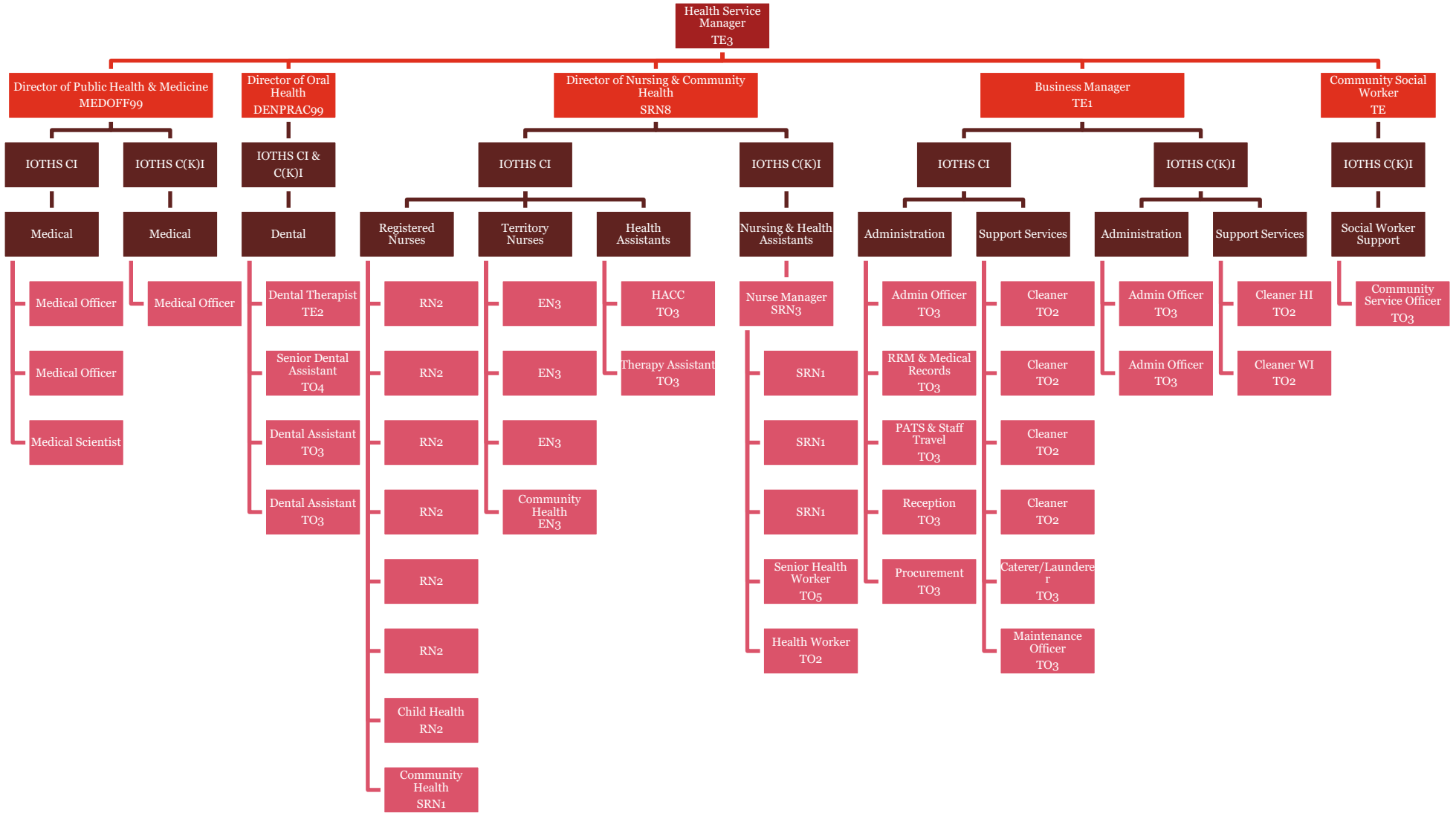


Figure 53 shows that expenditure on locum nurses for Christmas Island (including wages and travel costs) was the largest component of locum spend for 2014-15, 2015-16 and 2016-17, accounting for 32-39% of the IOTHS's total expenditure. In 2016-17 the cost of sourcing locum nurses for Christmas Island alone was over $1.5m. The use of locum doctors also grew rapidly; the spend in 2015-16 was 78% higher than in 2014-15; and 2016-17 expenditure on locum doctors was 109% greater than in 2015-16. Meanwhile the IOTHS managed to reduce locum spend on the Cocos (Keeling) Islands in 2016-17.

A review of the IOTHS organisation structure (summarised in Table 17) and other relevant documentations has identified a range of staffing initiatives. These suggested initiatives have the potential to achieve ongoing savings in the region of $540k per annum. These initiatives are summarised in Table 19.

Figure 54: IOTHS staffing organisation structure



Source: IOTHS current staffing organisation chart, based on document endorsed by the then IOTA Director on 13 September 2017, and provided to PwC on 22 March 2018.

Table 17: Staffing model assessment

Category	*Assessment*	*Recommendation*
Management	In general, the functional structure of the IOTHS is well aligned to the services it delivers to the community, and is similar to comparable services. One of the key differences is in the role of the Health Service Manager, which is typically filled by a Hospital Administrator or Chief Executive Officer position.	In line with the findings of the governance analysis summarised in Section 4.2.1, it is recommended the IOTHS consider introducing a Hospital Administrator role in line with similar health services, to clarify accountabilities for management and governance.
	Given the IOTHS's focus on primary care and general practice on Christmas Island and the Cocos (Keeling) Islands, a role that might be expected would be a Practice Manager. This was raised in a range of clinical consultations.	It is recommended the IOTHS consider introducing practice management into the management's responsibilities. A proposal for how this might be achieved is presented in Table 19 below.
Medical services	Workforce mapping demonstrated that the population per medical FTE on Christmas Island was around 534.	Consider reducing the number of GPs on Christmas Island from 3 to 2, in parallel with improvements to practice management. This would increase the ratio of population to GPs to 801:1, where the national average is 1052:1.[55]
Dental services	An assessment of the dental facilities available to comparable remote communities to Christmas Island (Table 4) indicated that either the health service offers dental services, or hosts a publicly provided service. Engagement with the comparator services provided limited information on dental service staffing, particularly when they are provided by a public dental service.	In general, it would appear the dental service provided by the IOTHS is in line with what is offered by comparable facilities. There is potential to consider the frequency of travel to the Cocos (Keeling) Islands, and to assess the costs and benefits associated with delivering dental services with a visiting dentist. This would need to account for potential increases in patient assisted travel in response to dental emergencies.
Cocos (Keeling) Island Nursing services	Given the remoteness of the Cocos (Keeling) Islands, the presence of a single doctor, and an on-call arrangement for nurses, the requirement for a complement of Senior RNs is appropriate to manage clinical risks. The current arrangement also appears to have reduced the use of locums, which would support continuity.	No change is recommended to nursing staff for the Cocos (Keeling) Islands.

[55] National Average is 95 GPs per 100 000 population https://www.healthywa.wa.gov.au/~/media/Files/Corporate/Reports%20and%20publications/Fair%20share%20for%20health%20care/Fair-Share-For-WA-Health-Care.pdf

Category	Assessment	Recommendation
Christmas Island Nursing services	On Christmas Island, the IOTHS currently rosters two RNs on at night and an RN and an EN during the day. Consultations with comparator health services have indicated that while it is good practice, from the perspective of staff safety, to have more than one staff members rostered onto night shifts, it is not necessary for this to be two RNs. Therefore, there is significant potential to restructure the IOTHS nursing roster and staff structure to reduce the complement of RNs, while increasing ENs and PCAs as relevant.	It is recommended the IOTHS reduce the RN complement for the Christmas Island facility, with a corresponding increase in EN and PCA FTEs, depending on the service model selected. Reducing RN FTEs would enable investment in services aligned to emerging community needs and priorities, such as aged care.
Community social work	Consultations indicated there was a lack of clarity around the role of the Community Support Worker on the Cocos (Keeling) Islands, and that there was little active line management by the Community Social Worker on Christmas Island.	Consider providing additional role definition to the Community Social Work staff, including in areas related to improved community communication (refer to relevant Strategic Initiatives).

4.2.2.1 Service model options – staffing arrangement impact

The service needs analysis identified two strategic choices regarding the Christmas Island hospital facility and the priority of meeting growing aged care needs. Four service model options were developed and assessed in Section 1, each of which seeks to address the strategic choices in different ways, while broadly remaining cost neutral. This included assessments of the potential changes that could be made to nursing rosters to accommodate additional aged care workers and alternative opening hours for the hospital facility. Full details of these options cane be reviewed in Section 3.1, but Table 18 below summarises the key changes to staffing arrangements associated with each service model option, along with the net budget impact.

Table 18: Service model changes - staffing impact summary on shifts (FTE).

		Current	Option 1	Option 2	Option 3	Option 4
Day shift	Doctor	3	-	-	-	-
	RN	1	-	-	-	-
	EN	1	-	-	-	-
	PCA	0	+1	+1	0	+1
	HACC worker	2	-	-	+1	+1
Night shift / weekend	Doctor on call	1	-	-	-	-
	RN	2	-1	-2	-1	-1
	RN on call	0	-	+1	-	-
	EN	0	-	-	+1	-
	PCA	0	+1	+1	-	+1
Budget impact (p.a.)		$ -	-$8,048	$67,183	$272,042	$81,781

4.2.2.2 Other potential staffing arrangement changes

Building on the analysis in Table 17 and Table 18, a set of six initiatives have been identified which could be implemented alongside any of the service model options presented in Section 3.1. These options have the potential to achieve ongoing savings, approximated to be over $500k per annum. This would need to be quantified with cost-benefit analyses.

Table 19: Staffing changes impact summary.

Initiative	*Description*	*Approximate potential funding increase or decrease*
Align locum nurse recruitment with examples from other health services.	The IOTHS spend on locum Registered Nurses is one of the most significant drivers of the IOTHS budget, making up a significant portion of the contracted services cost item. The current practice of directly approaching nursing agencies may not be delivering optimum value for money.	N/A
Contract laboratory services through external provider.	Consider scaling down the IOTHS laboratory capability on Christmas Island, and scaling up externally contracted pathology services. At present, approximately 1/3 of all tests are sent to Pathwest while 2/3 of tests are processed on Christmas Island. The resource cost associated with the laboratory services on Christmas Island is approximately $200k, along with a unit cost of approximately $50 per test conducted. The provider would also charge fees for these tests and there would be additional freight costs associated. These would need to be quantified with a cost-benefit analysis.	$200k (cost decrease)
Introduce practice management into the Business Manager role.	Amend the role of Business Manager to include general practice management. The average Medical Practitioner salary FTE cost to the IOTHS is $430k. If efficiencies in clinic services by improved practice management and streamlined consultations could bring the IOTHS into line with mainland services without compromising patient safety and outcomes, then the number of GPs on Christmas Island could be reduced from 3 to 2. This would be in line with the number of GPs IOTHS had in previous years.	$430k (cost decrease)
Introduce Hospital Administrator	Recast the Health Service Manager role as a Hospital Administrator, to be selected and appointed by an independent board or the Minister in consultation with Infrastructure, depending on which governance reforms Infrastructure elects to adopt. In addition to clarifying governance roles and responsibilities is a need to create a clear point of management accountability for the IOTHS. In line with the practice of other health services, the introduction of a distinct Hospital Administrator role is recommended.	N/A

Initiative	*Description*	*Approximate potential funding increase or decrease*
Introduce an additional IOTHS HACC worker on the Cocos (Keeling) Islands.	Introduce an additional HACC worker on the Cocos (Keeling) Islands as required. There is an increasing need for aged care services as the population on Cocos (Keeling) Islands is ageing. An increased HACC service would enable the preference of patients to remain in their home while giving family members a respite service.	$90k (cost increase)
Incorporate clinical risk and policy maintenance into administration remit.	Strategic Initiative 16 (Section 4.2.1.5 outlines a governance reform to bring the clinical policy and risk management structures into closer alignment with WACHS. Currently, the IOTHS clinical policies are maintained by an external consultant. This could be brought into the remit of the IOTHS administration under a Business Manager with responsibility for practice management, and a Hospital Administrator overseeing the service.	N/A
Total		**$540k (cost decrease)**

4.2.2.3 Staffing strategic initiatives

The following strategic initiatives are recommended based on the findings of current state analysis of the IOTHS staffing structure and composition, and its appropriateness to meet the current and emerging health and health care needs of the IOTs community. In addition to the staffing impact of service model changes (refer to Strategic Initiatives 1 and 2, Section 2.3.3), a set of initiatives have been identified which can be implemented alongside whichever service model reforms the IOTHS decides to take. These are:

- **SI18:** align locum nurse recruitment with examples from other health services.
- **SI19:** review the base salary and allowances of IOTHS staff.
- **SI20:** consider scaling down the IOTHS laboratory capability on Christmas Island, and scaling up externally contracted pathology services.
- **SI21:** introduce Practice Management to an existing administrative role to include general practice management and to streamline GP appointments.
- **SI22:** recast the Health Service Manager role as a Hospital Administrator, to be selected and appointed by an independent board in consultation with Infrastructure.
- **SI23:** introduce an additional IOTHS HACC worker on the Cocos (Keeling) Islands, when needed.

