MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

REVIEW REPORT

on

Tokelau's Clinical Health Services and Patient Referrals Scheme

Prepared by:

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**Helen Leslie contributed to the review report as a review team member up until July 2019*

Table of Contents

List of Figures

List of Tables

Acronyms

- AA Atafu
- CCDHB Capital and Coast District Health Board
- CBOs Community-based organisations
- DAC Development Assistance Committee of the OECD
- DHB District Health Board (in New Zealand)
- DoH Tokelau Department of Health
- DoH Plan Tokelau National Strategic Plan 2016-2020
- DTC Drug and Therapeutic Committee
- FF Fakaofo
- GF General Fono
- MFAT Ministry of Foreign Affairs and Trade (NZ)
- MO Medical Officer
- MoU Memorandum of Understanding
- MTS Medical Treatment Scheme
- NCDs Non-communicable Diseases
- NHRCD National Human Resources Capacity and Development
- NM Nurse Manager
- NN Nukunonu
- NZAID New Zealand Agency for International Development
- NZMoH New Zealand Ministry of Health
- OCOG Office of the Council for the Ongoing Government
- PEN Package of Essential Non-communicable Disease Interventions
- SAT Systems Assessment Tool
- SDGs Sustainable Development Goals
- SIDS Small Islands Developing States
- SOH State of Health
- TALO Tokelau Apia Liaison Office
- TEP Tokelau Emergency Plan
- TNSO Tokelau National Statistics Office
- TORs Terms of Reference
- TPRS Tokelau Patient Referral Scheme
- TSS Transport and Support Services
- UNESCO United Nations Educational, Scientific and Cultural Organisation
- UNDP United Nations Development Programme
- WASH Water, Sanitation and Hygiene
- WHO World Health Organisation
- UN United Nations

Glossary

- Aumaga – men's group
- Fatupaepae – women's group
- General Fono – equivalent to parliament, made up of representatives from each Taupulega
- Nuku - village
- Taupulega – council of village elders

Acknowledgements

E muamua lava ona fakafoki te vikiga ki lagi, ki he avanoa gali venei na mafai ke fakatino ma talatala atu ai ni vaega na fakataunuku i luga ona kauafua e tolu o Tokelau. E fia amanakia ai i he agaga o te fakafetai ma te fakamalo.

Tulou te vaka Atua o te Tala lelei, te kaufaigaluega paia a te Atua. Tulou ia tauata o te Matamatagi, ko tama o te faleiva, i ona tokaga i Faleagafulu. Tulou lava. Tulou te Tuloto, te Falefa. Te Gafalua ma tiutiuga a te Uluga Talafau. Tulou lava. Tulou te Mulihelu, te Falefitu, ia alo o Tonuia. Tulou lava. Ko te katoaga lava ia o te mamalu o Tokelau.

E fia amanakia ai he fakafetai e momoli kina motu e tolu. E kamata mai lava ina Taupulega, te nofo a matai o kaiga, te uluhina ko te mamalu lava ia o te palega o fenua, na fatupaepae e tolu vena ki te malohi o te nuku, te tupulaga ke pa lava ki na fanau te lumanaki o kaiga ma fenua. Ma ki latou uma lele kua he takua o latou igoa, na tuku fakatahi o latou malohi, poto ma te tomai kua mafai ai ke fakapepa ma tuku fakatahi ai ki he lipoti venei. E vena foki te fakafetai fakapitoa ki te Mataeke o te Ola Malolo ma tana kaufaigaluega. E momoli atu te fakafetai lahi ki te mamalu o ona Taupulega a te Tu Tolu, na kaiga ma na matua mo na tauhiga na e fai ma te loto alolofa ki te Kauhaga a Massey i te fakatinoga o te iloiloga i luga o fenua vena ma te tautali mai a te mamalu o te kaiga Tokelau i Porirua. E lagona foki i te agaga fakamaulalo ni a lava ni pahala o tenei kauhaga, fakamagalo na kaukauna he aoga.

Ko na fakamaumauga ma na hãkiliga i loto o te lipoti tenei na fatu i ta koulua fakahoa ma o koulua manatu na tuku mai i luga o fenua na opo fakatahi ma te fakahoa a te mamalu o te kaiga Tokelau i Porirua. Ni moemitiga ma ni taualofa fakaamanaki e tuku atu e tuha ma te galuega a te kauhaga a Massey ki te iloiloga o na tautuaga a te Mataeke o te Ola Malolo ma tana hikimi hiki tauale mai ia Iuni 2014-Iulai 2018

Ke fakamanuia e te Atua ia Tokelau.

We offer our heartfelt thanks to the leaders and communities in Tokelau for the hospitality and support extended to the review team to enable this review to be undertaken. We also acknowledge the review's Steering Committee, for providing oversight of the review, supporting the fieldwork and offering feedback on the draft: Anna Pasikale (MFAT representative), Iuliano Tinielu (Fakaofo representative), Tumua Pasilio (Nukunonu representative), and Rosa Toloa (Atafu representative).

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- Dr Matthew Roskrudge, for providing health economics input

It has been an honour to be given the opportunity to undertake this important review and our hope is that it can now be taken forward in a useful way for the people of Tokelau.

Review Team Members *(Tracie Mafile'o, Sunia Foliaki, Tanya Koro, Helen Leslie*, Michelle Redman-MacLaren and Caryn West - *Helen Leslie contributed to the review report as a review team member up until July 2019)*

Executive Summary

E muamua lava ona fakafoki te vikiga ki lagi, ki he avanoa gali venei na mafai ke fakatino ma talatala atu ai ni vaega na fakataunuku i luga ona kauafua e tolu o Tokelau. E fia amanakia ai i he agaga o te fakafetai ma te fakamalo.

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Purpose

Improving Tokelau's clinical health services and the Tokelau Patient Referrals Scheme (TPRS) patient referral scheme is the key purpose of this independent review. The objectives were to:

1. Review the relevance and effectiveness of clinical health services on Tokelau.
2. Review the relevance, effectiveness, efficiency, impact and sustainability of the Tokelau patient referral scheme (TPRS).
3. Determine the funding required to deliver adequate levels of health service, and the potential budget impacts of the growing incidence of Non-Communicable Diseases (NCDs).
4. Identify the key changes needed to deliver and sustain improved results from health services delivered on Tokelau, and through its patient referral scheme.

Covering the period July 2014 to June 2018, the review focused on services in Tokelau and services received by Tokelau's referred patients in Tokelau, Apia and New Zealand.

Approach

A Tokelau perspective of health, *Te Vaka Atafaga*, informed this review. Our Pacific-led, participatory review approach centred service user and community voices. We engaged more than 250 stakeholders across Tokelau, Apia and New Zealand in individual, group and community level consultations, and reviewed key documents and clinical decisions.

To collect data, analyse, and present clinical health service findings, we have used the components of the Systems Analysis Tool (SAT) - which has been proven to underpin health centre quality in 'remote' settings (Woods et al, 2017). The SAT has five components which are, delivery system design, information systems and decision support, self-management support, links with community, health services and other services, and organisational influence and integration.

This approach will facilitate action to implement the review findings, as the Department of Health and Taupulega can use the SAT components as a framework to embed quality improvement, undertake self-review and set strategic targets in the years to come. This approach centres improvements in clinical health for Tokelau, in Tokelau.

The DAC (Development Assistance Committee of the OECD) evaluation criteria referenced in the Terms of Reference for the review are woven into the SAT section and frame our analysis of the TPRS. These evaluation criteria are, relevance, effectiveness, efficiency, impact and sustainability.

Positive and actionable recommendations are offered, that build on the good work Tokelau has already done to improve health through its Department of Health Strategic Plan (2016-2020) and the many initiatives that are already in place to improve population health. High-level recommendations are included in this executive summary and in the main report. Detailed 'actions' to achieve the high-level recommendations are included in Appendix A. While we have attempted to prioritise the recommendations (in Appendix A), we are positive that taken together they will make a sustained difference to the health of Tokelauans.

Findings and Recommendations

With a population of 1,285 (in 2016), the self-governing New Zealand Territory of Tokelau consists of four small coral atolls (Olohega - no longer politically linked to the group; Fakaofo; Nukunonu and Atafu) situated in the southern Pacific Ocean. The isolation of Tokelau and lack of air transport on each atoll impacts the delivery of health services, which in turn leads to heavy reliance on the TPRS. The governance structure consists of an elected Council working through a General Fono (Parliament) and a hereditary Taupulega (Village Council of Elders) system. Because Tokelau public services are largely devolved to Taupulega, they play a critical role in both the governance and delivery of healthcare.

Each of the three atolls has a hospital offering clinical health services to the villages. Following the recommendation of a health review in 2014, the hospital at Nukunonu (St Josephs) has been developed as a national referral hospital, and is operated directly under the Department of Health. The clinical services for Fakaofo have continued to be managed by the Taupulega through Fenuafale hospital on Tai and a clinic on Fale. Lomaloma Hospital in Atafu came under the of the Department of Health management following the previous health review, but in 2019 Taupulega resumed management of the health services.

Tokelau has seen an unprecedented rise in 'lifestyle' or Non-Communicable Diseases (NCDs) at a time when infectious diseases such as tuberculosis still exist. Combined with the health impacts of climate change, Tokelau experiences a 'triple burden' of disease. The increasing burden of these diseases will continue to stretch the health budget, as well as incurring substantial costs to productivity, communities and individuals. Earlier surveys have pointed to high rates of mental distress amongst young people and sexual and reproductive health services, particularly those that adequately meet the needs of young people and pregnant women, are in urgent need of strengthening.