Refer to Section 5.3 for more detail on these strategic initiatives, and proposed implementation activities and timeframes.

4.3 Service provision

Key points

- There are a range of potential partnering options to deliver aspects or all of the health services on the IOTHS. Potential partners have been identified and profiled in Section 4.3.1.1.
- In response to community concern raised in consultations about the difficulty in making GP appointments on short notice, there is potential to introduce a nominal cancellation fee. This would not result in significant cost recovery, but may improve the utilisation of the health service and streamline consultations.

This section identifies and profiles a range of potential public and private partners who could deliver all or part of the new service models presented in Section 1. It also investigates a range of potential options to increase cost recovery or improve the GP clinic utilisation to improve service to the community.

4.3.1 Partnering

4.3.1.1 Profiles of potential partners

A range of potential partners have been identified and profiled in Table 20. Their services and the potential partnering options have been summarised.

Of the private providers, Aspen Medical is most likely to be in a position to operate the full health service, as it currently provides services to remote locations.

Organisations such as Bupa, Silver Chain and Brightwater may have the capability to provide a new residential aged care service, or to deliver existing HACC services. While none of these organisations currently operate a remote residential aged care service, the Competitive Dialogue Procurement Methodology could be used to assess the viability of running one on Christmas Island.

Another aspect of the current IOTHS that could be delivered in partnership with the private or non-profit sectors is the dental service. Aspen Medical or Bupa would appear to have the capability to deliver this service.

Other health service elements which could potentially be delivered through partnerships include visiting specialists and allied health services. Bupa could be contacted to assess the viability of providing services such as physiotherapy, occupational therapy and others allied health services, which are currently visiting services coordinated by the IOTHS.

Table 20: Potential public and private health service providers

Organisation	*Description*	*Potential*
St John of God Health Care (SJGHC)	• SJGHC is a private, not-for-profit, health care group that operate 23 facilities in Australia and New Zealand.[56] • Services include hospital services, home nursing, disability services and social outreach programs.[57] • SJGHC do not currently offer remote services.	• Provide hospital services • Provide HACC services • SJGHC nurses to work in the aged care facility
Ramsay Health Care	• Ramsay Health Care is a private health service that operates 235 hospitals, day surgery centres, treatment facilities, rehabilitation and psychiatric units, and a nursing college across six countries.[58] • Ramsay HC do not currently offer remote services.	• Provide full health service.
Aspen Medical	• Aspen Medical is a global provider of healthcare solutions from single paramedic to a full spectrum solution. • Aspen have experience in delivering health care services in indigenous, rural and remote communities including providing emergency services, primary healthcare and dental health.[59]	• Provide full health service • Provide dental health service
Bupa	• Bupa provide health services and aged care services.[60] • Health services provided include dental, optical, hearing, therapy such as occupational therapy, speech pathology, physiotherapy and others. • Bupa provide aged care services including residential care, respite care and palliative care. • Bupa currently do not provide any remote services.	• Provide visiting specialist services • Provide aged care services
Silver Chain	• Silver Chain a private, not-for profit organisation that is the largest provider of in-home health and aged care in Perth and Western Australia. • Services include hospital-level care in the home and community, and basic home services. • Silver Chain also have remote area service centres in 12 locations. These entail remote area registered nurses who work in remote communities with no hospital or registered doctor.[61]	• Nursing pool • HACC • Residential care nurses
Brightwater	• Brightwater is a not-for-profit organisation that offers services such as short and long-term residential aged care services, at home services and disability services.[62] • Brightwater do not currently offer remote services.	• Residential aged care service • HACC

[56] St John of God Health Care, Our services, 2018

[57] St John of God Health Care, Our services, 2018

[58] Ramsay Health Care, Annual Report, 2017

[59] Aspen Medical, Services, 2018

[60] Bupa Health & Care, Health service, 2018

[61] Silver Chain, Remote area service centres, 2018

[62] Brightwater, Our services, 2018

Table 21 below outlines the advantages and disadvantages of different approaches to partnering with the potential private and non-profit partners identified and profiled in Table 20.

Table 21 Advantages and disadvantages of partnering alternatives

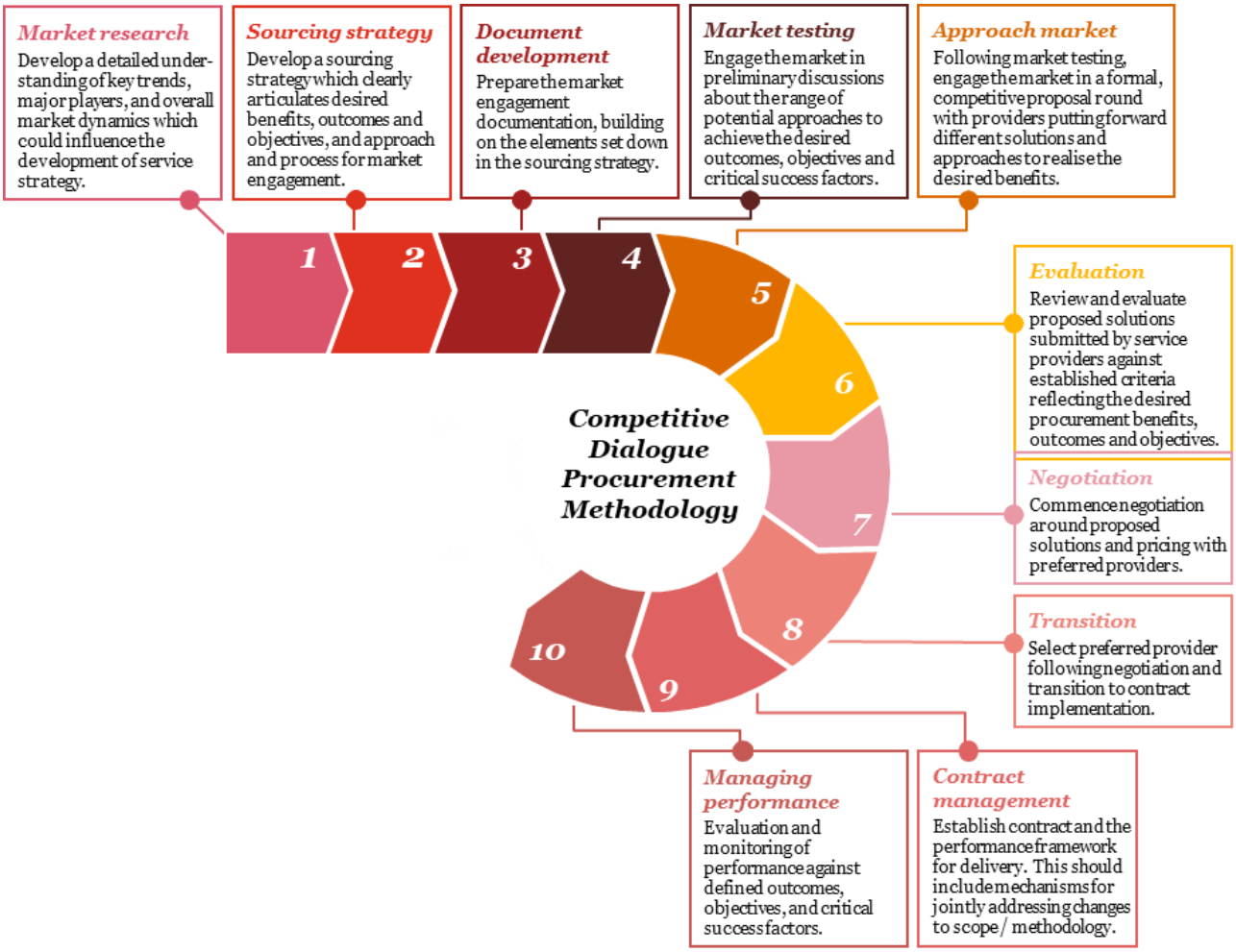
Model	*Advantages*	*Disadvantages*
Partnership to deliver full suite of IOTHS health services	• Achieves substantial transfer of clinical and corporate governance risk from Infrastructure to the service provider. • Transfers operational management of the health service from Infrastructure to the service provider. • Economies of scale in purchasing and employment. • Capitalises on health service delivery experience, and makes use of established systems and organisational capability.	• Despite the transfer of risk to the service provider, the fact that the IOTHS remains a public service delivery will still necessitate some reform of governance to manage residual risks to Infrastructure. • Based on previous market soundings which Infrastructure has undertaken in the past, there is potential for this alternative to be significantly more expensive than ongoing in-house delivery
Partnership/s to deliver specific elements of health services on the IOTs.	• There are certain elements of IOTHS service delivery which have potential to be attractive to external service providers, such as RN locum provision from WACHS staffing pools, HACC and / or residential aged care services, delivery of medical / dental clinics, hospital services, and visiting allied health specialists. • This would achieve risk transfer in areas where alternative service provision represents value for money.	• Despite the transfer of risk to the service provider, the fact that the IOTHS remains a public service delivery will still necessitate some reform of governance to manage residual risks to Infrastructure. • WACHS may be reluctant to provide nursing locums if it is experiencing its own shortages.

4.3.1.2 Approach methodology

As the partnering options set out in Table 21 illustrate, there is potential for Infrastructure to consider procuring delivery of all or part of the IOTHS services from partner organisations. Table 20 shows, at a high level, the range of capabilities and service experience that potential partners can bring. There are a number of alternative solutions which Infrastructure could seek to implement for the IOTHS. One approach, the Competitive Dialogue Procurement Methodology (CDPM), has been presented as a potential solution here.

Competitive dialogue is an interactive, multi-stage approach to procurement which enables dynamic engagement with potential suppliers in situations where there are a range of potential solutions which can satisfy the procurer's objectives, or where the procurement is inherently complex.[63] CDPM is a highly interactive framework for establishing benefits, outcomes, objectives, and an approach to engaging with the service provision market. The key elements of the framework area outlined in Figure 55.

Figure 55: Competitive Dialogue Procurement Methodology framework



The challenges of delivering health services in locations as remote as the IOTs and the varying range of capabilities that potential partners possess (see Table 20) mean that CDPM is an approach well suited to considerations around alternative service provision for the IOTHS. By engaging in competitive discussions

[63] *Competitive Dialogue: How to undertake a Competitive Dialogue procurement process*, Procurement Guidance, World Bank, 2017.

with a range of potential partners, Infrastructure could scope and procure the most appropriate, efficient and effective services in line with clearly defined outcomes and objectives. It is an approach which has been used by other Commonwealth Agencies, including Defence health service procurement.

As the process set out in Figure 55 illustrates, it will be important to define the desired outcomes, objectives and critical success factors the IOTHS is seeking with respect to health service delivery. This can inform the active market engagement which takes place as part of CDPM. A set of suggested outcomes, objectives and critical success factors are proposed in Table 22 below.

Table 22: Suggested outcomes, objectives, and critical success factors for CDPM approach to engaging with potential service providers

Outcomes	*Objectives*	*Critical Success Factors*
1. Achieve best value for money. 2. Design appropriate health and aged care service delivery solutions. 3. Reduce service delivery and clinical risk.	1. Develop mature Respondent relationships. 2. Maintain competition between Respondents. 3. Reduce requirement ambiguity and pricing risk. 4. Iteratively refine tender responses. 5. Explore innovative solutions. 6. Encourage diversity in solutions. 7. Comply with Commonwealth procurement policy, including PGPA Act provisions with respect to procurement.	1. Flexible, outcome-based procurement documentation. 2. Open and collaborative solution design. 3. Consistency of Infrastructure and IOTHS representatives in the Competitive Dialogue related to each health service delivery area being considered for private provision. 4. Participation by authorised decision makers from the IOTHS, Infrastructure, and the potential private sector providers. 5. Appropriate engagement of health service delivery, management, clinical quality, and governance expertise. 6. Flexible and adaptable Competitive Dialogue process. 7. Minimum number of Respondents and appropriate oversight at each Competitive Dialogue stage to ensure a competitive, transparent and accountable process. 8. Respondents have a comprehensive understanding of the IOTHS's requirements. 9. Sufficient time to explore innovative proposals prior to RFP submission, in a transparent and accountable process. 10. Maintain effective summary of issues, risks, decisions and key points of clarification.

Outcomes

Outcomes refer to the desired results that Infrastructure is seeking to achieve for the IOTHS from a competitive dialogue process. Infrastructure should clearly define the health, health care, clinical risk management and service delivery outcomes that it is seeking for the IOTHS and the communities on Christmas Island and the Cocos (Keeling) Islands prior to engaging with potential service providers. Objectives and critical success factors can be defined as Infrastructure develops its perspective on the mix of public, private and non-profit service delivery it will purse for the IOTHS. High-level suggested outcomes are described in Table 23 below.

Table 23: Suggested competitive dialogue outcomes for IOTHS

Outcome	*Description*
1. Achieve best value for money	Select the health service provision approach which delivers optimal value for money for Infrastructure and the IOT community.
2. Design appropriate health and aged care service delivery solutions	Seek to identify the health service components which are most appropriately delivered publicly, privately or by non-profit entities. This includes consideration of the potential to harness innovations within the health services industry and to deliver the most appropriate mix of medical, dental, and population health services to IOT residents.
3. Reduce service delivery and clinical risk	Identify and select the service delivery approach which minimises corporate, clinical, and operational risk to Infrastructure.

4.3.1.3 Partnering strategic initiatives

The following strategic initiative is recommended based on a survey of potential service delivery partners for the IOTHS:

- **SI24:** Conduct market sounding and dialogue with potential service providers for the full health service or a partial service.

Further detail on this initiative can be found in Section 5.4.

4.3.2 Cost recovery

4.3.2.1 Review of co-payments arrangements in Australia

Two main areas where there is potential to introduce co-payments and fees to increase cost recovery have been identified. These include:

- A medical co-payment for IOT residents accessing GP services
- A cancellation charge for IOT residents who fail to attend a GP, specialist or dental appointment.

Each of these potential areas has been assessed below. A medical co-payment is not recommended, but the potential to introduce a cancellation charge for GP, specialist and dental services should be considered.

Medical co-payments

In 2016-17, the proportion of GP services that were bulked billed in Australia was 78.3% for all Medicare activity, and 85.7% for GP general attendance services.[64] In May 2014, the Government announced plans to charge a $7 co-payment for visiting the GP, however, this policy has since been abandoned. If a co-payment of $7 per visit were to be introduced by the IOTHS, it would raise approximately $58,100 per annum (0.4% of 2016-17 health service expenditure) based on an average of 8,300 GP appointments across the IOTs. A range of studies suggest that the potential impacts of co-payments can include:

64 Department of Health, Annual Medicare Statistics, 2017

- Deterring the most vulnerable members of the community from seeking care due to cost concerns.[65]
- Increasing the number of people delaying visits to medical practitioners, or the number of people not filling their prescriptions due to cost considerations.[66]
- Preventing people with long-term or chronic conditions from seeking health care.[67]
- Increasing the financial burden on people with low incomes.[68]

In light of these considerations, the low potential for cost recovery, and the fact that a medical co-payment would remove IOT residents' of the ability to choose a bulk-billing clinic which is available to most Australians, the introduction of a medical co-payment is not recommended.

Cancellation charges

During community consultations a common issue raised concerned waiting times for GP, specialist and dental appointments. Introducing a cancellation fee may help to decrease the proportion of cancellations to allow to better utilisation of the service, improving waiting times for appointments and also presenting an option for cost recovery. According to the Australian Medical Association, a cancellation fee may be charged as long as there is a notice informing patients that they will be charged if they fail to attend an appointment.[69] The fee charged is up to the discretion of the health service.

The table below shows the average percentage and number of dental cancellations from 2014 – 2017, and the potential amount of cost recovery, based on the assumption that the cancellation fee is $20. Applying a cancellation fee of $20 will then raise $3,604 for dental services, if the cancellation fee does not reduce the percentage of cancellations, and less if this fee encourages patients to cancel their appointment in a timely manner. On the assumption that the cancellation rate of 16% was applied to GP services across the IOTs, a $20 cancellation fee would have raised $23,844 in 2016-17, and less if this fee encourages patients to cancel their appointment in a timely manner. While the cancellation fee is not expected to have a significant cost recovery potential, it may improve the service for IOT residents and should be considered on that basis. There was insufficient data to assess the potential size of cost recovery for specialist services in the IOTHS.

Table 24: 2016-17 Dental cancellations in the IOTs

	Dental	*General Practice*
% Cancellations	16%	16%
# Cancellations	180	1194
Cost recovery	$3,604	$23,844

[65] University of Sydney, Estimated impact of proposed GP, pathology and imaging co-payments for Medicare Services, 2014

[66] Parliament of Australia, Out-of-pocket payments for healthcare – finding a way forward, 2013

[67] Parliament of Australia, Out-of-pocket payments for healthcare – finding a way forward, 2013

[68] Parliament of Australia, Out-of-pocket payments for healthcare – finding a way forward, 2013

[69] Australian Medical Association, Frequently Asked Questions, 2017

4.3.2.2 Cost recovery strategic initiatives

The following strategic initiative is recommended based on an assessment and analysis of various initiatives which the IOTHS could undertake to increase their ability to recover service delivery costs:

- **SI25:** Assess the introduction of a nominal cancellation fee to improve the utilisation of the health service GP clinics and visiting specialists on both Islands.

Full detail on this strategic initiative can be reviewed in Section 5.

5 Strategic initiatives

Strategic initiatives

The following sections develop the strategic initiatives identified in Sections 2 and 3.3.

- **Section 5.1** – service model initiatives.
- **Section 5.2** – technology initiatives.
- **Section 5.3** – governance and staffing initiatives.
- **Section 5.4** – service provider initiatives.

Following a brief summary of each initiative, a table summarises the analysis and findings supporting the initiative, including references to the relevant sections and figures, and outlines the key activities required to implement the strategic initiative. Finally, a suggested timeframe for implementing each initiative (short, medium or long term) is set out. The Implementation Roadmap contained in Appendix A draws together the strategic initiatives detailed below and illustrates their indicative sequencing in time.

5.1 Service model initiatives

Strategic initiative 1 – increase aged care services to meet the needs of the ageing population.

It is recommended that a residential aged care facility is introduced on Christmas Island and increased home and community service on Cocos (Keeling) Islands to meet the increasing demand for aged care services on the IOTs. This initiative is part of two strategic choices regarding service model options.

Reference section	*Rationale*	*Key activities*
Section 2.3.3 *Section 3.1*	• A residential aged care facility is recommended for Christmas Island as there is community demand for this service; the hospital is currently fulfilling some residential aged care functions on an ad hoc basis; and the need is expected to increase as the population continues to age. Patients requiring residential aged care services are currently admitted to the hospital as inpatients, which is not appropriately set up or staffed for this service. • Comparator site facilities offered residential care services to their local populations. • An increased HACC service is recommended for the Cocos (Keeling) Islands, as it was noted during consultations that a segment of the older population would like to remain in their homes, and this service would enable this preference while giving family members a respite service. A residential care facility is unlikely to be viable on the Cocos (Keeling) Islands.	The key activities to implement this strategic initiative are as follows: 1. Invest in capital works to transform part of the inpatient facility on Christmas Island into a residential aged care facility (e.g. beds, rooms, furniture, activity areas). Options for the location of a facility considered in consultations with clinical staff include the current Community Health building or the out-of-service theatre. 2. Restructure the acute resourcing roster to allow for appropriate 24x7 staffing for the residential aged care facility (a reduction in the Registered Nurse complement and the introduction of Patient Care Assistants). These changes are outlined in *Strategic Initiative 2*. 3. Introduce additional IOTHS HACC worker on the Cocos (Keeling) Islands as needed (refer to *Strategic Initiative 22*).

Strategic initiative 2 – restructure the IOTHS staffing model to enable greater efficiencies while continuing to meet the community health and service needs.

It is recommended that the nursing complement and roster on Christmas Island could be amended, without compromising patient safety and outcomes, to enable the acute facility to remain open 24x7 while also enabling investment in other services which are a community health priority, such as aged care. This initiative is part of two strategic choices regarding service model options.

Reference section	Rationale	Key activities
Section 2.2.3 *Section 2.3.3* *Section 3.1*	• There is potential to restructure the after-hours nursing roster to better align with activity levels and emerging community needs, while maintaining two staff on nights as a safety measure. • There is potential to roster one Registered Nurse at night. This would liberate sufficient resources to enable investment into Patient Care Assistants to operate a residential care facility, while maintaining 24x7 acute services. • There is opportunity to revise the use of locum spend as they are an area of significant overspend of approximately $1.5m in both 2015-16 and 2016-17 budget.	The key activities to implement this initiatives are as follows: 1. Review model of procuring locums – this includes hiring permanent staff instead of using locums to fill positions, the skill level of locums hired and the pool of locums. 2. Revise the nursing roster and reduce the total RN complement (in line with the service model option chosen). 3. Introducing additional staffing such as EN/PCA/HACC (in line with the service model option chosen).

Strategic Initiative 3 – amend PATS budgeting assumptions to reflect the full average cost of PATS trips, inclusive of patient escort airfares and accommodation.

PATS expenses make up a significant proportion of the IOTHS annual budget, and have been a constant area of overspend in recent years. It seems that there has been a systematic underestimation of the average cost of patient travel during budget. It is recommended that this practice be amended to reflect the actual average spend, which would enable better budgeting.

Reference section	Rationale	Key activities
Figure 38 Figure 39 *Section 2.3.3*	• Analysis of PATS data found that in 2016-17 the patient had an escort on around half of the trips, which does not seem to be accounted for in the budget. • The current budgeted cost of a single PATS trip is circa $2,500, which only the expenses associated with the patient. The analysis suggests that this estimate does not include the cost of escort travel, as the actual average cost is approximately $3,600 per trip. • There was an overspend of approximately $500k on the PATS budget in both 2015-16 and 2016-17; this would appear to be due in large part to the incorrect assumptions made when the budget is set. Amending the assumed rate per trip to $3,600 should enable more accurate budgeting.	1. Consider further analysis into the practice of sending escorts with patients. While there may be scope to reduce the number of escorts, given the challenges reportedly faced by IOT community members when travelling to Perth, especially for older residents with limited English, it may be limited. It should also be noted that hospitalisations outside of the IOTs are broadly in line with comparator communities. 2. Amend budgeting practice to reflect the historic average spend of PATS trip.

Strategic initiative 4 – develop a health promotion and education program to encourage healthy behaviours within the IOTs community and increase awareness of health risks, focused on diabetes prevention, health eating, exercise and activity.

This initiative is recommended in response to the high-risk health behaviours prevalent within the community, which increase the risk of developing adverse health outcomes. Developing a health promotion and education program would encourage healthy behaviours in the community that prevent the development or delay the onset of adverse health outcomes.

Reference section	***Rationale***	***Key activities***
Figure 22 Figure 23 Figure 24 Figure 26 *Section 2.2.2* *Section 2.3.3*	• Health promotion activities and education to address high-risk health behaviours such as smoking, alcohol consumption, poor nutrition and overweight/obesity are currently limited beyond the health service sites. This was raised during consultations and is supported by the evidence. • The impact of these health behaviours is evident in the IOT communities, as in other parts of Australia, in the rates of childhood diabetes, heart conditions, and other chronic diseases that can be observed in the activity data analysed above.	Suggested actions to develop a health promotion and education program include: 1. Develop health information and education packages on obesity and nutrition; smoking; and alcohol consumption, with key selected documents translated into different languages where appropriate, and communicate these effectively to the community. 2. Liaise with other organisations such as the Health Advisory Groups, Islamic Councils, Christmas Island Recreation Centre, Shires, and schools to develop and run health promotion programs on obesity and nutrition, smoking, and alcohol consumption (such as sport programs, healthy eating and weight loss programs, and cooking classes).

Strategic initiative 5 – redesign the process for responding to emergency situations and communicate change to the relevant stakeholders.

This initiative is recommended in response to concerns raised regarding emergency response times after-hours on Christmas Island. It is recommended that in acute emergency situations, IOT residents should dial "000" first to enable to more effective response and the provision of constant guidance to the caller.

Reference section	***Rationale***	***Key activities***
Section 2.2.4 *Section 2.3.3*	• A range of consultees indicated that the common practice for after-hours emergencies on the IOTs involves calling the health service directly. This does not enable a consistent triaging process, or provide the caller with constant support, as the nurse must hang up to call the doctor and / or ambulance. • The "000" emergency call personnel are also trained to provide over the phone emergency clinical guidance to the patient or the caller. • Concern was also raised about the response time embedded in the current process due to the time it take for the health service to contact the ambulance, AFP and mobilisation time. • "000" also has an integrated interpreter service available, thus potentially providing a better service for the diverse IOTs community.	The key activities to implement this initiatives are as follows: 1. Ensure that "000" can be contacted from Christmas Island (correspondence suggests that this should already be possible). 2. Ensure that "000" are aware of the numbers to contact for the health service and AFP on Christmas Island. 3. Communicate to the community and health service staff that "000" should be used in the case of emergencies, including a clear articulation of the reasons and benefits for this change.

Strategic initiative 6 – Provide an improved interpreter service to overcome the current language barrier experienced by some community segments, and improve the engagement between the health service and the community.

This initiative is recommended in response to the issues raised by the community regarding language and cultural barriers having a negative impact on the engagement with the health service in some segments of the community. An improved interpreter service may be a factor that helps to overcome this barrier and improve engagement.

Reference section	***Rationale***	***Key activities***
Figure 13 *Section 2.2.1* *Section 2.2.4* *Section 2.3.3*	• In consultations with the community an issue raised regularly was the cultural and language barrier which limits the engagement of some members of the community with the health service. The key issue would appear to be with older residents in the Chinese and Malay communities whose written and spoken English proficiency is limited. • It was also raised that navigating services and travel logistics while in Perth for a medical trip can be challenging for those who do not speak English and are not travelling with an escort. • Finally, many consultees expressed a concern that there may be confidentiality issues when using a local, non-accredited interpreter. Examples were given where health administration staff assisted with translation needs who may not necessarily have prior education in the provision of confidential translation services.	Proposed actions to implement this strategic initiative include: 1. Consider using the Telephone Interpreter Service (TIS) as the IOTHS' nominated interpreter service, as it is currently the case for other Commonwealth services. This may require additional language support to be embedded in TIS (potentially Cocos Malay). 2. Assess the impact of the increased use of TIS on the IOTHS budget.