At the same time, however, Tokelau's *inati* system ensures the basic needs of all members of each nuku/village/atoll are looked after, including their need for health care services. The effect of the *inati* system, and the associated responsibilities on Taupulega to ensure an equitable health service, cannot be understated.

It is the view of the review team that ***Health system strengthening in Tokelau is the foundation*** for making the TPRS more relevant, effective, efficient and sustainable. ***Good relationships, reinforced by strong leadership, sound capacity and adequate resourcing are essential*** to delivering and sustaining improved Tokelau health services and the TPRS. Dialogue, partnership, trust, humility, cooperation and integrity must characterise the working relationships amongst the Department of Health and the Fakaofo, Nukunonu and Atafu Taupulega leaders. Sustained improvement in health care requires the leaders to work together to implement the review recommendations.

Clinical Health Services

Clinical health care is offered via three hospitals in each of the three villages of Tokelau, and since 2015 (following the previous health review and subsequent General Fono decision) resources have been dedicated to develop Nukunonu hospital, St Josephs, as a national referral hospital. The ***strengths of clinical health services in Tokelau are geographical proximity of the hospitals to the community, adequate medical officer and nurse numbers relative to the population and a new hospital building in Fakaofo***. Our review found that Tokelau stakeholders expect a higher-level of health service delivery in each village, with the required equipment and skilled professionals to enable this. There is a strong orientation towards curative health services, however, many of these services are currently not able to be delivered in Tokelau. Emphasis needs to shift towards fully developed and good quality primary and preventative health care with some provision for secondary level care.

Our review has identified issues which, if addressed, would improve clinical health services in Tokelau. These issues, and our suggested high-level recommendations to address them, are detailed below under each component of the Systems Assessment Tool that we used to collect data and analyse our findings. They are also presented in a results diagram in Appendix B which shows the relationships between our recommendations and actions, improvements in each of SAT components, and the overarching goal of improving clinical health services on Tokelau.

Issue	**#**	**Recommendation**
Delivery System Design		
Key health workforce gaps across Tokelau need to be filled in order to fully develop primary healthcare provision	1	Fill gaps in health workforce in Tokelau
Need for more screening services	2	Implement more screening programmes

Serious youth health and wellbeing issues identified in Global School Health Survey (13-17yrs) and yet to be formally responded to	3	Ensure health services are youth friendly
Hospital equipment lacking, poorly maintained or unsuitable for requirements, particularly in Fakaofo and Atafu	4	Improve ordering, supply and maintenance of hospital equipment
Pharmaceuticals often expired and in short supply	5	Improve pharmaceutical supply and management

Information Systems and Decision Support		
Inadequate data for health system planning; lack of data also leads to inefficiencies and follow up issues, especially with TPRS returning patients	6	Improve data collection, management, analysis and knowledge translation capacity
Clinicians work in relative isolation and have limited access to current and ongoing medical knowledge and evidence-based guidelines	7	Improve clinical decision support through telemedicine and evidence-based guidelines
Self-management support		
Increase in NCDs and need for patient and family self-management of chronic conditions; heavy reliance on bio-medical/clinical interventions	8	Improve self-management support and use of holistic/traditional health care where appropriate
Links with Community, Health Services and Other Services		
Lack of engagement and coordination of activities between hospital and village management, especially in Nukunonu; need to strongly integrate public health into primary health care	9	Improve coordination, planning and information sharing between villages and hospitals
Community concerned about vector control which could worsen due to climate change	10	Strengthen environmental health as part of public health delivery
Organisational Influence and Integration		
Lack of trust and loss of confidence amongst health leaders	11	Improve working relationship between the Department of Health and Taupulega
Service-user dissatisfaction with quality of healthcare and no systematic way to learn from errors	12	Develop ongoing quality improvement, a learning culture and better performance accountability
Clinicians have limited opportunities to be exposed to a range of clinical cases and to develop their skills due to small numbers accessing services	13	Strengthen the health workforce through professional development including internships, training and professional associations
Lack of clinical governance and overall integration	14	Improve clinical governance and clinical specialist support through establishing a Health Action Committee

Health Financing

Tokelau has one of the highest expenditures on health among island nations. The Tokelauan health service is financially well resourced, and there are good levels of staffing and infrastructure especially given the challenges of providing adequate and equitable care across three dispersed villages. Challenges remain in improving the efficiency and allocation of the health dollar. This requires quality data collection, coordination of resources and procurement, introduction of health management systems and a focus on core health service delivery, particularly prevention and detection of NCDs.

Issue	#	Recommendation
High level of health spending; growing burden of NCDs	15	Develop a health financing platform to reflect the growing burden of NCDs

Non-Communicable Diseases (NCDs)

Tokelau has taken considerable steps to address NCDs, the leading cause or morbidity and mortality in Tokelau, responsible for 75% of all deaths. Our review has identified recommendations to further strengthen the NCD response and ultimately reduce the burden of NCDs

Issue	#	Recommendation
Need for cross-sector coordination and responsibility for NCD strategies	16	Improve collaboration and information sharing on NCDs and ensure policy coherence
Data collection and analysis of NCD management is needed to monitor effectiveness of NCD treatment and strategies	17	Streamline treatment of patients with NCDs through NCD registries
Village NCD programmes have been initiated but have not necessarily been sustained, given demands on villagers and cultural relevance of programmes	18	Improve access to NCD programmes and initiatives which are culturally relevant, effective and sustainable in the Tokelau context

Tokelau Patient Referral Scheme (TPRS)

The TPRS provides life-saving secondary and tertiary level treatment that are not available in Tokelau. It is therefore a relevant and essential part of the Tokelau health system. In its current form, however, the TPRS is unsustainable. Key changes to make the TPRS more effective, efficient, impactful and sustainable are provided in the TPRS recommendations and Implementation Plan in Appendix A. As with the clinical health services findings and recommendations, a results diagram has been prepared (Appendix B) to show the relationships between individual actions and overall improvements to the TPRS.

Issue	#	Recommendation
TPRS		
Need for equal access, transparency and accountability in the TPRS	19	Establish an annual review mechanism of TPRS decisions to be undertaken by the Health Action Committee
Poor communication and information within TPRS have led to inefficiencies	20	Improve understanding between the Taupulega, Department of Health and broader community about TPRS
Challenges of boat transfers such as cleanliness of boats and availability of equipment	21	Improve patient and nurse experience of boat transfers
Burden on Tokelau host families in New Zealand who are already bearing the brunt of a New Zealand housing crisis	22	Provide housing support for TPRS patients in New Zealand
Confusion about clinical/pastoral in NZ; high pastoral support needs of TPRS patients, their attendants and host families	23	Streamline pastoral and clinical support in New Zealand
Forum processes delayed due to quality of MO referrals to the Forum; difficulties in making clinical decisions due to unavailability of diagnostics	24	Streamline TPRS forum processes

Delays in diagnosis and treatment in Samoa increases costs and diminishes patient dignity	25	Improve efficiency and effectiveness of treatment in Samoa
Management and delivery of TPRS is challenged at every level	26	Improve TPRS efficiency by sending patients direct to New Zealand and management by a third party following referral decisions by Tokelau
Increasing costs; TPRS patients and attendants pastoral care and advocacy needs	27	Agree reasonable allowance structure and improve support to access WINZ

Implementation of the review

In order to achieve the review's purpose of improving Tokelau's clinical health services and the TPRS, it is essential that the review recommendations are well received, and that implementation is supported. A list of actions to take each recommendation forward are included in the Implementation Plan (Appendix A). We suggest the appointment of a project manager to oversee implementation of review findings, which could potentially be facilitated through the Health Corridors initiative currently under development by MFAT. Most fundamental, however, is the need for good relationships amongst leaders of Tokelau to foster broad ownership of the review findings and to enable collaborative action on its recommendations.

Purpose of the Review

Improving Tokelau's clinical health services and the Tokelau Patient Referrals Scheme (TPRS) patient referral scheme is the key purpose of this independent review. The review assesses the quality of patient care, identifies the constraints to improving patient outcomes and what is necessary to sustain adequate levels of patient care, with the aim of informing improved clinical health services and patient referral scheme for the people of Tokelau. The potential budget impacts of non-communicable diseases (NCDs) were also considered in this review. Specific objectives of the review of Tokelau's clinical health services and patient referrals scheme were:

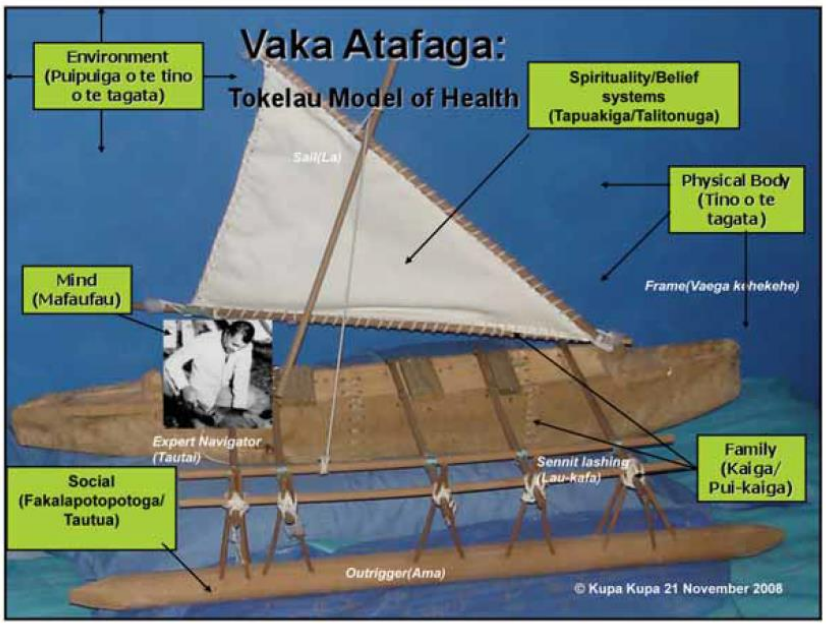
- **Objective 1**: to review the relevance and effectiveness of clinical health services on Tokelau.
- **Objective 2**: to review the relevance, effectiveness, efficiency, impact and sustainability of the Tokelau patient referral scheme (TPRS).
- **Objective 3**: to determine the funding required to deliver adequate levels of health service, and the potential budget impacts of the growing incidence of Non-Communicable Diseases (NCDs).
- **Objective 4**: to identify the key changes needed to deliver and sustain improved results from health services delivered on Tokelau, and through its patient referral scheme.

The review covered the period July 2014 to June 2018 and focused on services on Tokelau and services received by Tokelau's referred patients in Tokelau, Apia and New Zealand.

Health from a Tokelau perspective

This review is underpinned by a Tokelauan cultural conception of health, *Te Vaka Atafaga* (Kupa 2009), a canoe metaphor (Figure 1). As pointed out by Kalolo (2007), the canoe metaphor has often been used in relation to Tokelau; and from a Tokelau perspective, the canoe is run with '*he toeaina ke i te mulivaka*' (an elder positioned at the stern), a place from which wisdom and knowledge emanates.

Figure 1: Vaka Atafaga: Tokelau Model of Health (Kupa 2009, p. 159)



Te Vaka Atafaga points to a holistic understanding of health and to diverse determinants of health. As illustrated in Figure 1, six aspects are considered part of a Tokelau health perspective: (1) *puipuiga o te tino o te tangata* (environment); (2) *kaiga/pui-paiga* (family); (3) *tapuakiga/talitonuga* (spirituality/belief systems); (4) *mafaufau* (mind); (5) *fakalapotopotoga/tautua* (social); and (6) *tino o te tagata* (physical body). Understanding and applying cultural perspectives increases the likelihood of quality outcomes for health services. Broadly following Te Vaka Atafaga, we introduce the Tokelau context and health in Tokelau under the headings of: environment; population and governance; spirituality and beliefs; worldview; social systems; health status.

Tokelau environment

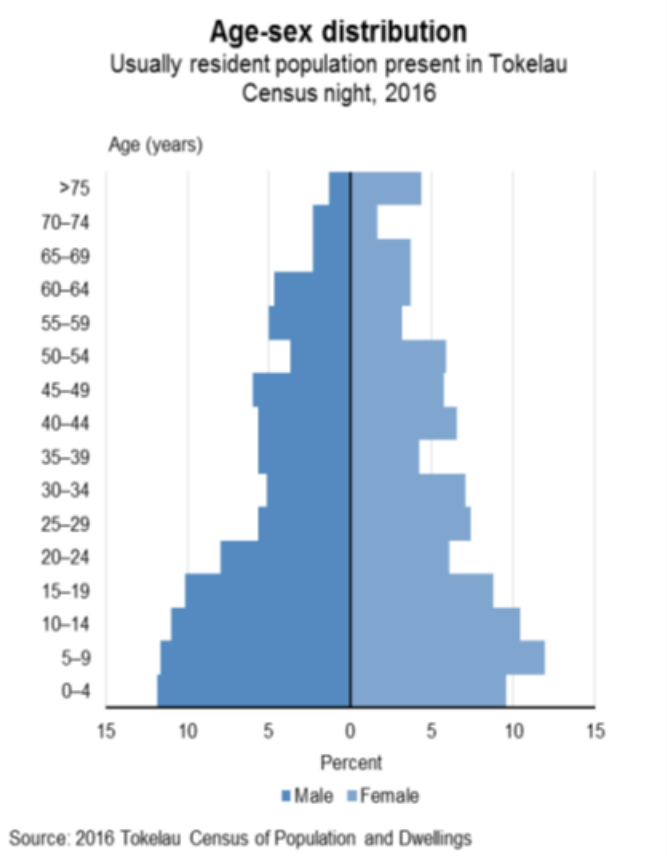
Tokelau consists of four small coral atolls Olohega, Fakaofo, Nukunonu and Atafu, situated in the southern Pacific Ocean. While Olohega is no longer politically linked to the Tokelau group, Tokelauans continue to lament their historical, cultural, geographical and spiritual connections with Olohega (https://www.tokelau.org.nz/). The southernmost atoll of Fakaofo lies roughly 500 km north of the Samoan Islands and 1100 km east of Tuvalu. With no air transportation, the only way to reach or leave Tokelau is by ship, usually from Samoa, which takes a minimum of 24 hours travel to the closest atoll (Fakaofo) and over 30 hours to Atafu, the most northerly atoll. The absence of a port means passengers and supplies are offloaded at sea and barges are used to tender people ashore. The isolation of Tokelau and lack of air transport on each atoll impacts delivery of health services, the challenges of which are reflected throughout our review findings.

Tokelau's atolls are approximately three to five metres above sea level and the combined inhabited land area is around 12.2 km2, making the land and its people particularly vulnerable to the effects of climate change. Climate change poses a serious and significant risk to health for Tokelauans. Erosion of limited arable land and coral bleaching affect the diversity of land-based produce and threaten the sustainability of marine food sources. Limited sources of fresh water are available and no surface water storage facilities or natural collection basins are present. Drought/dry spells are increasingly common and there is a growing reliance on imported goods and food stocks which have both economic and health impact for the nation. As with all countries in the Pacific, Tokelau is also threatened by natural disasters such as tropical cyclones which have become more frequent and intensive as a result of climate change. These natural disasters have widespread and devastating financial and health associated risks.

Population and Governance

The population of Tokelau has remained relatively stable over the years 2006 to 2016, from 1,151 in 2006 to 1,285 in 2016 (Tokelau National Statistics Office and Statistics New Zealand, 2016. This figure includes all residents, temporary residents and visitors present in Tokelau on census night. The most recent census in 2016 shows the resident population for each village was 506 in Fakaofo, 452 in Nukunonu, and 541 in Atafu (Tokelau National Statistics Office and Statistics New Zealand, 2016). The population pyramid (Figure 2) is characteristic of many Pacific countries with a broad base showing Tokelau's youthful population. The population structure narrows from the 35-39 age range and becomes particularly narrow for the 65+ age groups, with only 12.0 percent of the population being 65 years or older. The median age for the resident population in Tokelau on census night in 2016 was 25 years compared to 22 years in 2006 census.

Figure 2: Population Pyramid of Tokelau Population 2016



Tokelau is a Non-Self-Governing Territory of New Zealand, and seven thousand people of Tokelau descent live in New Zealand. However, they continue to maintain strong links to their families and villages in Tokelau. Tokelau's diaspora provide support as host families to their family members referred to New Zealand for treatment under the Tokelau Patient Referral Scheme (TPRS).

Tokelau family structures and processes play a key role not only in peoples' engagement with health systems, but also in structuring leadership and governance of health and other public services. The governance structure consists of an elected Council working through a General Fono (Parliament) and a hereditary Taupulega (Village Council of Elders) system. The head of the government of Tokelau (Ulu-o-Tokelau) rotates yearly between the Faipule (Leaders) of Tokelau's three atolls.

Spirituality and beliefs

Tokelauans laud themselves as God fearing people, entrenched in their Christian faith whilst upholding and maintaining cultural values and cultural practices gifted from their *tupuna*/ancestors (https://www.tokelau.org.nz/). All three atolls embraced the Christian doctrine and beliefs when missionaries from the Roman Catholic Church and the London Missionary Society arrived in the 1850s. Tokelau was first settled 1,000 years ago and oral traditions tell a history of the three atolls being largely independent while maintaining cultural similarities.

Worldview

Tokelauans have existed in three separate villages, decades before the interface with outside influences. As such, these kinship and village/atoll connections underpin identity, social, cultural, spiritual and political values and worldviews. These cultural and village links play a crucial role in the delivery of quality health services in Tokelau and need to be taken into consideration when co-designing a health system that is relevant, effective, efficient and sustainable for all Tokelauans.

Social systems

Tokelau's *inati* system ensures the basic needs of all members of each nuku/village/atoll are looked after. This cultural practice stems from the commitment of fore-fathers and current Taupulega of all three atolls to '*alofa ki te tama manu'*/look after those without the means to look after themselves. It is the equitable distribution of resources from health and education to food and some household items according to household numbers in the village. Tokelau's *inati* system has enabled Tokelauans to thrive despite the limited natural resources available to its people. This collective responsibility and communal existence is a contributing factor to the absence of beggars on each atoll because it is highly unlikely that any Tokelauan in Tokelau will go without food on any given day. The effect of the *inati* system, the cultural values and responsibilities associated with this custom on the role of Taupulega in ensuring an equal and equitable health service cannot be understated. In 2016 most people in paid employment were either salaried Tokelau Public Service members (47%) or village council workers (46%) (Tokelau National Statistics Office, 2017). The most common types of unpaid work were housework (92%), helping family members and caring for children from own household. While other forms of unpaid work such as teaching young people about cultural practices are also common, these were not captured in the 2016 census.

Health status

Like other Pacific Island countries, Tokelau has seen an unprecedented rise in 'lifestyle' or non-communicable diseases at a time when infectious diseases such as tuberculosis still exist. Combined with the health impacts of climate change, Tokelau can be said to be experiencing a 'triple burden' of disease. Cardiovascular disease, diabetes and cancer are already the leading cause of morbidity and mortality in Tokelau (WHO, 2014). With regards to mortality, the available civil registration records figures from 2014-2018 showed that 75% of all deaths for Tokelau were due to NCDs. Importantly, most of these deaths were premature as well as being largely preventable. The increasing burden of these diseases will continue to stretch an already compromised health budget, as well as incurring substantial costs to productivity, communities and individuals. Interventions are urgently needed to prevent or control these trends.