Strategic initiative 7 – develop an annual communications strategy for the health service to ensure important messages and information are effectively communicated.

This initiative is recommended as consultations identified a lack of understanding in some segments of the IOT community of the range of health services are provided by the IOTHS, and how the services available compare to the mainland. This appears to result in some confusion between the community and the health service.

Reference section	***Rationale***	***Key activities***
Section 2.2.4 *Section 2.3.3*	Consultation feedback from both the health service staff and community was that there is a significant lack of understanding of services available on the islands and how the services on the islands compare to the mainland. Examples include: • How dental services and costs compare to mainland. • The process and policies for PATS including escort criteria. • What services are available, both within and after-hours.	Suggestions for developing an annual communications strategy include: 1. Summarise the different modes and channels of communications and ensure that communications are distributed in different channels to reach community members across different demographics (including for example the Islander and the Atoll, social media, health service website, community boards at the CI roundabout, and presence at community events). 2. Consolidate the list of services available on island, and relevant policies. Ensure that these are published on a health service website which is easily accessible to the community. 3. Ensure that key communications are translated into the community's different languages, as appropriate. 4. Consider liaising with leaders of the community to spread important messages, including the Health Advisory Groups.

Strategic initiative 8 – plan for services that may be required to meet the emerging need to address kidney disease.

This initiative is recommended in response to the increasing prevalence of diabetes and the ageing population on the IOTs, which together increase the risk in the population of kidney diseases. It is recommended that different services to address kidney disease be explored, and a plan be developed regarding the potential future introduction of these services if this need emerges in the community.

Reference section	Rationale	Key activities
Figure 7 Figure 23 Figure 26 *Section 2.2.1* *Section 2.2.2* *Section 2.2.4* *Section 2.3.3*	• While there is currently no one needing dialysis or other renal services on the IOTs, it is anticipated that this is likely to be an area of emerging need due to the increasing prevalence of diabetes and the ageing of the Islands' population. • Comparator services have dialysis services where there is a current need.	The key activities to implement this initiative are as follows: 1. Explore the different types of services available to address kidney diseases, and those provided by comparator services. The Kimberley District in WACHS has several dedicated dialysis units in Broome, Fitzroy Crossing and Kununurra. 2. Identify which service(s), education, and diet management approaches could be appropriately and effectively implemented on islands, should the need arise. 3. Develop a plan for introducing these services should the need for renal dialysis services emerge in the community.

Strategic initiative 9 – Identify potential improvements to mental health services on the IOTs, including addressing community awareness and understanding of mental health and confidentiality concerns.

This initiative is recommended in response to the elevated prevalence of mental health problems in outer regional / remote areas when compared to major Australian cities, and the emergence of mental health services as a key issue in clinical and community consultations.

Reference section	Rationale	Key activities
Section 2.2.2 *Section 2.2.4* *Section 2.3.3*	• The IOTHS has not conducted a survey to establish the prevalence of mental health problems on the IOTs, although it does collect data on diagnoses for mental illness. However, AIHW analysis suggests that the prevalence of mental health problems is higher in outer regional / remote Australia than in the major cities. • Community and clinical consultations indicated that there is a lack of understanding and awareness of mental health challenges in some parts of the IOTs community. Along with confidentiality concerns, this may be discouraging some people from accessing services.	The key activities to implement this initiative are as follows: 1. Expand the use of telehealth services to deliver mental health consultations in a more confidential manner. 2. Consider the expansion of visiting psychology and psychiatry services to address potential unmet demand, and the potential for private service provision. 3. Reorganise facility (in parallel to capital works) to reduce the prominent separation between the counsellor's office and the rest of the IOTHS facility on Christmas Island, and other similar measures to improve the confidentiality of mental health consultations.

5.2 Technology initiatives

Strategic initiative 10 – record Medicare item numbers in patient notes to enable better data analysis, insights and sharing.

This initiative is recommended in response to the opportunity to increase the data analytics and insights capability through the PenCAT addition to Medical Director. Recording Medicare numbers would enable better management of data, data analysis and data sharing with other specialists through My Health Record.

Reference section	Rationale	Key activities

Section 4.1.1	• It is recommended that the current clinical management system, Medical Director, be maintained in the immediate term for the following reasons:
	  ○ A review of the functions of Medical Director against Communicare and MMEx (systems used by WACHS) found that the key functions aligned.
	  ○ Medical Director also has the most functions required to be compatible with My Health Record, which enables sharing of patient information with other specialists.
	• It was raised by some clinical staff that the functionality in Medical Director could in improved. One example is that the PenCAT tool for data analysis and insights may be improved if Medicare item numbers were record. This has been introduced recently, along with Pracsoft.
	• Recording Medicare item numbers would also allow for better sharing of patient information with other specialists through My Health Records.
		The key activities to implement this initiatives are as follows:
		1. Communicate the change and reason for change to relevant IOTHS staff.
		2. Conduct necessary education for recording Medicare item numbers.
		3. Conduct an audit to ensure that Medicare item numbers are recorded consistently.

Strategic initiative 11 – increase the use of telehealth services for specialists and mental health consultations.

There is an opportunity to expand the existing IOTHS telehealth service to increase outpatient consultations through telehealth, and to provide mental health services through telehealth consultations.

Reference section	***Rationale***	***Key activities***
Section 4.1.2	• Consultations with clinical staff from IOTHS have identified opportunities to expand the use and scope of telehealth services. • Expanding telehealth services is expected to decrease the number of required PATS trips by diverting some consultations. It is estimated that consultations through WACHS telehealth saved WA patients from travelling 27.3 million km in 2017. There may also be scope to reduce visiting specialist usage over time. • It is also expected to meet unmet service needs in the population such as mental health services, as telehealth overcomes some concerns regarding confidentiality, or nutritionist consultations. • Currently patients are referred to specialists known to IOTHS medical officers. These specialists do not necessarily use telehealth for consultations.	To enable the expansion of the telehealth service, the following key activities are required: 1. Develop a clear policy and process for the use of telehealth, including confidentiality and privacy policies. 2. Develop a policy on telehealth services with a linked register of specialists who currently provide telehealth services to WACHS to be used by IOTHS medical officers when making referrals for telehealth consultations. 3. Use improved technology where available (e.g. cable on CI) to improve quality of videoconferencing. 4. Improve planning of multi-modal telehealth consultations (tele-conferences, images, instant messages) to address connectivity issues.

Strategic initiative 12 – refine the PATS process to align with policy intent of using telehealth in place of travel where it is reasonable to do so, and provide clearer referral guidelines to clinicians regarding scheduling telehealth consultations.

This initiative is recommended in response to the lack of clarity identified in consultations among community members regarding the PATS policy, with respect to escort policy criteria in particular.

Reference section	***Rationale***	***Key activities***

Section 4.1.2	• The degree of clarity of the PATS policy, escort criteria, governance, and the high cost of PATS services was raised frequently as a priority issue during consultations.
	• The current PATS policy could be clarified to introduce a requirement into the PATS application process to confirm whether a telehealth appointment could be undertaken. The current criteria and process are as follows:
	  ○ Criteria: "The service must not be available on island or through telehealth consultation within the timeframe deemed necessary by the treating medical officer" (pg. 4).
	  ○ Application Process "The medical practitioner who refers the patient to the specialist service, advises the patient travel clerk and section A of the yellow PATS application form is completed" (pg. 10).
		The key activities to implement this initiatives are as follows:
		1. It is recommended that the current IOT PATS policy be updated on pg. 10 to say: "The medical practitioner who refers the patient to the specialist service, advises the patient travel clerk [who will confirm with the specialist whether a telehealth or an in-person consultation is appropriate. If patient travel is required, the patient travel clerk will complete] and section A of the yellow PATS application form is completed". The purpose of this proposed amendment is to ensure that a staff member in IOTHS is responsible for ensuring that a telehealth consultation is not possible (as per criteria on pg. 4) before organising for patient travel.
		2. Publish the PATS policy including escort criteria on the Infrastructure site, ensuring it is translated and easily accessible to the community.

Strategic initiative 13 – introduce equipment and technology to enable ETS model aligned to WACHS to complement existing 24h emergency capability.

This initiative is recommended to reduce the clinical risk to IOTHS for the management and care of acute patients. This will also align the service to the current WACHS practice.

Reference section	*Rationale*	*Key activities*
Section 4.1.2	• Currently, IOTHS receives emergency support by calling specialists in Perth. This is not aligned with the WACHS ETS service which involves a two way videoconference. • The WACHS ETS service was first introduced in 2012 to overcome to clinical risks to remote patient and medical officers in rural WA, giving them real-time access to the advice of emergency specialists at Royal Perth Hospital through videoconferencing facilities. This service has expanded significantly since its introduction and is now a 24x7 service across 79 locations in WA. • The emergency response on the IOTs is currently dependent on the remote and emergency skills and experience of the clinical staff on IOTHS. • It is recommended that the IOTHS aligns to the WACHS ETS service to reduce clinical risk.	The key activities to implement this initiatives are as follows: 1. Procure and set up the required technology for ETS: ○ High definition videoconferencing equipment (HDX8000, Polycom) installed in ED resuscitation bays at receiving sites. One above the foot of the bed for birds-eye view and the other at 45 degrees. ○ ETS clinicians use Polycom VC units and have full control of the cameras at the receiving site. Video-conference calls are transmitted using internet protocol at 1Mbps delivering video at 1080 resolution. ○ The current equipment cost for an ETS receiving site is approximately $20k. This does not include freight, installation, or training, and assumes that network access, power, and a UPS / line conditioner is available. ○ The IOTHS should explore mobile technology options as appropriate in addition to the above setup. 2. Develop a register for referrals to ETS specialists that is linked to WACHS.

Strategic initiative 14 – establish an appropriate ICT governance framework for the size of the IOTHS.

This initiative is recommended due to a current lack of clear accountability and responsibility for the health service's ICT systems.

Reference section	*Rationale*	*Key activities*

Section 4.1.3	• There is currently no clear accountability or responsibility for the ICT within the IOTHS, which has accountability delegated from Infrastructure, which has overall accountability for its ICT systems. This delegation reflects the fact that health ICT does not fit easily in the APS ICT framework.
	• Broadly, the Medical Director contract is the responsibility of the procurement manager who reports to the Business Manager. The Director of Medicine is accountable for medical software. Overall, the roles, responsibility and accountability of different aspects of the IOTHS ICT is unclear.
	• The Department of Health has outlined the ICT Governance Structure in the WA Health ICT Strategy 2015-2018, which sets out some key aspects of governance that should be applied within IOTHS. Key aspects of ICT governance include:
	  ○ Assigning overall accountability and oversight of ICT
	  ○ Assigning responsibility and management of ICT
	  ○ Avenue for advice on ICT
		The key activities to establish ICT governance include:
		1. Assign overall accountability and oversight for ICT within the IOTHS (could be assigned to the CEO; explored further in Section 5.3).
		2. Assign responsibility for ICT programs/ projects and ensure it is running effectively and within budget (could be assigned to the practice manager, explored further in Section 5.3).
		3. Ensure that there is an advisory group to provide advice for IOTHS ICT.

5.3 Governance and Staffing initiatives

Strategic initiative 15: reform IOTHS governance structure to clarify roles and responsibilities and ensure that robust controls and oversight are in place to reduce and manage risks to the health service, including the introduction of an independent board.

It is recommended that a clearer delineation between governance and management roles and responsibilities be drawn, modelled on Local Health Networks. An independent Board should be introduced (under Infrastructure or WACHS) with responsibility for greater clinical and corporate oversight.

Reference section	Rationale	Key activities

Table 16
Section 4.2.1
	• The assessment of the IOTHS' current state governance structure against a modified version of the AICD's "Ten Principles of Good Governance" identified key deficits, including in particular:
	  ○ The lack of an independent board with appropriately diverse, skilled and experienced members, and consequent governance and management role confusion amongst IOTHS leadership.
	  ○ Lack of role and responsibility clarity for clinical risk management, placing reliance on key individuals. Although to date this has passed ACHS requirements for accreditation, it represents a significant governance risk.
	• Analysis of other health service organisations (Victoria LHNs and WA health service provides, and a non-profit and a private sector provider) identified governance structures with clearly delineated governance and management responsibilities, and independent Ministerial and Departmental advisory committees.
	• Improvements in clinical and corporate governance may have a positive impact on staff continuity, a key issue raised in consultation with a range of clinical and community stakeholders.
		1. Consider and decide between three approaches to governance structure reform:
		  ○ Adapt the Local Health Network governance structure to the IOTHS under Infrastructure.
		  ○ Extend the WA Health SDA to run the IOTHS as part of WACHS.
		  ○ Introduce an independent advisory board.
		2. Develop independent board and delegation of accountability (or align to WACHS) for the first and second option.
		3. Minister selects and appoints board members and Advisory Committee.
		4. Independent board / IOTA Director selects and appoints an experienced health service Hospital Administrator.

Strategic initiative 16: align clinical, safety and quality policy and risk management systems and databases with WACHS practice and the revised NSQHS standards.

The IOTHS risk register and its clinical, safety and quality policy database are currently maintained and overseen by the same senior staff. Keeping these up to date is also time-consuming, and, according to consultees, more current in some areas than others. A corporate support officer should be introduced to align IOTHS policies with WACHS and the revised NSQHS standards, and to maintain risk register.

Reference section	***Rationale***	***Key activities***
Table 16 *Section 4.2.1*	• ACHS accreditation documents note that the IOTHS risk register is comprehensive and regularly monitored through an Executive Quality Committee (EQC), and that good outcomes are being achieved in terms of review of risks on the *RiskMan* database. • Consultations with clinical staff indicated that the Director of Nursing (DoN) manages the risk register, and that this process is working reasonably well in terms of outcomes, but that register maintenance and governance oversight are the responsibility of the same set of staff on the EQC. • The DoN maintains a database of policies on risk, safety, quality, and clinical practice, along with records and processes for maintaining staff competencies. However, the DoN and other senior staff referred to the administrative burden of maintaining this database, which would normally be supported by the policy and corporate services divisions of a State Department of Health.	1. Consider and decide governance reform approach (i.e. adapt LHN model to Infrastructure, or extend WA Health SDA – refer to SI15) 2. Introduce a corporate support function to an existing administration officer's role to support the Directors of Nursing and Medical Services to maintain up-to-date and IOTHS relevant clinical, safety and quality policies, and to more effectively manage clinical risks. This role may not be necessary if IOTHS is brought under WACHS, as the IOTHS will be able to draw on the WACHS policy database. 3. Consult with WACHS to arrange for all IOTHS clinical staff members to be allocated with HE numbers, enabling them to access training and professional development material. This will also enable more direct access to evidence-based policy on clinical practice.

Strategic initiative 17 – where necessary, clarify the roles and responsibilities of reception staff in terms of triage and customer service, and ensure that staff are given appropriate training.

This initiative is recommended in response to concerns raised regarding the clinical safety risks of the current triaging process through reception staff. It is important that the reception staff have the appropriate training as the first point of contact to the health service.

Reference section	***Rationale***	***Key activities***

Table 16
Section 2.2.4
Section 4.2.1
	• A range of community and staff consultations raised the issue of the IOTHS Christmas Island site's reception staff's role in the emergency response and triage processes.
	• Currently, reception staff play a role in triaging patients in at least two processes:
	  ○ Presentation of patients at the IOTHS Christmas Island hospital site. The receptionists make decisions about when to call the on duty RN for assistance
	  ○ Emergency calls to the IOTHS direct number. Receptionists will pass on the calls to the duty nurse and advise the emergency responders.
		1. Review the reception staff's awareness of their role in triaging patients, and consider what changes, if any, need to be made, to ensure patient safety and clinical outcomes are upheld.
		2. Implement training if required for reception staff on their role in emergency response and patient triage, and in customer service for a health facility.

Strategic initiative 18 – align locum nurse recruitment processes with examples from other health services

The IOTHS spend on locum Registered Nurses is one of the most significant drivers of the IOTHS budget, making up a significant portion of the contracted services cost item. The current practice of directly approaching nursing agencies may not be delivering optimum value for money.

Reference section	***Rationale***	***Key activities***

Section 4.2.2	• Financial budgets for the IOTHS were supplied for 2014-15, 2015-16, and 2016-17. These indicate that there has been a consistent underspend on salaries compared to the budget, with overspend on "contracted services", a cost item which includes locum doctor and nurse costs.
	• The transaction details behind the actuals for the salary and contracted services costs items were requested, coded by categories (e.g. nurse salary or locum nurse). Summaries indicate that:
	  ○ Locum nurses 16-17: $1.52m (CI); $0.56m (CKI) = $2.08m
	  ○ Salary nurses 16-17: $0.62m (CI); $0.23m (CKI) = $0.85m
	  ○ Nursing FTE estimate for CI and CKI ($3.34m)
	• It is clear that locum nurse spend is a significant proportion of the IOTHS budget.
	• This reflects in part the need to have senior, experienced RNs on the Cocos (Keeling) Islands, given the limited support available in emergencies. However, as identified in *Strategic Initiative 2*, there is more scope for reforming registered nurse rostering on Christmas Island.
	• Changes to the process of procuring locum nurse services could free up resources if better rates are possible to obtain.
		1. Conduct a comparison of IOTHS locum nurse costs with mainland Australia.
		2. Develop and implement a locum nurse recruitment policy and process which aligns with that used by WACHS, including the use of the Nursewest pool, and agencies on the WACHS Common User Agreement.

Strategic initiative 19 – review the base salary and allowances of IOTHS staff.

This initiative is recommended based on opportunities identified through analysis of the IOTHS salary data. While a detailed review of salary composition was out-of-scope for this strategy, it is recommended that further investigation is conducted to determine if there is opportunity to review allowances.

Reference section	*Rationale*	*Key activities*

Section 4.2.2	• The analysis of the IOTHS salary identified that on average, the total salary of IOTHS staff was 1.98 times the base salary due to the accumulation of a range of allowances including:
	  ○ District allowance;
	  ○ Annual leave liability provisions;
	  ○ Off-island staff leave fare allowance; and
	  ○ Off-island staff rent subsidy, amongst others.
	• While it was not in scope to review opportunities regarding salary and allowances, it is recommended that further investigation be undertaken to understand if these allowances are aligned with other remote clinical staffing salaries.
	• It should be noted that staffing continuity was raised as an issue by both IOTHS staff and community members in consultations. The IOTHS is in competition with other remote services for staff, and the impact of any changes to pay and allowances on continuity should be considered.
		It is recommended that the following activities be undertaken:
		1. Conduct research to determine the average salary and allowances of other comparable remote clinical staff to understand if these allowances are aligned with other remote health services.
		2. If the IOTHS has significantly higher allowances compared to comparable locations, conduct a more specific review to determine which allowances may be reduced or removed. It is important to consider the impact of this activity and the potential response of the health service staff.

Strategic initiative 20 – Scale down the IOTHS laboratory capability on Christmas Island, and scale up externally contracted pathology services.

There is a potential opportunity to remove the laboratory capability on Christmas Island. It is recommended that a further investigation is conducted to understand the cost and benefits of removing all laboratory services on Christmas Island and contracting external providers.

Reference section	***Rationale***	***Key activities***

Section 4.2.2	• At present, approximately 1/3 of all tests are sent to Pathwest while 2/3 of tests are processed on Christmas Island.
	• The resource cost associated with the laboratory services on Christmas Island is approximately $200k, along with a unit cost of approximately $50 per test conducted.
	• PwC were advised that, due to the irregularity of travel between Christmas Island and the mainland, removal of laboratory capability would mean that the ability to conduct some tests on island would be lost, including for example:
	  ○ Cross matching for correct bloods in some acute circumstances.
	  ○ Some microscopy and culture tests for infectious diseases, which cannot be done as point of care testing
	• There will be additional costs associated with flying tests to externally, or conducting more point-of-care testing.
		The following activities should be undertaken for this initiative:
		1. Conduct a cost-benefit analysis to understand the financial implications of removing the pathology capability from Christmas Island. This should include consideration of the ageing of equipment, and potential upgrade and replacement costs to maintain functionality.
		2. Investigate which tests will no longer be available if test are unable to be done on island and determine the impact to patient outcomes, and conduct comparison with comparator health service processes.

Strategic initiative 21 – introduce Practice Management to an existing administrative role to include general practice management and to streamline GP appointments.

The health services on Christmas Island and the Cocos (Keeling) Islands are both principally focused on primary care. In consultation with clinical staff on Christmas Island it was noted that their roles involve significant levels of administration. Many community consultees supported making appointments easier. A nominated Practice Manager would have responsibility for the smooth operation of the clinic services on Christmas Island and the Cocos (Keeling) Islands, including the streamlining of appointments, and potential efficiencies could reduce the need for three GPs on Christmas Island.

Reference section	***Rationale***	***Key activities***
Figure 34 Figure 35 *Section 4.2.2*	• In many community consultations a desire for greater ease of making appointments on short notice was expressed. Clinical consultations also noted that appointments are typically longer on the Islands than on the mainland. • Introducing Practice Management into an IOTHS administrative role would improve the efficiency of clinic services on both Christmas Island and the Cocos (Keeling) Islands, and streamline appointments to 15-20 minutes. • If efficiencies in clinic services and streamlined appointments achieved by improved practice management could bring the IOTHS into line with mainland services without compromising patient safety and outcomes, then the number of GPs on Christmas Island could be reduced to two. This would be in line with comparator services and would entail a significant saving.	1. Amend an existing (e.g. Business Manager) role to include Practice Management. 2. Ensure that the individual in the role has the sufficient skills and qualifications to undertake this role. 3. After twelve months review service operation and potentially reduce Christmas Island GP complement from three to two.

Strategic initiative 22 – recast the Health Service Manager role as a Hospital Administrator, to be selected and appointed by an independent board in consultation with Infrastructure.

In addition to clarifying governance roles and responsibilities (refer to Strategic Initiative 15) there is a need to create a clear point of management accountability for the IOTHS. In line with the practice of other health services, the introduction of a distinct Hospital Administrator role is recommended.

Reference section	***Rationale***	***Key activities***

Table 16
Section 4.2.1
Section 4.2.2
	• The analysis of the IOTHS governance structure against ten principles of good governance modified from the AICD identified key areas for improvement including:
	  ○ Clearer separation of governance and management roles and responsibilities.
	  ○ The introduction of an independent board with appropriately diverse, skilled, and experienced directors.
	  ○ Improved oversight of corporate and clinical risk management systems.
	  ○ Stronger leadership of a health culture from an independent board and senior management team.
	• In addition to an independent board, there is a need for Hospital Administrator position with accountability to the board for organisational performance; clinical and corporate risk management; and organisational culture.
	• Other public, private, and non-profit health service providers include Hospital Administrator roles in their governance structures.
		1. Select and appoint a Hospital Administrator for the health service. This individual should have experience of health service management, preferably in remote and rural contexts.
		2. Consider and decide whether to implement an LHN model for the IOTHS or to extend the SDA with WA Health. Once an independent board is in place they will assume responsibility for managing the Hospital Administrator's performance and for making future appointments.

Strategic initiative 23 – introduce an additional IOTHS HACC worker on the Cocos (Keeling) Islands.

This initiative is recommended to respond to the increase demand for aged care services on Cocos (Keeling) Islands. Increasing HACC services will allow patients to remain in the home and giving family members a respite service.

Reference section	***Rationale***	***Key activities***
Section 2.2.4 *Section 4.2.2*	• There is an increasing need for aged care services as the population on Cocos (Keeling) Islands is ageing. • It was raised during consultations that the older population on Cocos (Keeling) Islands would prefer to remain in their home. • It was also raised that family members are currently responsible for caring for the elderly population and require more support. • An increased HACC service would enable the preference of patients to remain in their home while giving family members a respite service.	1. Hire an additional HACC worker and review demand over time to determine if additional HACC workers are required. ○ The cost of an additional HACC worker will be approximately $90k 2. Ensure that this addition to the service is effectively communicated to the community including what specific services are available through HACC.

5.4 Service provider initiatives

Strategic initiative 24 – conduct market sounding and dialogue with potential service providers for the full health service or elements of the service.

A market sounding exercise is recommended to identify potential for the full health service or parts of the health service to be outsourced to a private or public provider.

Reference section	Rationale	Key activities

Section 4.3.1	A range of private (SJGHC, Ramsay, Aspen Medical, Bupa, Silver Chain) and public health (WACHS) services were reviewed to assess the potential opportunity to outsource the full or partial services on the IOTs:
	• Potential for full outsourcing: Aspen Medical is most likely to be able to provide the full health service as it currently provides health services to remote locations. SJGHC and Ramsay are organisations that provide a full health service, however, neither of these organisations currently operate remote health services.
	• Residential aged care service: Bupa, Silver Chain and Brightwater provide aged care and residential services. However, none of these organisations currently operate one in a remote location.
	• Other potential options for outsourcing:
	  ○ Dental services: This service could potentially be provided by Aspen Medical or Bupa
	  ○ Visiting specialists: IOTHS could explore using Aspen Medical to provide services such as physiotherapy, OT etc. that IOTHS currently use visiting specialists for.
	  ○ Locum pools: Silver Chain, Aspen Medical and WACHS could be potential options for nursing staff pool to fill locum positions.
	  ○ GP clinic: This service could potentially be provided by an organisation such as OLE Health.
		Suggested activities for this initiative include:
		1. Conducting market sounding exercise and dialogue with potential service providers using the Competitive Dialogue Procurement Methodology as a guide.
		2. Consider the advantages and disadvantages in relation to transfer or risk and cost of outsourcing the full or partial services.

Strategic initiative 25 – Assess the introduction of a nominal cancellation fee to improve the utilisation of the health service GP clinics and visiting specialists on both Islands.

This initiative is recommended in response to the community feedback on GP waiting times. Introducing a nominal cancellation fee may help to improve the utilisation of the health service and reduce waiting times.

Reference section	*Rationale*	*Key activities*
Section 2.2.4 *Section 4.3.2*	• It was raised during consultations that the waiting times to access some services could be improved. • Introducing a cancellation fee may help to decrease the proportion of 'no-shows' or late cancellations and allow for better utilisation of the health service/ reduced wait times. • Analysis shows that charging a $20 cancellation fee based on historical levels of cancellations and activity would result in a small level of cost recovery (less if the cancellation fee was effective in encouraging patients to cancel in a timely manner).	If a cancellation fee were to be introduced, the following activities should be undertaken: 1. Communicate the change to the public ensuring that the reason for change would be to allow for better utilisation of the service and shorten wait times. 2. Develop process for charging patients this fee for late cancellation/ 'no show'. 3. Run a pilot test to assess the effectiveness of this initiative.