In the 2016 Tokelau Census, 51.3 percent of Tokelauans (aged 15+ years) reported they smoked regularly, a figure similar to the rate in 2006 (51.3 percent). As such, prevention programs are now a priority for each atoll and funding has been allocated to control NCD increases as part of the Department of Health's Strategic Plan 2016–2020 (Tokelau Department of Health, 2016).

It is difficult to determine whether Sexually Transmitted Infections (STI) are a concern in Tokelau as it appears no data is routinely collected across the population and there is currently no capacity to routinely test for HIV and other STI's antenatally as is the practice in other Pacific Island Countries.

Similarly, we were not able to find any up to date information on STI prevention methods. A STEPs survey conducted in 2014 showed, however, that on average only 35.5% of youth aged 13-17 had used protection during their last sexual intercourse and that 39.1% of students had engaged in sexual intercourse before the age of 14 (WHO, 2014). These results align with a second-generation survey of sexually risky behaviour among Tokelau's youth (aged between 15-24 and unmarried/not living with a partner) conducted in 2008. This survey found safe sex prevalence to be very low (Peseta, 2008).

The mental health status of Tokelau's youth has also been a concern in the past. A study in 2004 reported that there had been 40 attempted suicides and 6 fatal suicides over the period 1980-2004 and that 83% of fatal suicide cases occurred amongst young people (aged between 14-25) (Tavite and Tavite, 2009). Results from the STEPS survey in 2014 - which questioned young people between the ages of 13-17 about suicide and the perceived level of support that they received from their families to combat their problems and worries - were similarly alarming (WHO, 2014). While we were unable to obtain more recent data on youth mental health, it is unlikely that the situation has improved dramatically. Risk factors for poor mental health such as high rates of alcohol use remain prevalent today.

The next section explains the approach that was taken in this review, including the data collection methods, who participated, analysis and how findings are reported.

The Way the Review was Done

A Pacific-led, participatory and solutions-focused review was conducted. In collaboration with the people and Government of Tokelau, the review team engaged service users and health professionals to address the review purpose, objectives and key questions (the review's Information Sheet is provided in Appendix C).

Underpinned by the *Te Vaka Atafaga* cultural framework for health, the review centralised participatory, power-sharing processes, including solutions-focused workshops. Methodologically, a critical qualitative approach informed the review. In healthcare, critical approaches address power imbalances in relationships and organisations and as such can be used to change assumptions and expectations of practice especially those which have developed over time (Richardson-Tench et al 2014). By using a participatory approach, a co-creation of knowledge was encouraged where the review team and stakeholders, namely the predominantly Tokelau-based Steering Committee, worked together to design the review process. This included the Steering Committee agreeing to the detailed review plan. For complex health frameworks this method is highly effective and provides opportunity for groups to articulate, justify and assert their interests (Bergold & Thomas, 2012). Importantly, as the review was conducted by a team who are non-Tokelauan or Tokelauan not resident in Tokelau, the participatory approach helped to capture in-depth understandings of the local social, economic, cultural and spiritual context.

Data collection

Three Pacific island members of the review team (TK, TM & SF), including an allied health professional of Tokelau ethnicity practising in New Zealand (TK), met with just over 200 people on the three atolls of Tokelau over 21 days (Table 1). Researcher and development professional (HL) met with health officials from Tokelau along with other stakeholders in Apia, Samoa. Interviews and group discussions were held in Porirua and Wellington, New Zealand (TM, TK & MRM) and a

community workshop facilitated in Porirua (TM & TK). A health economist (MR) assisted the team with health financing aspects of the review. The majority of service-user interviews and also the workshops were conducted mostly in the Tokelauan language; other stakeholder interviews were mostly in English, although some were conducted in Tokelauan.

Criteria for Service-User Participants was that they:

1. Had been a recipient or a family member of a recipient of the TPRS in the period between July 2014 to June 2018;
2. Were willing to talk to a member of the review team about their experiences with the TPRS;
3. Were past recipients who had a mix of types of medical issues and who had both positive and challenging experiences with the TPRS.

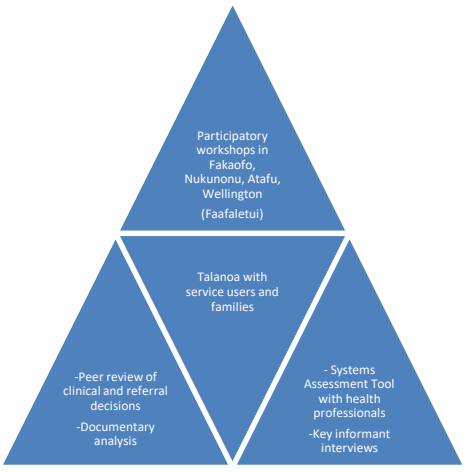
The review derived both quantitative and qualitative data from these multiple sources to provide data triangulation and robust evidence as a basis for the recommendations that follow. While the team spent time on-site at all the Tokelau hospitals and were provided with site-tours, providing a degree of triangulation, structured observation of clinical practice and services was not a part of the method employed for this review.

Table 1: Review Locations and Stakeholder Numbers

Village/location	Individual/group interviews (stakeholders, including health professionals)	Systems Assessment Tool with Health professionals	Community workshop	TOTALS
Atafu	19	6	52	AA = 77
Nukunonu	25	8	83	NN - 116
Fakaofo	27	5	14	FF = 46
Apia	8	-	-	Apia = 8
New Zealand	9	-	39	NZ = 48
Other	2	-	-	Other = 2
Total	**90**	**19**	**188**	**TOTAL = 296**

The range of data collection processes used for the review, including culturally responsive methods and tools, are summarised in the diagram below, and elaborated in the sections that follow.

Figure 3: Data Collection Processes Used for the Review



A return visit to each village, to present the findings and recommendations, was undertaken by team members (TM & TK) in October 2019. The review team was accompanied by two MFAT personnel and by the Director of Health. In each village, the review team presented to the Taupulega, and subsequent discussion with Taupulega mainly focused on clarifying aspects of the recommendations. In Fakaofo and Nukunonu the team also presented to the health sector. The team visited the hospital in Atafu, but the health workers were apparently not aware of our intended visit so a meeting did not eventuate; and, further, the review team had to depart Atafu earlier than expected as the ship needed to divert to pick up a TPRS patient in Fakaofo. In Atafu and Nukunonu, the team reported back to Fatupaepae and Aumaga as well. Taupulega Fakaofo decided they would brief their community on the findings and recommendations the following week. This final report includes updates in response to discussions and feedback received during the return visit and written feedback provided to the review team in the weeks following the visit. This review report, therefore, has undertaken two rounds of consultations with key Tokelau stakeholders.

Documentary analysis

Clinical and referral decisions peer review

A sample of clinical and referral decisions (n=10) was peer reviewed by clinician SF with cultural consultation and input by TK. Identifying information associated with specific cases was kept strictly confidential, consistent with the Massey University ethical guidelines.

Health data and policy review

A review of health data and policy gave an overview of the health of people in Tokelau. Documents consulted and reviewed are included in the References Cited and Consulted list preceding the appendices.

Key Informant interviews (n=89) and community workshops in Tokelau, Apia and New Zealand (Porirua and Wellington) (N=4) provided additional sources of information and data to complement the desk review information.

Interviews

Akin to qualitative semi-structured interviews, talanoa (Stewart-Withers, Sewabu, & Richardson, 2017; Suaalii-Sauni & Fulu-Aiolupotea, 2014; Tunufa'i, 2016; Vaioleti, 2006) with service users (patients and their families who have been recipients of the TPRS) provided rich narrative insight into the relevance, effectiveness, efficiency, impact and sustainability of the TPRS. Service users who were patients and/or family members were engaged; the interview guide is provided in Appendix D(i). The service users were invited to talk about their experiences with clinical services in Tokelau and with the TPRS, to highlight what from their experiences are the strengths and the weaknesses, and how services, policies and processes could be improved.

A range of other key informants were interviewed using a semi-structured qualitative format, provided in Appendix D(ii). These interviewees included stakeholders such as health service providers and public servants. All of the available medical officers currently employed by the Tokelau DoH were among the interviewees. In addition to the above, considerable insight was gained through informal conversations and daily interaction with key health sector stakeholders and observation. Because maternal cases are the second leading cause of TPRS referrals, an interview with an Obstetric specialist in the Samoan Ministry of Health was prioritised. The team gained useful insight into the barriers and issues related to the referral and receipt of TPRS clients within the

Samoan health system through discussions with the medical officer of St. Joseph's Hospital who was formerly a Manager at Motootua hospital.

Discussions and interviews with the Chief Medical Officer and the Pacific Health Unit of CCDHB were held, and telephone interviews were also conducted with relevant clinicians in Niue and Tonga. Following ethical principles for data collection (see section below on ethics), voluntary informed consent was ensured before each interview (Appendix E).

Systems Assessment Tool (SAT) with Health Professionals

The Systems Assessment Tool (SAT) was administered with health professionals in health services on Nukunonu, Atafu and, to some extent, Fakaofo. This tool was considered relevant to the Tokelau context because it was systematic but centralised collective processes within health settings. To inform Continuing Quality Improvement cycles, the SAT was designed to enable systematic assessment of a range of elements in health centre systems (Cunningham et al. 2016). It incorporates the guiding principles of the Innovative Care for Chronic Conditions (ICCC) Framework (WHO 2002): evidence-based decision making; population focus; prevention focus; quality focus; integration; and flexibility/adaptability. While the SAT was originally designed for assessing systems for chronic disease care, it has since been adapted for use in other key aspects of comprehensive primary care such as maternal and child health.

There are five components in the SAT with unique, mutually exclusive items for each component including: (1) Delivery system design (n=8 items) (2) Information systems and decision support (n=3 items), (3) Self-management support (n=2 items), (4) Links with community, other health services and other services (n=4 items) and (5) Organisational influence and integration (n=3 items). Item scores from which component scores were calculated were determined by teams on site, using a scale of values ranging from 0–11: the higher the score, the better the systems namely 'limited or no support' (0–2), 'basic support' (3–5), 'good support' (6–8) and 'fully developed support' (9–11). To assist consistency in self-scoring of items within each component, each item has a series of prompts for discussion.

The tool was reviewed by an experienced Tokelauan health professional and advice was given to the team on how the tool could be adapted for the Tokelau context. In Atafu and Nukunonu, the review team facilitated a process where the health staff discussed each statement, undertook scoring and discussed the justification for scores. In all instances, participants were asked to score individually before discussing a consensus score. Given the different levels – from managers to junior staff, it was assessed by the review team as unlikely that everyone would be able to influence a consensus score. For this reason, only individual scoring was completed in Atafu. In Fakaofo, due to time limitations beyond the review team's control (other meetings being scheduled), we did not complete all the components. Although there was agreement for individual scoring to be submitted to the review team before our departure, these were not received.

Community Workshops

Half-day workshops were undertaken on each atoll - Fakaofo, Nukunonu and Atafu – and in Wellington. The workshops involved multiple stakeholders and were informed by the review team's learning from service user experience (Donetto, Pierri, Tsianakas, & Robert, 2015; Piper & Lazar, 2018). The workshops allowed locally derived solutions to emerge, informing the recommendations of this report.

Analysis and reporting

Both quantitative and qualitative analysis has taken place to arrive at the findings and recommendations. Within the limits of the data, descriptive quantitative analysis of TPRS and epidemiological data has been undertaken. Quantitative analysis of SAT scores was also undertaken. The SAT summary scores were derived for SAT items by taking the average of individual team members' scores within the health centre. Scores for each of the five SAT areas were then derived by taking the average of its component items. Where available, team consensus scores for each item are also displayed within tables. With exception of the hospital in Fakaofo (due to minimal data recorded), average scores for each SAT component are displayed in radar plots (see Results Figures 4 and 5).

Alongside the analysis of quantitative data from the SAT process and other sources reviewed for this report, selected transcription, then rapid thematic analysis (Gale 2019), was undertaken of qualitative data. Analysis was, where possible, undertaken in the language the participant used, to best capture in-depth meaning and maintain integrity of the data. Group analysis of a sample of transcripts was also conducted, including the Tokelau review team member, allowing robust discussion about emerging themes and the implications for the review.

Rigour in qualitative approaches is demonstrated when reporting elevates the voices of participants, representing their perspectives and lived experience with authenticity, through the use of verbatim quotes (Gilgun, 2014). As this review was substantively qualitative (90 participants were engaged in qualitative interviews as shown earlier in Table 1), the findings in this report include selected direct quotes which the team felt were representative of wider stakeholder views. The quotes provide information rich data and illustrate themes emerging from the analysis. In some cases, to protect the identity of participants, we have aggregated a number of different individual experiences into a single story, which again represents the perspectives of many. When interviewees spoke Tokelauan, both the Tokelauan and the English translation of the quote are presented side-by-side (Tamasese et al, 2005; Temple, 2002).

Limitations of the review

Before we discuss the findings of this review, certain limitations should first be acknowledged. Our primary concern involves completeness of the data on morbidity and validity of diagnoses available on official databases. In particular, due to management across three countries, the data on TPRS clients is problematic. We have also been unable to get an accurate picture of TPRS costs at the individual patient level. The team were also not provided, despite several requests, with a copy of the agreements between the Department of Health and Taupulega on their various responsibilities in relation to health management. The recommendations provided in this review, are therefore made without the team having sighted that documentation.

A further limitation is the fact that certain key stakeholders were unavailable. The Medical Officer and Steering Committee member for one of the atolls were not on island during the fieldwork (a replacement for the Steering Committee was arranged for the fieldwork period). During the return visit, however, the review team had the opportunity to meet and have discussions with these key personnel.

In relation to the use of the SAT, some of the terminology and elements were not familiar to health professionals in the Tokelau setting. While a SC member with health expertise had provided

extensive feedback on the tool, and this was used to inform explanations of the components and elements, it is possible that the adaptation to the Tokelau context was not extensive enough. However, most of the findings reported here are derived from triangulation of a range of data methods and sources and do not rely solely on data gathered from the administration of the SAT.

Approach and Structure of the Report

The achievement of better health for the people Tokelau is best achieved by strengthening health and health systems in Tokelau. Without better clinical health services in Tokelau - including improvements in prevention and diagnosis – the TPRS cannot be effective or sustainable. For this reason, we have adopted the following logical framework for this report.

First, the report presents findings related to clinical health services in Tokelau, before moving on to present findings related to the TPRS. To present clinical health service findings we have used the components of the Systems Analysis Tool (SAT) - which has been proven to underpin health centre quality in 'remote' settings (Woods et al, 2017) - to structure our findings.

This approach will facilitate action to implement the review findings, as the DoH and Taupulega can use the SAT components as a framework to embed quality improvement, undertake self-review and set strategic targets in the years to come. This approach centres improvements in clinical health for Tokelau, in Tokelau. The DAC (Development Assistance Committee of the OECD) evaluation criteria referenced in the Terms of Reference for the review are woven into the SAT section. These evaluation criteria are: relevance, effectiveness, efficiency, impact and sustainability.

A discussion on the health financing follows and then related to this, a discussion on NCDs. This reflects the significance of NCDs as the main cause of mortality and morbidity for the people of Tokelau and answers the questions posed in Objective Three of the review terms of reference.

TPRS findings are then presented under the DAC criteria of relevance, effectiveness, efficiency, impact and sustainability. Voices of Tokelau stakeholders, including those of service users, are elevated through the use of direct quotes and small stories. The quotes and stories also offer Tokelauan interpretations of the five DAC evaluation criteria.

Recommendations to improve results from clinical health service delivery in Tokelau and through the TPRS are positioned within the discussion on findings and are also collated, along with their corresponding actions, in an Implementation Plan (Appendix A). We have also prepared results diagrams which show the relationships between our recommendations and Tokelau's aspirations for improved clinical services and a more efficient and effective TPRS.

In the Implementation Plan, some of our recommendations are assessed as high priority, while others are medium priority. It is our intention to provide recommendations that are positive and actionable and that build on the good work Tokelau has already done to improve health through its Health Sector Strategic Plan (2016-2020) and the many other strategic policies and plans that impact on population health. We are positive, that when taken together, these recommendations will make a sustained difference to the health of all Tokelauans.

The Findings of the Review

Clinical Health Services: An Experience

Consistent with the review approach of elevating service user voices, two stories are presented first to illustrate the types of challenges experienced by service users, which this review seeks to address.

"Ko au na hakili togafiti ki fafo fakafetai na manuia toe foki mai ki Tokelau. Ka ko te mea na tupu ko au t na pa ki te tulaga kua he mafai havali ki te falemai ki na hiakiga taki vaiaho. Ka ko na hiakiga takivaiaho e manakomia e au ki toku tauale. Na fakamakeke lava au i te tahi aho ke fano ki na hiakiga. Ka ko au na he fiafia oi popole foki aua e fanatu au, ko kite toku faila e tatia i luga o te laulau i te falemai e iei foki na tahi faila na ko kitea e tatala malie na tatitia fakatahi ma toku faila. Ka ko tenei ko tagata e eva ve, eva ve". [I returned post treatment from overseas but experienced mobility difficulties later on, hence I was unable to attend the weekly clinics. However I managed to get myself to the hospital. When I arrived I saw my file on the table with other patient files lying around, one was partially open. There were people around this area of the hospital and I was concerned whether village members can see my medical information and information of other patients due to files lying around].

Toku matua na mataloa lele to na tauale fatoa kave ai ki fafo. Ko te kavatuga lava tena na galo mai i ko. E he iloa pe ko ai te paku kiei na mea ve. He ki matou iloa pe hea te mafuaaga na galo ai te matua ke pa mai nei, he ki matou iloa he mea. Kita foki ve kua fakatalitonugata ki na fakaikuga e fai, io vena foki te tokalahiga o te nuku. Tuku mai, ko te falemai ko heki taitai pa ki he tulaga e mafai ke togafiti te lahiga o na tauale i kinei. Hove heiloga lava ke fakatotoga fakalelei te falemai oi fatoa mafai ai te lahiga ona tauale ke togafiti lava i kinei. Ka e mo te taimi nei, hoo he mea e kave ki fafo, kua fia ia fafine manavakiki e kave ki fafo kae ko ietahi e fananau i luga o te lualua". [My mother was sick for a long time before she was taken off island for treatment. She died there. We don't have answers; we don't know who is accountable. To this day, my family and I do not know what happened, what were the contributing factors to her death. There is a sense of mistrust, not just from my family and I, but amongst village members. The hospital here is still not fully equipped with resources and personnel to provide services so we just end up going off island for almost everything. There have been a significant number of mothers referred for delivery in Samoa and some end up giving birth on the boat]

Overview of Findings from the Systems Assessment Tool

The Systems Assessment Tool (Cunningham et al, 2016; Menzies School of Research, 2012; Woods eta l, 2017) was employed by the review team as a framework to analyse clinical health services in Tokelau. Table 2 briefly explains the SAT's components.