6 Conclusions

The assessment of priority health and service needs led to the development of four service model options for the Christmas Island hospital facility. No change is recommended to the Cocos (Keeling) Islands service model. A set of twenty six strategic initiatives have been developed which can be implemented on Christmas Island and the Cocos (Keeling) Islands under any of the service model options.

The four service model options are summarised below.

Service model option	*Strategic alignment*	*Needs assessment*	*Economic analysis*	*Ease of implementation*	*Total*
Option 1: Maintain 24x7 hospital facility and introduce residential aged care facility	4	4	4	3	**15**
Option 2: Move to after-hours on-call model and introduce residential aged care facility	3	4	2	2	**11**
Option 3: Maintain 24x7 hospital facility and increase IOTHS HACC services	2	3	3	4	**12**
Option 4: Maintain 24x7 hospital facility, introduce residential aged care facility, and increase IOTHS HACC services	5	5	2	3	**15**

The evaluation has identified Option 1 or Option 4 as the preferred options for the Christmas Island hospital facility, addressing the increasing need for aged care services on the Island.

The strategic initiatives identified in Sections 2-4 and developed in Section 5 are summarised below.

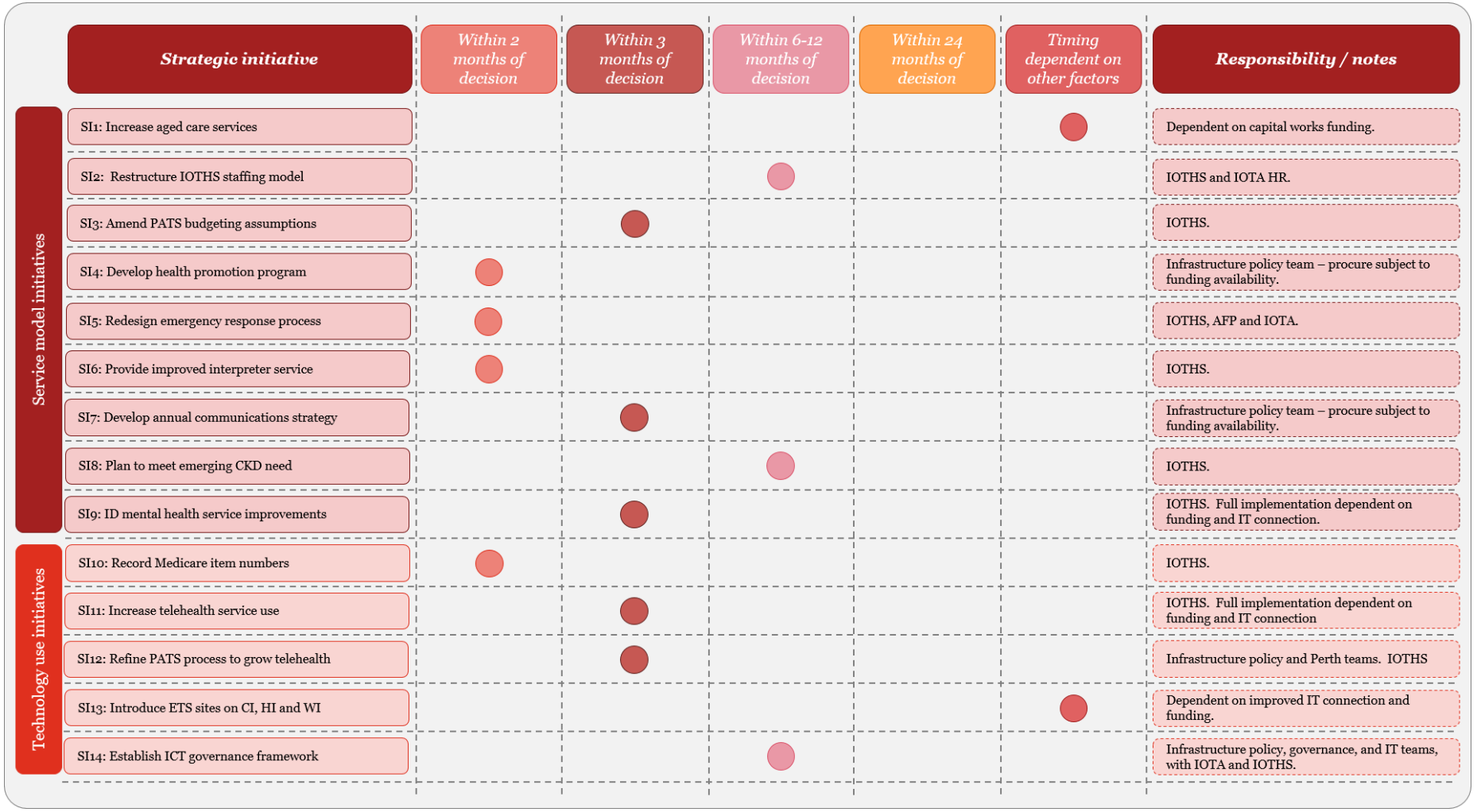
Initiative category	*Strategic initiative*	*Description*
Service model initiatives	SI1	Increase aged care services to meet the needs of the ageing population.
	SI2	Restructure the IOTHS staffing model to enable greater efficiencies while continuing to meet the community health and service needs.
	SI3	Amend PATS budgeting assumptions to reflect the full average cost of PATS trips, inclusive of patient escort airfares and accommodation.
	SI4	Develop a health promotion and education program to encourage healthy behaviours within the IOTs community and increase awareness of health risks, focused on diabetes prevention, health eating, exercise and activity.
	SI5	Redesign the process for responding to emergency situations and communicate change to the relevant stakeholders.

Initiative category	*Strategic initiative*	*Description*
Service model initiatives	SI6	Provide an improved interpreter service to overcome the current language barrier experienced by some community segments, and improve the engagement between the health service and the community.
	SI7	Develop an annual communications strategy for the health service to ensure important messages and information are effectively communicated.
	SI8	Plan for services that may be required to meet the emerging need to address kidney disease.
	SI9	Identify potential improvements to mental health services on the IOTs, including addressing community awareness and understanding of mental health and confidentiality concerns, in particular with the expansion of telehealth consultation services.
Technology use initiatives	SI10	Record Medicare item numbers in patient notes to enable better data analysis, insights and sharing.
	SI11	Increase the use of telehealth services for specialists and mental health consultations.
	SI12	Refine the PATS process to align with policy intent of using telehealth in place of travel where it is reasonable to do so, and provide clearer referral guidelines to clinicians regarding scheduling telehealth consultations.
	SI13	Introduce equipment and technology to enable an ETS model aligned to WACHS to complement existing 24h emergency capability.
	SI14	Establish an appropriate ICT governance framework for the size of the IOTHS.
Governance and staffing initiatives	SI15	Reform IOTHS governance structure to clarify roles and responsibilities and ensure that robust controls and oversight are in place to reduce and manage risks to the health service, including the introduction of an independent board.
	SI16	Align clinical, safety and quality policy and risk management systems and databases with WACHS practice and the revised NSQHS standards.
	SI17	Where necessary, clarify the roles and responsibilities of reception staff in terms of triage and customer service, and ensure that staff are given appropriate training.
	SI18	Align locum nurse recruitment processes with examples from other health services.
	SI19	Review the base salary and allowances of IOTHS staff.
	SI20	Scale down the IOTHS laboratory capability on Christmas Island, and scale up externally contracted pathology services.
	SI21	Introduce Practice Management to an existing administrative role to include general practice management and to streamline GP appointments.
	SI22	Recast the Health Service Manager role as a Hospital Administrator, to be selected and appointed by an independent board in consultation with Infrastructure.
	SI23	Introduce an additional IOTHS HACC worker on the Cocos (Keeling) Islands, where needed.

Initiative category	*Strategic initiative*	*Description*
Service provider initiatives	SI24	Conduct market sounding and dialogue with potential service providers for the full health service or elements of the service.
	SI25	Assess the introduction of a nominal cancellation fee to improve the utilisation of the health service GP clinics and visiting specialists on both Islands.

Appendices

Appendix A Implementation Roadmap



	Strategic initiative	Within 2 months of decision	Within 3 months of decision	Within 6-12 months of decision	Within 24 months of decision	Timing dependent on other factors	Responsibility / notes
Service model initiatives	SI1: Increase aged care services					●	Dependent on capital works funding.
	SI2: Restructure IOTHS staffing model			●			IOTHS and IOTA HR.
	SI3: Amend PATS budgeting assumptions		●				IOTHS.
	SI4: Develop health promotion program	●					Infrastructure policy team – procure subject to funding availability.
	SI5: Redesign emergency response process	●					IOTHS, AFP and IOTA.
	SI6: Provide improved interpreter service	●					IOTHS.
	SI7: Develop annual communications strategy		●				Infrastructure policy team – procure subject to funding availability.
	SI8: Plan to meet emerging CKD need			●			IOTHS.
	SI9: ID mental health service improvements		●				IOTHS. Full implementation dependent on funding and IT connection.
Technology use initiatives	SI10: Record Medicare item numbers	●					IOTHS.
	SI11: Increase telehealth service use		●				IOTHS. Full implementation dependent on funding and IT connection
	SI12: Refine PATS process to grow telehealth		●				Infrastructure policy and Perth teams. IOTHS
	SI13: Introduce ETS sites on CI, HI and WI					●	Dependent on improved IT connection and funding.
	SI14: Establish ICT governance framework			●			Infrastructure policy, governance, and IT teams, with IOTA and IOTHS.


Strategic initiative
Within 2 months of decision
Within 3 months of decision
Within 6-12 months of decision
Within 24 months of decision
Timing dependent on other factors
Responsibility / notes
Governance and staffing initiatives
SI15: Reform IOTHS governance structure
Infrastructure policy team (initial analysis and model).
SI16: Align clinical safety & quality systems to WACHS
IOTHS and Infrastructure Perth team.
SI17: Clarify triage role of IOTHS reception on CI
IOTHS.
SI18: Review locum nurse recruitment
IOTHS and Infrastructure Perth team.
SI19: Review IOTHS salaries and allowances
Infrastructure policy team with IOTA HR.
SI20: Scale down IOTHS lab
IOTHS.
SI21: Introduce practice management role
IOTHS with Infrastructure policy team.
SI22: Recast HSM role as Health Administrator
Dependent on contractual arrangements with staff.
SI23: Introduce additional CKI HACC worker as needed
Dependent on funding and future evidence of need.
Service provider initiatives
SI24: Conduct market sounding with HSPs
Infrastructure policy team.
SI25: Assess nominal cancellation fee introduction
Infrastructure policy team and IOTHS.

Appendix B Data sources

Source	Data and reports

Australia Bureau of Statistics	• Population and Housing Census
	Years: 2001, 2006, 2011, 2016
	• Selection Person Characteristics by Sex
	  ○ Age by Sex
	  ○ Religious Affiliation by Sex
	  ○ Ancestry by Country of Birth Parents
	  ○ Proficiency in Spoken English Language
	  ○ Total Personal Weekly Income
	  ○ Total Household Weekly Income
	  ○ Type of Educational Institution Attending by Sex
	  ○ Household composition by Number of Persons Usually Resident
	  ○ Labour Force Status by Age by Sex
	  ○ Core Activity Need for Assistance by Age by Sex
	  ○ Deaths, Indigenous status
	• ARIA+ Remoteness Area structure
	• SEIFA 2011
	• Patient experience survey
	• National Health Survey 2014-15

Australian Institute of Health and Welfare	• Prevalence of Self-Reported Diabetes 2014-15
	• Asthma report, 2017
	• Heart, Stroke and Vascular Diseases, 2018
	• Diabetes compendium, 2017
	• Rural and remote health, 2017
	• Older Australians at a glance, 2017
	• Australia's Health, 2016
	  ○ 3.4 Cancer
	  ○ 3.5 Coronary Heart Disease
	  ○ 3.7 Diabetes
	  ○ 3.8 Kidney Disease
	  ○ 3.9 Arthritis and other musculoskeletal conditions
	  ○ 3.10 Chronic respiratory conditions
	  ○ 3.11 Mental health
	  ○ 3.14 Oral health

Source	*Data and reports*
Australian Institute of Health and Welfare	○ 4.4 Overweight and Obesity ○ 4.6 Alcohol risk and harm ○ 4.7 Tobacco smoking ○ 5.1 Health across socioeconomic groups ○ 5.2 Trends and patterns in maternal and perinatal health ○ 5.11 Rural and remote health • Ageing and the health system: challenges, opportunities and adaptations, 2014
Department of Health	• PHN Commissioning: Needs assessment guide • PHN Needs Assessment Reporting Template
Department of Infrastructure, Regional Development and Cities	• IOTHS Activity Data Years: 14-15, 15-16, 16-17 • IOT Budget books (16-17, 17-18) • IOTHS facility model, resource profile, services provided • PATS documentation and activity data • CI admissions data • IOTHS governance documentation • CI and C(K)I Health Advisory Group Meeting Minutes • IOT Health & Community Service Needs Assessment, 2004 • IOT Price Index, 2012
KPMG	• Norfolk Island Service Plan, 2015
National Rural Health Alliance Inc.	• Mental Health in Rural and Remote Australia
National Digital Health Agency	• National Digital Health Strategy
PHIDU	• Estimates of Chronic Disease • Estimates of Risk Factors
Primary Health Network	• GP Attendances 15-16
WHO	• Health Impact Assessment: The determinants of Health, 2018

Appendix C Consultation summaries

Christmas Island community consultation summary

Consultation themes
Health determinants
Ageing population

• A common trend referred to in nearly all of our consultations is the increasing number of people are moving into retirement, including 30+ people who recently took redundancies from positions at the Phosphate mine. This section of the population will need increasing levels of care over the coming years as they become frailer.
• There was a generally expressed desire by older residents consulted to live at home as long as possible; however there are concerns about the current lack of support systems available as living independently becomes more difficult, and towards the end of people's lives. There were also different views on the extent of aged care services that should be provided reflecting different intentions to "age in place":
  ○ Many people, especially although not exclusively in the Chinese and Malay communities, have lived on Christmas Island (CI) all their lives and want to be able to choose to continue to live there as they grow old. There are a significant number of people with a very strong desire to remain on Christmas Island for the rest of their lives.
  ○ There is another significant cohort who plan to leave Christmas Island as they age in order to be closer to the health and other aged care services available in the Perth metropolitan area, or in Singapore or Malaysia where they have family members.
• While many older people have family on Christmas Island who support them to access health services and with day-to-day routines, there are some whose families are living on the mainland or overseas, and who consequently do not have any network of family care and support.