Table 2: System Assessment Tool Components and Items

Delivery system design	This component refers to the extent to which the design of the health centre's infrastructure, staffing profile and allocation of roles and responsibilities, client flow and care processes	1. Team structure and function 2. Clinical leadership 3. Appointments and scheduling 4. Care planning 5. Systematic approach to follow-up 6. Continuity of care

	maximise the potential effectiveness of the centre.	7. Client access/cultural competence 8. Physical infrastructure, supplies and equipment
Information systems and decision support	This component refers to the clinical and other information structures (including structures to support clinical decision making) and processes to support the planning, delivery and coordination of care.	1. Maintenance and use of electronic client lists 2. Evidence-based guidelines 3. Specialist-generalist collaborations
Self-management support	This component refers to structures and processes that support clients and families to play a major role in maintaining their health, managing their health problems, and achieving safe and healthy environments.	1. Assessment and documentation 2. Self-management education and support, behavioural risk reduction and peer support
Links with community, other health services and other services	This component refers to the extent to which the health centre uses external linkages to inform service planning, links clients to outside resources, works out in the community, and contributes to regional planning and resource development.	1. Communication and cooperation on governance and operation of the health centre and other community-based organisations and programs 2. Linking health centre clients to outside resources 3. Working in the community 4. Communication and cooperation on regional health planning and development of health resources
Organisational influence and integration	This component refers to the use of organisational influence to create and support organisational structures and processes that promote safe, high quality care; and how well all system components are integrated across the centre.	1. Organisational commitment 2. Quality improvement strategies 3. Integration of health system components

(Cunningham, et al, 2016; Menzies School of Health Research, 2012).

Figures 4 and 5 below plot the scores from the administration of the SAT in Nukunonu and Atafu respectively. In summary, the scores suggest that clinical services delivery strengths relate to delivery system design in both Nukunonu and Atafu hospitals, particularly clinical leadership and client access/cultural competence. However, a systematic approach to follow-up scored low across both hospitals. The scores suggest links with community was also a strength in Nukunonu. As for weaknesses, information systems and decision support rated poorly. Similarly, the self-management support component rated poorly as did quality improvement strategies within organisation influences and integration. The scoring suggests that there is poor integration of the health system components in Atafu.

Figure 4: SAT Component Scores for Nukunonu Hospital (includes average scores calculated from individual team assessments and scores derived from team consensus)

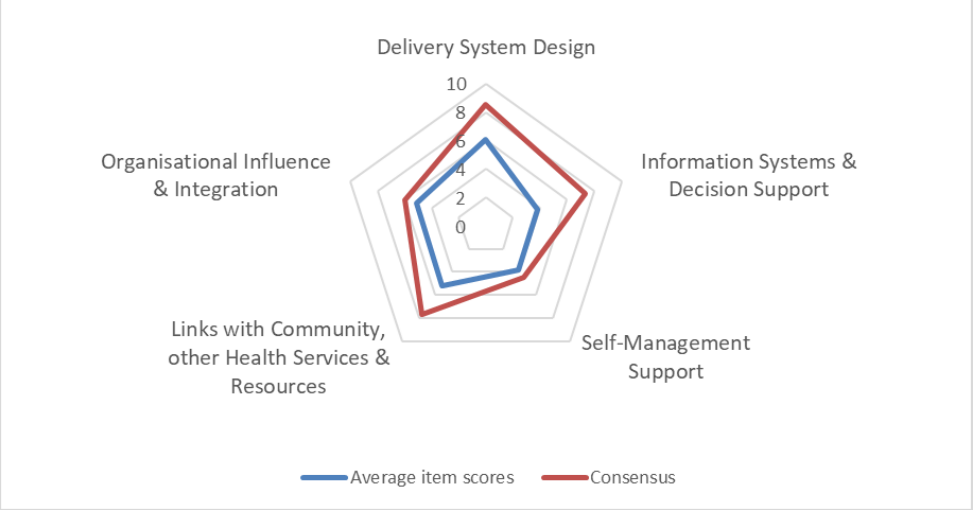
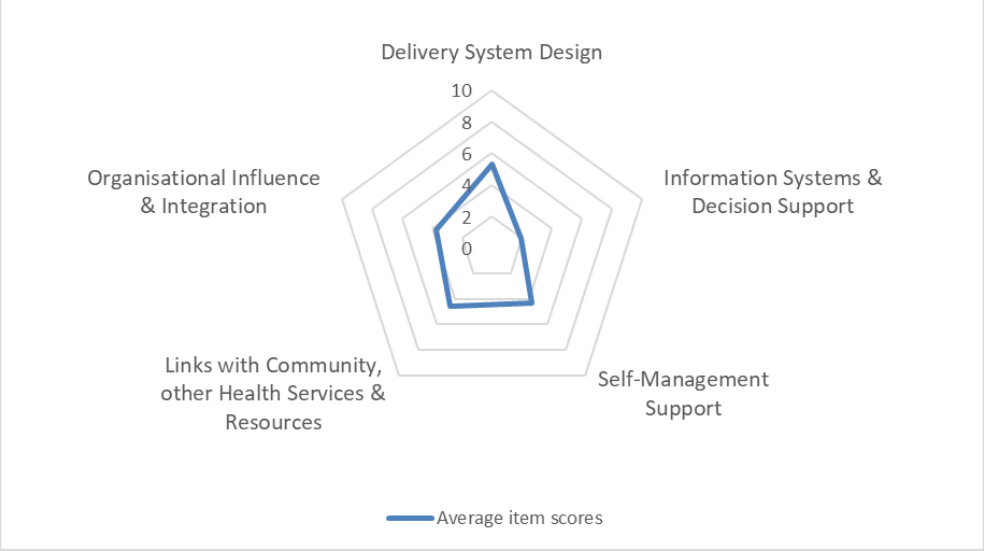


Figure 5: SAT Component Scores for Atafu Hospital (based on average scores calculated from individual team assessments)



The following sections elaborate on the five components in relation to Tokelau clinical health services delivery, drawing from a range of data sources (document review, individual and group stakeholder interviews, service-user interviews, community workshops and so forth).

1. Delivery System Design

Team structure, function and clinical leadership

He nofonofoga olatia, nautia e fakavae i te alofa, loto maualalo, fehoahoani, tuku avanoa, alofa ki te tama manu, pulepule lelei, fakamaoni, fealoaki, poupouaki ma te fakatuatua. Ko te fakavae takiala tena ki te fakatinoga o na tautuaga opo fakatahi a te Mataeke o te Ola Malolo ma te mamalu o na Taupulega o Fakaofo, Nukunonu ma Atafu aua ia Tokelau ke Ola.

The Tokelau common phrase "*he nofonofoga olatia, nautia*" is about existing together and relating to one another in harmony and hopefulness. The relationship between the DoH and the Taupulega of each village is at the core of enhancing and building a clinical health service that will benefit Tokelau today, tomorrow and in years to come. Essentially, this requires a relationship strengthened on a foundation of Tokelau values of love, humility, genuine support, equal opportunities, duty of care for all people especially those in crisis and without family support, respect, faith and support. These are all values that underpin the Tokelau National Strategic Plan. Our review findings show the need for a positive and mutually respectful working relationship between the DoH and the Taupulega of Fakaofo, Nukunonu and Atafu. In this context, following the *Te Vaka Atafaga* model of health, Taupulega have a governance role in relation to health and their oversight is crucial to enabling the kind of sustainable change that is needed to support the health outcomes that the people of Tokelau deserve.

Tokelau-wide health structure

Clinical health services in Tokelau are delivered via three hospitals, providing largely primary health care services:

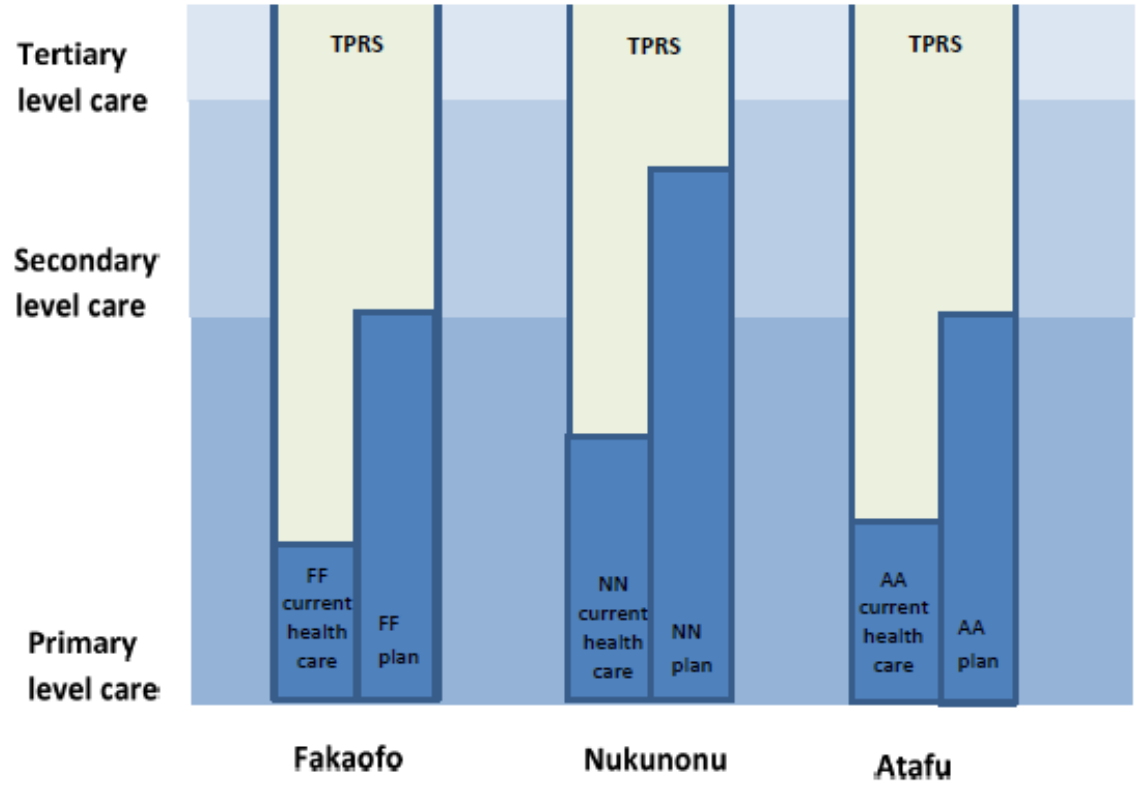
- Fenuafala Hospital (Tai) and a clinic facility (Fale), in Fakaofo
- St Joseph's Hospital, in Nukunonu
- Lomaloma Hospital, in Atafu

The hospital at Nukunonu (St Josephs) has been developed as a national referral hospital, following the recommendation of the 2014 health review, and is managed directly by the DoH. The clinical services for Fakaofo and Atafu are managed by their respective Taupulega. While Lomaloma Hospital in Atafu came under the of the DoH management following the previous health review, in 2019 Taupulega Atafu resumed management of the health services.

The unique situation and location of Tokelau has implications for the application of the definition of primary and secondary care. While the three main health providing infrastructures in Tokelau are officially 'hospitals', this does not equate to a service provider equivalent to a 'hospital' in New Zealand providing secondary level care in the usual sense. As conveyed by the one of the health professionals in Tokelau: "Tokelau only provides primary health care...secondary level care is a long way away".

The size of the population per atoll, and nationally, means it is not uncommon to have less than 15 consultations a day and during the team's visit there were no inpatients in two of the hospitals in a week, let alone any 'secondary level' care/procedures. At the most we could say some limited and very basic 'secondary level' investigative procedures are available such as some basic blood tests and a portable x-ray available in one of the hospitals (St Josephs). Other secondary level care such as basic surgical procedures or Caesarean Sections are not currently available. Clinical health services currently delivered in Tokelau, compared to that which is proposed in the Tokelau Department of Health Strategic Plan 2016-2020 (hereafter referred to as DoH Plan), are depicted in Figure 6 below.

Figure 6: Levels of Clinical Health Services Delivery in Tokelau and through TPRS: Current and planned (as per the DoH Plan)



The General Fono agreed to convert St Joseph's hospital into a national referral hospital, following the 2014 health review completed by the consulting firm Litmus. This direction is followed through in the Tokelau Department of Health Strategic Plan 2016-2020 (hereafter referred to as DoH Plan). At the time of the initial fieldwork in January 2019, the hospital was not yet fully operating as a referral hospital, although plans were that the hospital would offer some surgical services by 2020. When the team returned in October 2019, however, the surgical theatre at St Josephs was operational. A specialist eye team was in-country at the time and had used the facility.

Our review heard mixed views within Nukunonu on their hospital being a referral hospital. Concerns were expressed about the impact on the Nukunonu community if a referral patient from another island was to pass away while being treated there; there were also concerns expressed about the spread of infectious diseases. Outside of Nukunonu, there was concern that resources were directed towards St Josephs, while Lomaloma and Fenuafale were not adequately resourced. The concern about lack of equipment and resourcing at Atafu, was reportedly one of the reasons for Atafu seeking to take back the management of Lomaloma. The review teams' observations during the January 2019 visit confirmed the variance in the way the different hospitals were resourced. By October 2019, however, Fenuafale was operating in the new 12-bed facility and procurement of furniture and equipment had been newly acquired (much of which was the same as St Josephs, for example, the portable x-ray machine).

While centralisation of health services was also recommended in the 2014 review, Fakaofo never agreed to this and the General Fono agreed Fakaofo would continue to manage their own health facility, in alignment with the 2004 public service reform which devolved public service management to the respective Taupulega. At the time the review fieldwork was being conducted, the Atafu Taupulega decision to similarly assume management of their hospital had already been agreed by

the General Fono, and negotiations were underway between the Taupulega and the DoH on the details of the transition. It is acknowledged that Taupulega Atafu and Taupulega Fakaofo have clearly asserted their desire to have health services at their hospitals to be delivered to a higher level. These Taupulega were concerned that they had not received adequate support from the DoH in areas such as equipment and professional development opportunities for staff in their hospitals.

Proposed medium term clinical services in the three hospitals

Our review proposes that in the medium to long term, clinical health services in the three hospitals could be scoped according to that presented in Table 3. These are based on the review and observations of the number of consultations, available monthly reports, mortality and morbidity data, staff and technical capacity, human resources, and build on the aspirations outlined in the DoH Plan.

Table 3: Current and Proposed Medium Term Scope of Services

	Nukunonu	Fakaofo and Atafu
Current scope of clinical services	Primary Health Care (and limited secondary care investigative procedures)	Primary Health Care
Proposed scope of clinical services for the medium term	• Full primary health care level services • Basic dental procedures • Routine maternal care • Basic secondary level surgical procedures including Caesarean Sections • Basic Ophthalmology procedures (visiting teams)	• Primary Health Care • Normal deliveries • Limited surgical procedures including simple fractures not requiring intubation for general anaesthesia • Basic dental procedures • Basic ophthalmology procedures

The review team is of the view that all hospitals need to have a raised level of service. While it would be difficult to recruit medical and surgical specialists to be based in Tokelau, generalist and non-specialist medical and health staff having access on site to appropriate basic imaging and laboratory capacity would suffice to manage a significant number of cases. For example, a leading cause of TPRS referrals were for maternity cases due to unsure dates of gestation and error in clinical assessment of foetal presentation that could be addressed by a general doctor with basic imaging facilities. Generalist doctors with a diploma in obstetrics or practical experience in obstetrics would normally be capable of performing a Caesarean Section in Nukunonu which has been equipped to provide general anaesthesia. It is noted the Medical Officer in Atafu has a Postgraduate Diploma in Obstetrics and Gynaecology, and it would be ideal if a Medical Officer in each hospital had capability in this respect. Simple fractures that do not need invasive surgical intervention such as fractured fingers have also been referred under the TPRS. In the medium term, a higher level of service could be established at St Josephs to capitalise on developments to date and to trial inter-atoll referrals in light of recent inter-island transport improvements.

Health workforce in Tokelau

Each hospital is staffed by one Medical Officer, a Nurse Manager and a number of nurses. Since the 2014 health review, and in alignment with the DoH Plan, nurse aids have been replaced by qualified nurses at each hospital. Having trained health professionals is part of the DoH Plan (the organisational structure of healthcare in Tokelau is provided in the appendices of the DoH Plan). At

times there have been difficulties securing ongoing availability of Medical Officers (MOs), and at the time of the review, three out of the five doctors were contracted from the Pacific region.

There is no evidence, however, that Tokelau is "under-doctored". Tokelau's ratio of doctors and nurses is above that of other countries in the region including New Zealand (Table 4). Several stakeholders observed that the range of procedures done on island has changed, stating for example that Caesarean Sections had been performed in previous years: *"Ko na aho ie, na e fai uma lele i kinei na togafitiga ma takotoga ni", ka ko te taimi nei ko te lahiga o na tauale kua kave ki fafo"* [Treatment and operations were done here back in the day, but now most patients are taken off island for treatment]. This comment reflects the expectation we heard from a range of stakeholders, that there be a higher-level of health service delivery in each village, with the required equipment and skilled professionals to enable this.

Table 4: Qualified Health Staff/Population ratio, Tokelau and regional Pacific countries

Staff Category	**Doctors**	**Nurses**	**Dentists**	**Pharmacists**
Tokelau	5	20	0	0
Ratio of staff per 1000 population				
Tokelau (2018)	3.87	15.56	0	0
Samoa	0.27	0.75	0.03	0.016
Tuvalu (2009)	1.08	3.60	0.18	0.18
Tonga (2010)	0.56	3.67	0.22	0.04
Niue	2.58	8.39	1.94	0.65
New Zealand (2009)	3.07	10.99	0.58	0.73

Where there is a gap in the health workforce, it is in paramedical staff including pharmacy, laboratory technicians and dental staff. While the DoH have advertised for a pharmacist, they have been unable to fill the position. At the time of the review team's visit to Tokelau, the dental staff consisted of two dental therapists at Nukunonu, and one dental nurse at Atafu. A qualified dentist in Atafu is sometimes contracted for specific dental work. A community member stated: *"Kua kino lele na nifo o tamaiti ma tino matutua foki, manakomia ni togafitiga e fai kiei". "Maumau ke fakamuamua te alofa ki tagata a nei e fakataunuku lava i kinei"* [Dental of children and adults is currently poor, treatment is required, this service can be provided here if love for the people was at the fore]. The importance of oral health in childhood cannot be over-stated. Not only can the majority of dental problems be prevented, but good dietary and dental hygiene practices established in childhood are likely to continue to adulthood.

Human resources capacity development is already a priority within the DoH Plan which has identified areas for recruitment and training of personnel. The proposed scope of health workforce requirement for the medium term in Table 5 workforce for Nukunonu is lower than that proposed in the DoH Plan. As referred to above, the ratio of medical staff per population in Tokelau is the highest in the Pacific and, in terms of doctors, on par with the New Zealand ratio and higher than the New Zealand ratio in terms of nurses per population. We have recommended 6 nurses for Fakaofo. Nurse Practitioners, Midwives, general nurses, diabetic nurse, and MCH nurses are all qualified nurses from nursing school who a are qualified to look after hospital clients and patients. Fakaofo and Atafu, in fact the whole Tokelau's, have 15 times more nurses than Samoa, 5 times more nurses per population than Tonga and Fiji and more nurses per population than New Zealand. The number of nurses per shift is determined by the shift with daytime shifts needing more nurses than night shifts and week end shifts as everywhere else globally. Diabetic nurses are not supposed to spend their whole day or afternoon on diabetic patients given there will not be enough work to do.