Remoteness
• The community of Christmas Island have an acute awareness of the remoteness of their location from the mainland of Australia. There is a perception that the extremity of this remoteness makes Christmas Island unique. • There was variation in community views regarding the level of service accessibility that should be provided given the remoteness of CI. However there was general consensus that residents should receive a similar standard of service to other Australians. • A particular concern widespread through community consultations was the impact that remoteness has in emergency situations, especially if there was no 24x7 hospital facility. Some consultees also expressed concern about the reliability of communications in emergencies out-of-hours.

Consultation themes
Economic conditions
• Many consultees expressed awareness of the impact potential changes to the economy of Christmas Island would have on population and health service demand. • There is a widespread view in the community that the 24x7 service availability should not be changed, regardless of any falls in population. A commonly expressed perspective was that increased tourism and associated employment would justify maintenance of current levels of service. • A view was expressed in two focus group consultations that there may be a future need for underwater medicine capability (i.e. a hyperbaric chamber) if diving-related tourism increased significantly in the future. • There is a desire for the Federal Government to outline its initiatives to support the economy of Christmas Island to the community, in terms of the mine, the detention centre, and tourism.
Nutrition and diet
• Due to the cost of refrigerated air freight, fresh fruit and vegetables are very expensive, while packaged and processed foods are more affordable. This acts a disincentive for residents to eat fresh foods. • The school has attempted some healthy eating programmes at the canteen, but these have been discontinued.
Smoking and alcohol
• Cigarettes and alcohol are effectively subsidised compared to the mainland, as state tobacco and alcohol duties are not levied on CI. This encourages elevated levels of smoking and alcohol consumption. • Some consultees identified drink driving is the major issue in terms of alcohol misuse, and the instances are probably being underreported. Alcohol-related violence is seen as less of an issue on CI. • Some consultees commented that alcohol use may be associated with individuals' mental health, especially with some men.
Drug use
• Some consultees noted there are some young people using illegal substances including ice, steroids and marijuana. Importing drugs may have become easier than in the past with the introduction of high speed internet. However, to date there have not been issues with drug-related violence, crime, or health service presentations due to drug misuse. • Generally, the view in the community seems to be that drug use is not currently causing major social or health problems.

Consultation themes
Health status and behaviours

Mental health

- The isolation of living on CI, and its extreme remoteness, was mentioned by many consultees as an important factor in creating mental health challenges in the community.
- Several community members consulted noted that there is very little choice in the services available, which currently include the IOTHS social worker (who is not a counsellor) and a private psychologist. This lack of choice is discouraging some residents from seeking help. Many of these consultees suggested that there was a need for increased psychology / psychiatry services, and an increased awareness of the social worker's role.
- Some consultees expressed interest and willingness to try telehealth services to increase availability and choice of services. Some members of the community have already made use of these services privately with Skype and FaceTime consultations.
- A key concern raised by some consultees regarding mental health were issues of confidentiality. It is perceived that the limited options (social worker and psychologist) and the physical layout of their facilities is not conducive to privacy in such a small community, where it is easy to observe who is presenting for consultations.
- Some consultees suggested that information and sessions targeted at young people on the issue of mental health would be valuable, as there are currently few resources available for young people on mental health.
- In consultations with members of the Chinese and Malay communities, the stigma associated with using mental health services was cited as a key barrier to utilising services. Language is also a barrier to using the services.

Diabetes and kidney function

- Community concern was expressed from several quarters about an individual who travelled to Malaysia for dialysis treatment, where they subsequently suffered from an infection and died as a result. This has created an impression that it would be safer for residents to receive dialysis treatment on CI, while also enabling them to remain on Island.
- While there is currently minimal requirement for dialysis treatment on CI, it is believed that due to the high incidence of diabetes on Christmas Island this may be an area of growing need in the future.

Child health

- In general the community members consulted felt that the child health needs, including development checks, speech therapy, and OT, are well serviced. The Child Health Nurse Service received community support.
- There has been recent disruption to the visiting paediatric specialist visits due to the retirement of the longstanding doctor. This has caused some community frustration but is likely to stabilise in the future.

Consultation themes

Maternal health

- Some women consulted expressed a desire to have the choice to give birth on Christmas Island in the future (this view was echoed by a significant number of other community consultees, some of whom noted that the last birth on Island took place over 23 years ago). However, there was also widespread acknowledgement of the risks associated with birthing on CI, and many women consulted expressed their understanding of the reasons behind birthing services not being provided by the IOTHS, and said they would prefer to give birth on the mainland.
- There was universal agreement amongst consultees that the personal burdens associated with giving birth as a Christmas Island resident are unusually difficult. They include:
    - Mothers spending up to two months off-Island with family or in rented accommodation, often without the support of their partners for long periods. This is particularly isolating for women from the Chinese or Malay communities for whom English is a second language (ESL).
    - Partners taking extended leave to ensure they do not miss their children's birth. Some men have not managed to make it to Perth in time and have missed the delivery as a consequence.
    - The financial burdens associated with flying and accommodating older children to Perth are very high. For families of lower means with large families, this burden is either disproportionate, or is sometimes so great that mothers are away from their children for many weeks because relocating the children is unaffordable. This separation is very hard on the families involved.
    - When children do travel there can be a disruptive effect on their education, particularly for children with ESL.
- Ante- and post-natal services were generally considered to be very good among the women consulted who had experience with them.

Disability

- There are a number of children with disabilities on CI. In general, the consultations indicated that the services for children are considered reasonably adequate, but that they drop off once children reach adulthood. The WA Disability Services Commission has played a key role in brokering services to date, and visits the Island once every 3-6 months.
- There is currently a lack of awareness about the implications of the transition to NDIS arrangements, and some concern about how needs will continue to be met in the near future.

End of life

- Several community members expressed concern about dying off Island while receiving treatment late in their life. These consultees worry that the need to attend the mainland for services creates a risk that they will not be able to be buried on CI. The capability for the provision of palliative care and advance care planning services are seen as important by the community to address this concern.

Consultation themes

Health service needs and barriers to access

GP Clinic Service

- Community consultations generally reported the GP Clinic to be an excellent service, especially given CI's remoteness. Many members of the community said that they believed they received better services than they would on the mainland in many respects.
- There is strong support for the three GPs currently in place, and for continuity of medical staff in general. Staff continuity was often cited as the key area for service improvement, as there has been a recent period of high turnover.
- Consultees typically reported that it can take a week to get a GP appointment. This was seen as a matter of concern by some segments of the community who, when consulted, were not aware of how long this would typically take at a mainland clinic. There was also low awareness of the arrangements the IOTHS has in place for responding to urgent needs during clinic hours, whereby patients can meet the nurses at short notice and will be triaged to see a doctor if necessary.
- Several instances were reported by consultees regarding the difficulty of obtaining second opinions. Some consultees spoke to us about experiences where a second opinion was sought, often with some difficulty and upfront personal expense (later PATS reimbursed), which resulted in a diagnosis and ongoing treatment not referred by the local GPs. In general:
    - There was recognition that on the mainland this process would have been much easier, but remoteness is a barrier.
    - Telehealth was recognised as a potential way to facilitate getting second opinions when residents feel they are necessary.

IOTHS facilities on CI

- There was very strong support across the community for continued 24x7 staffing of the IOTHS facility.
    - There were different levels of understanding regarding the current staffing structure; it was apparent from some consultations that segments of the community believe the facility is currently staffed by a doctor 24x7.
    - Other consultees said they were concerned that on-call arrangements for nurses after hours would not be responsive enough during emergencies occurring in poor weather due to communications limitations.
- Some segments of the community indicated a desire for the IOTHS facility's theatre to be recommissioned, and for the capability to undertake procedures on Christmas Island (including general, orthopaedic, gynaecology, and colonoscopy services) to be reinstated with visiting specialists. This is based on the disruption caused by PATS travel for these procedures, which cause significant disruption and are particularly challenging for older residents.
- In some consultations it was noted the Community Health Care facility is underutilised, and it could potentially be repurposed as an aged care facility.

Dental services

- The general consensus among consultees was that these services are excellent, and are in many respects superior to equivalent mainland services.
- Dental prosthetics specialist visits have been seen as very valuable by older members of the community consulted.

Consultation themes

Aged care services

- There was a widespread view that there is a need for aged care facilities on the Islands, due to the ageing population. The facilities suggested by the community as necessary include respite, residential and palliative care facilities.
    - Some community representatives and groups consulted suggested the conversion of ground floor apartments into supported living units in Poon Saan.
    - Respite care is currently offered by the IOTHS on an ad hoc basis, but few community members want to spend time in the hospital-like facility as it currently stands.
- The existing HACC services were highly valued by consultees, although several older members of the community consulted were not fully aware of the extent and content of services. Additional information in non-English languages would be seen as valuable, and there is a view that this service could be expanded to meet increasing need.
- The Community Nurse role was noted by several sections of the community consulted as being very valuable and appreciated.
- The potential for a Silver Chain-like service was also raised during consultations.

Health Service staff

- Increased continuity of clinical staff was one of the most commonly cited areas for improvement of IOTHS services. There was recognition that the three GPs and several of the nurses have been put on permanent contracts, and this was seen by the community as very positive.
- A need for more proactive customer service by the reception of the IOTHS facility was raised by some segments of the community. Specific areas where this was cited as an issue include:
    - Interpreting and translation
    - More proactive assistance to older and vulnerable people to make appointments with GPs; this is currently off-putting.

Confidentiality and complaints processes

- Concerns regarding patient confidentiality and IOTHS complaints processes were independently raised in some small community consultations. Issues regarding mental health confidentiality have been elaborated above. Other consultees referred to specific confidentiality breaches and suggested that the IOTHS may need to revisit its policies and procedures in this area.
- There was a lack of awareness among consultees regarding IOTHS complaints procedures or confidentiality arrangements. This has made some people feel unwilling to submit complaints as they are unsure who will be reviewing them, and how confidentiality will be maintained.
- Some people were aware that HADSCo complaints procedure was in place, and had made use of it after their clinician suggested it, but others expressed no awareness of this arrangement.

Emergency capabilities

- Volunteer ambulance services are currently not able to respond rapidly in the event of an emergency. Calls go through to the health service, and the on-call driver is contacted. This person then needs to travel to the IOTHS facility to pick up the ambulance before attending. Consultations suggested that the response time was typically slower than the police, or private transport to the facility.
- Some community members expressed the view that they did not want doctors to be put on call - i.e. there is a perception that there is a doctor on site 24x7 at the IOTHS facility. This was a major source of community concern with respect to any reduction of service.
    - One of the key concerns raised throughout consultations was how an after-hours on-call service would respond to emergencies. There was low community awareness of how this would work in practice, but significant interest.

Consultation themes
Visiting specialists
• The main comment regarding visiting specialists was that their visits could be more widely publicised prior to arrival.
PATS

• PATS was a major source of concern for the majority of residents consulted, because of the disruption and expense associated with medical travel. The key concerns raised included:
  ○ Escort policy – a lack of awareness of how this was enforced, especially for more vulnerable patients and women with children.
  ○ Several consultees requested that the PATS policy should enable more flexibility of travel timing, with reimbursement for an agreed minimum cost. This was seen as particularly important for older and more vulnerable patients, especially those for whom English is a second language.
  ○ Many consultees noted that despite PATS IOT residents still bear significant out-of-pocket expenses associated with patient travel.
• There was a community perception that the residents the Cocos (Keeling) Islands already have some kind of "medi-hotel" service in Perth to provide subsidised accommodation. There was strong support for such a facility which could be used by Island residents on medical visits to Perth. [Cocos (Keeling) Islands residents do not in fact have access to such a service, and they shared Christmas Island residents' support for such a service].

Telehealth (Service need)
• Most consultees expressed a willingness to use telehealth services to avoid patient travel or to access services such as psychology / psychiatry. • The principal caveat for this view is the quality of the infrastructure.
Language and interpreters
• It was widely noted in community consultations that the availability of health promotion and information materials in Malay, Cantonese and Mandarin is very limited, and that this forms a barrier to using services both on Christmas Island and the mainland. • While there is a wide availability of English language information on the IOTHS site, there was a general view that the service could be more active in its engagement with the community around health promotion, and with information such as the timing of visiting specialist appointments.
Awareness of services and public information
• Some consultees requested medical research into the environmental health impacts of phosphate dust • Several consultees noted that there is a large amount of public health information at the IOTHS facility, but very little distributed elsewhere. It was generally commented that semi-regular public meetings off-site would be a valuable way of increasing health literacy.
Communication infrastructure on Christmas Island
• Some segments of the community expressed a desire for reassurance of the capabilities of the communication infrastructure in the event of an emergency on the Island, especially when there is bad weather and telephone and mobile infrastructure is affected.

Cocos (Keeling) Islands community consultation summary

Consultation themes
Health determinants
Ageing population
• There was general consensus from consultations that there is increasing demand for health services due to ageing population. Self-management is said to be poor in the elderly population and they rely heavily on direction from the health service.
• A large proportion of the older generation on Home Island (HI) do not speak English and have some trouble with reading. It was noted in some consultations that it is therefore challenging for clinical staff to give these residents instructions about their health care plans and medication.
• The current lack of respite services for carers may be resulting in stress/mental health issues according to some consultees. On HI, it was suggested that the need for respite may only be required as a working-hours service, with families continuing to care for their relatives during the evening.
• Consultees suggested that many of the older generation on HI do not see leaving their homes as an option, and that there is a cultural expectation that children will take care of their parents.
• Some consultees noted that the community may be unaware of existing HACC services.
Economic conditions
• Some consultees suggested a need for a regulatory authority to implement a checklist for adventure tourism businesses as it is thought that the lack of this may have an impact on the number of injuries due to tourism, and increase the activity of the health service. The Shire is in the early stages of developing a process for issuing permits, and outlining where and how businesses can operate and what risk management processes need to be in place (aim to be done by June 2019).
• Several consultees noted an increase in the number of extreme sport tourists, such as kite surfers and free divers. Another cohort of tourists are bird watchers, and are generally elderly (65+) and access the health service with conditions such as dehydration or heat stroke. There is a perception that tourism is putting pressure on the clinics.
• Around 2,101 tourists visited the Cocos (Keeling) Islands in the last year and there are hopes to increase this to around 2,500 a year. At any one time, around 200 tourists can stay on the Island and it is thought that tourism is running at almost maximum capacity currently.
Nutrition
• The majority of consultees raised poor diet and nutrition as one of the most significant rising needs on the Islands. The traditional diet on HI was fish, coconuts and rice has been displaced with processed and packaged foods with higher fat and sugar contents. At the same time, store proprietors commented that the prices for fresh and healthy foods is very high due to the cost of freight.
• Consultations also raised a recent $6 school lunch trial program run by the clinic, which some consultees suggested was beginning to have an impact. However since this trial, the initiative has not been carried forward.
Physical activity
• An increasingly sedentary lifestyle was noted by many consultees, in particular with children using electronic devices. The population may also be becoming less active due to lack of employment opportunities.
• A gym had recently been opened on HI, which has encouraged increased physical activity particularly with younger males. However, there are not as many sessions for women and girls. Some physical activities are organised by the school and community.

Consultation themes
Smoking and Alcohol
• Several consultees commented that alcohol and tobacco are cheaper than on mainland due to the lack of State duties, but there was a general view that this does not seem to be causing any social issues. • Some consultees expressed the view that alcohol may be used as a coping mechanism for some people (particularly those with mental health illnesses). • Some segments of the community have a perception that anti-smoking education has helped prevent younger people taking up the habit.
Health status and behaviours
Mental health
• Many consultees noted that the Home Island community has a stigma around mental health – it was commented on several occasions that Cocos Malay does not have expressions for anxiety and depression, for example. • The taboo around mental health makes accessing services very sensitive according to many consultees, as there are confidentiality concerns with the very small size of the community and the limited options in terms of support. The CI-based social worker only visits rarely and there was a generally expressed view that the local social worker was not a viable option for mental health support.
Diabetes
• Consultees repeatedly raised the view that there is an increasing number of people with diabetes, and that they are showing symptoms at an increasingly younger age due to diet (it was suggested that the youngest patient is only 14 years old).
Obesity/CVD
• Community members noted that the nutrition challenges in the community were resulting in: ○ Increases in the number of people with hypertension. ○ Increased levels of obesity and childhood obesity.
Child health
• The perceived deterioration in health of children in the community was a key concern raised by most consultees. The main areas of concern raised included: ○ Perceived increases in the number of patients with diabetes at a young age, and childhood obesity. ○ A perceived increase in the number of babies born at low birthweight and becoming overweight in adolescence, which would be an indicator of poor maternal nutrition. • The reduced levels of children's physical activity, especially on Home Island, was raised in several one-to-one and focus group consultations. The effect of electronic devices was often cited as a perceived driver of this trend.
Maternal health
• Women consulted in small groups or individually expressed a preference for a dedicated midwife to run antenatal classes. • In general, consultees expressed a perception that the clinics are very supportive to new mothers and their children.

Consultation themes

Dental Health

- Consultees expressed mixed perceptions about the availability of dental services. Some members of the community have said that it is easy to get appointments with the dentist while others believed that there is a lack of availability and that the wait between dentist visits to the Cocos (Keeling) Islands is too long.

Kidney problems/dialysis

- Similarly to Christmas Island, there was a widespread view in the community that kidney problems are a potentially emerging area of need due to increasing prevalence of diabetes, heart diseases, obesity, and the ageing population. As a consequence there was some concern about the lack of dialysis treatment available on Island.

- In several consultations it was commented that in the past some patients have required dialysis and were treated in Perth, where they subsequently died. This was a significant issue for some community members consulted, as they wish to be buried on the Island and this has immense cultural significance. Advanced care planning is important to these groups to try to avoid this situation.

Disability

- In general, the community consultees noted that the physical environment of the Islands is not set up for people with disability e.g. lighting, paths, stairs, general access and mobility.
- In consultation with the school psychologist the potential value of a therapy assistant was raised as a way to support the implementation of care plans for children with disabilities. It was suggested that this role could potentially be funded with the pooled NDIS entitlements of the children currently living with a disability on the Islands.

Health service needs and barriers to access

Clinic Services

- In general, the community members consulted expressed satisfaction with the health services and staff currently in place. Many consultees on both Home and West Islands also commented that in their view the service was excellent given the community's small size and remoteness. People report being generally able to arrange same-day appointments, and that the recall services are excellent and valued.

- Several consultees reported that their typical consult slot with the GP is 30 minutes.

- Some consultees who work during the day found that the GP's presence on West Island once a week during working hours made it difficult to coordinate appointments, but there were many others who indicated that they were comfortable with current arrangements.

Health Service staff

- The challenges associated with locum nurses adapting to the health service and local culture was raised in some community consultations. While acknowledging the importance of remote and emergency experience to the C(K)I service, several Home Island community consultations suggested that employing and developing local RNs would be highly valued by the community and would make the service more accessible for older residents who have limited or no English.

- One of the most consistent suggestions for improvement of the health service in consultations was increased consistency in staffing.

- Consultees from the Cocos Malay community noted that the dialect is different to Bahasa Malay, and that there will be a need for more interpreters to be trained in medical terms in Cocos Malay, especially as the existing health workers approach retirement in the future.

Consultation themes

Emergency capabilities

- Consultees expressed mixed views on the after-hours service offered at the clinics:
  - Some consultees want the after-hours visits to be home calls.
  - Other consultees want to go straight to the doctor / nurse's homes to seek help.
  - Finally a third group think that the current process works well.
- Consultations with the emergency services suggested that the emergency response time on Direction island is a minimum of 3 hours, assuming that there are no communication difficulties and locum staff are fully aware of emergency procedures.
- The capability of emergency and health services to respond in emergencies was one of the major community concerns with the health service. Once people are in the care of the service they feel confident, but the concern is with the remoteness for on-Island response.
- One suggestion from consultations was to install solar phones at the southern and northern ends of West Island to improve emergency response times.

Visiting specialists

- Community members generally noted that they were very happy with visiting specialist services, but some consultees requested more frequent visits of specialists such as the dentist (usually based on CI) and an audiologist.

PATS

- Patient assisted travel was one of the areas which most consultees had experienced issues with, and had suggestions for improvement. Some of the areas raised as being of concern by consultees included:
  - The challenges presented to Home Island residents when they travel to Perth, especially for older residents with ESL. Cocos Malay differs from Bahasa Indonesian or Malay, making the translators currently provided in Perth for PATS patients difficult to understand. Community members suggested training Cocos Malay translators for use when Home Island residents travel to Perth.
  - The out-of-pocket expenses associated with patient travel are significant, especially for mothers travelling to Perth to give birth. This can cost families a significant amount in terms of airfares and accommodation for children, and imposes other burdens such as the coordination of schooling on the mainland.
  - Several consultees expressed a perception that the PATS policy is unclear on the subject of escorts, and that more flexibility in this respect would be valued.

Pharmacy

- Some consultees commented that the current process for obtaining scripts from Christmas Island or the mainland can result in delays, especially during cyclone season, because of the limited number of flights into the Islands.

Population/Community health activities

- Consultees noted that the clinic communicates some health messages through the Atoll, a fortnightly paper, and they believe that this is widely read.
- Community consultees expressed the view that community organisations do not take responsibility for their health and rely heavily on the health service.

Telehealth (Service need)

- In general, the community members consulted expressed willingness to make use of telehealth services, and were of the view that it could particularly beneficial in areas such mental health support where there may be a stigma associated, and also to avoid travel to the mainland for specialist consultations.

Consultation themes

Community engagement with health services

- Some recent tension between the community on Home Island and the health service was raised in a number of consultations, with reference to a recent change in the clinic visitors' policy following an incident where an on-call locum nurse was unable to treat a child patient due to overcrowding. Consultees explained that the community view is that anyone from the family should be able to visit the patient, and there was little understanding of the reasons for changes to policy allowing only one visitor at a time (instituted by the nursing staff in the interests of safety). Consultees raised this as an example to be improved on in the future with respect to community engagement.
- Some segments of the community expressed a belief that the health service needs to become more understanding of the local cultural preferences on Home Island, and that addressing this may lower barriers to use of the service in the community.

Clinical notes

- Some consultees noted that they have found that clinical notes do not always flow through from Perth to C(K)I - sometimes ending up at CI.

Communication infrastructure on C(K)I

- One of the key concerns expressed by consultees was the impact of unreliable communications infrastructure on health services in an emergency. It was commonly observed that mobile phones are cut off frequently and reception is poor.
- Few consultees expressed awareness of central call centre functions in an emergency. Community members tend to contact the on-call nurse or the doctor directly. Some consultees noted that there could be strong opposition to rolling out this function on Home Island, and that a staged introduction of call-centre triage (e.g. HealthDirect) to West Island first could be worthwhile to demonstrate how the system would work.

Appendix D Principles of Good Governance

These principles are a tailored version of "Good Governance Principles and Guidance for Not-for-Profit Organisations" as promoted by the Australian Institute of Company Directors.

Principles of Good Governance	*Description*
Roles and Responsibilities	There should be clarity regarding individual employee's responsibilities and roles for governance, including their duties and levels of authority. These roles and responsibilities should be clearly communicated and understood within and without the organisation
Board Composition	A board needs to have the right group of people, having particular regard to each individual's background, skills and experience, and how the addition of an individual builds the collective capability and effective functioning of the board. Currently IOTHS does not have a Health Board, which creates a significant gap in the leadership and governance of IOTHS.
Purpose and Strategy	There needs to be a clear alignment between the determined vision and mission of the organisation with the purpose of the organisation's existence. The vision and mission should in turn flow through to clear strategic plans which outline how this vision will be achieved. There should be ownership of this strategy at the leadership level.
Risk Management	There should be a robust risk management framework which outlines how risks will be identified, classified, monitored and mitigated. Clarifying responsibility for risk management is also essential.
Organisational Performance	An organisation should have clear performance measures for the organisation, departments and individuals, combined with regular and robust internal and external reporting. The process for how performance issues and challenges will be identified and managed should also be clearly defined.
Governance structure	There should be clarity regarding how the overall structure of governance operates – for example the content and structure of governance meetings, how governance arrangements are documented, monitored and audited, etc.
Integrity and Accountability	It is important that the organisation have in place a system where there is a flow of information to the management that aids decision-making; there is transparency and accountability to external stakeholders; and the integrity of financial statements and other key information is safeguarded.
Organisation Building	An organisation should have clear policies and procedures for professional development and capacity/capability development. The lack of robust professional development has been identified as a significant issue for IOTHS.
Culture and Ethics	There should be clear policies and procedures which outline ethical requirements and codes of conduct for behaviour within the organisation.
Engagement and Communications	The organisation should have a clear approach for stakeholder engagement and communication internally and externally, including how stakeholders should be informed, consulted and involved in key decision making within the organisation. The lack of meaningful communication and engagement with its communities has been identified as a significant issue for IOTHS.

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