We agree that the isolation faced by Tokelau and lack of on-hand specialist support does provide some rationale for a higher ratio but the DoH Plan proposal for three specialists and one registrar for Nukunonu alone may be over ambitious and expensive. South-South Cooperation with neighbouring Pacific islands countries to share expertise has proven successful in Nauru and other Pacific islands. This experience could pave the way for Tokelau to establish MoUs with neighbouring Pacific islands to provide short term locums and to mentor local recruits as well as establish attachments in Samoa, Fiji and Tonga for Tokelau recruits trained in the above specialities. Ultimately, there is an ongoing need for satisfactory workforce planning and career opportunities in order to retain health graduates in Tokelau.

Allocation or roles to maximise nurse specialist training and skills in the Fakaofo health service would improve effectiveness and impact of the clinical health services. For example, if a nurse has maternal and child health specialist training, then it would make sense to coordinate the roster and the antenatal clinics so that nurse could be part of that service delivery. Improved human resource practice and management, more generally, would help address this.

Table 5: Proposed Scope of Health Workforce Requirements in the Medium Term

	Nukunonu	Fakaofo and Atafu
Current scope of clinical services	Primary Health Care (and limited secondary care investigative procedures)	Primary Health Care
Workforce requirements for the medium term scope of services	• General surgeon who is capable of doing Caesarean Section (x1) • Generalist who is capable of giving general anaesthesia (x1) • Theatre nurse (x1) • Annual Overseas Medical Team visits • Nurse practitioner x1 • Midwives x1 • General nurses x3 • NCD nurse x1 • Pharmacist x1 • Laboratory Technician x1 • Radiographer x1 • Dentist x1	• Generalist with a diploma in obstetrics or higher or experience in obstetrics x 1 each for Atafu and Fakaofo • Dental technician x1 each for Atafu and Fakaofo • Six monthly medical visiting team from Nukunonu Referral hospital and • Annual overseas medical Teams • Nurse Practitioners x1 each • Midwife x1 each • General nurse x 2 each • Diabetes nurse x1 each • MCH nurse x1 each

Sexual and reproductive health

Screening services for men and women such as cervical screening, mammography and screening for prostate cancer were not provided routinely in recent years, but some screening services are currently being rolled out and the DoH has appointed a National Coordinator for Integrated Sexual Reproductive Health Programs. A cervical screening service - using the visual inspection with acetic acid (VIA) method, which is appropriate to low resource settings - was provided across all three atolls in November 2019, with the assistance of a technical specialist on-island. While the introduction of the HPV vaccine is an effective strategy to reduce the risk of cervical cancer and other diseases, it is yet to be offered in Tokelau. Therefore, alongside planning for the introduction of HPV into Tokelau's immunisation schedule, the cervical screening programme being implemented is a positive step taken by the DoH.

Previously, women with symptomology were sent to Samoa for pap smears but Samoa's national health service has not had a full-time pathologist available to read cervical smears for some time now (although we understand one will be returning from post-graduate studies in Fiji this year). As a result, Tokelau women must wait in Samoa - sometimes for several weeks – while their cervical smears are analysed in New Zealand and Australia.

Awareness and screening for sexually transmitted diseases is being planned or early 2020. Refresher training in the detection of prostate cancer through rectal examination should also be offered to medical officers in conjunction with training on cervical screening.

As noted in the previous sections on clinical services and health workforce, ante-natal women with pregnancy complications are currently not able to be adequately managed in Tokelau. In 2018, there were five deliveries at St. Joseph's Hospital. A number of pregnant women are sent to Samoa as early as 28 weeks to wait out the remainder of their pregnancy and to deliver at the hospital in Apia. According to the Obstetrician we spoke to at the Samoa Ministry of Health, however, women who are at risk of pre-term labour before 30 weeks should be sent straight to New Zealand as the hospital in Apia struggles to provide adequate care for very premature babies.

Teamwork amongst health leaders

Teamwork - fostering partnerships through collaboration, coordination and cohesion – is a principle the DoH is guided by and committed to in the DoH Plan. The DoH have assisted in securing health staff in Fakaofo when the Taupulega managing the hospital needed assistance. Such teamwork in securing appropriate health staffing is central to improving clinical health services delivery. Moving forward, recruitment and staffing will need careful coordination and cooperation between the DoH and the Taupulega, regardless of the whether the facility is run by the DoH or the Taupulega.

Teamwork at the hospitals

Our review found that within each hospital, teamwork amongst clinical staff and team cohesion varied. At Nukunonu, for example, staff reported there was effective communication and cohesion amongst health staff. At Fakaofo and Atafu, however, teamwork, communication, cohesion and clinical leadership had been less than ideal at times during the review period of 2014-2018. At the time of our fieldwork visit, the Deputy Director Clinical Services role had been in place for just six months and it is unclear what impact this is having on clinical leadership on the ground. While personality issues has likely contributed to some of the team dynamic issues, mechanisms to support strong clinical leadership and health governance would also improve teamwork and clinical leadership. As part of ongoing human resource management, job description review and performance evaluation will promote strong clinical leadership at various levels within the system.

Developing team members' skills and roles is an area needing more attention in all hospitals. Discussion on how this might be achieved is provided in a later section (Organisational Commitment). Some of the recommendations are already identified in the DoH Plan or discussed, which are again highlighted (such as the recruitment of a pharmacist and laboratory technician) and serves to emphasise its relevance and critical contribution to team structure and function.

In respect of teamwork across hospitals, the review team identified the Forum, which makes recommendations on TPRS referrals, as a mechanism through which medical officers could build collegiality and share experiences. There is currently very little engagement between nurses at different hospitals, and the establishment of a Tokelauan nurses association (discussed later under Quality Improvement Strategies), could provide a platform for greater engagement.

Recommendations Related to Team Structure, Function and Clinical Leadership	
Recommendation 1	Fill gaps in health workforce in Tokelau
Recommendation 2	Implement screening programmes

Appointments and scheduling

All of the hospitals operate for 24 hours a day, and there is usually no need to wait for service, given the relatively low numbers seeking health services on any given day. Appointments and scheduling did not therefore present as a pressing issue in the Tokelau context. Of note, in regards to the effectiveness of follow up, is that Tokelau has a 100% immunisation coverage. All three hospitals, also operate routine clinics at scheduled times. Routine clinics include a focus on NCDs, reproductive and child health. While there are also home visits made, an observation by one stakeholder however, despite the health services undertaking home visits, was: *"E iei na hiakiga taki vaiaho mo na tino e maua i te huka, toto maualuga ni, ka e fakaalofa na tauale kua he mafai ke havavali ki te falemai".* [There are weekly clinics for patients with long term conditions but patients who are not mobile miss out]. Systematic feedback needs to be sought by hospital management to help them self-review if their services are meeting changing village health needs. This is addressed by recommendations in Section 2 - Information Systems and Decision Making.

Care planning, follow up and continuity of care

Care planning and follow up is undertaken by health professionals. Given the small population size, health workers and patients acquaint in community settings and so follow up can also be tracked manually and initiated in non-clinical settings. Both care planning and follow up, however, could be strengthened through best practice guidelines developed for the Tokelau context. The MO in Nukunonu reported during the return visit in October 2019, noted that numbers attending NCDs clinic was low, so had started giving only 1 month supply of medicine, to encourage more to attend clinics and there were plans to create a community nurse role to further assist with follow up and continuity of care. Care planning should also consider the communal cultural context and include the involvement of family. Consistently effective continuity of care was constrained by the absence of electronic clinical records. The lack of electronic clinical records meant, for example, that a new locum or health professional may not have good access to clinical histories. As one service user commented:

> *I have three different files here. For example, when Dr X came to [village], I came to the hospital. He couldn't find my file or any notes about my previous appointment that same year, so made a new file for me. When Dr Y came, he also made a new file. There's no continuation which makes it easier for the doctors to make excuses, like the patient never came to the hospital.*

Continuity of care is particularly constrained by the lack of electronic records when patients receive care across three countries under the TPRS. For patients returning from being overseas on the TPRS, health professionals reported that they are usually not provided with clinical records or notes. Better systems for storing and sharing clinical records are needed. Fully utilising Medtech and addressing recommendations under the Information Systems and Decision Support section would begin to meet this need. However, Apia based TPRS staff, as well as personnel dealing with TPRS patients in New Zealand, should also be able to update cloud recording systems so patient information is easily shared for improved efficiencies.

Client access and cultural competence

Health services are highly accessible for the people in Tokelau - a clear strength of Tokelau's clinical health services. The health services are within walking distance, are staffed 24 hours a day and there are limited or no wait times. In the case of Fakaofo though, the people live between two islands: Fenuafala is the original settlement where the Taupulega office is located, and Tai is where the hospital and primary school are located. Staff and patients therefore commute between the two islets via boat, and accessibility may therefore become an issue in bad weather. The Fakaofo hospital has an outboard motor boat and employs a boat driver, while Nukunonu and Atafu both have road vehicles to transport patients to and from the hospital or to transport health workers to undertake home visits. In the case of hospital road vehicles, community members raised concerns about misuse of the vehicles for non-hospital activities and about the unsuitability of the vehicles for transferring patients with mobility issues. These issues of inefficiency and accountability will need to be addressed.

Cultural competency is essential for high quality health care (Bloomfield & Logan 2003). While most health workers overall are Tokelauan, accessibility to health services was identified as an issue where there were contract health workers who were not fluent in Tokelauan or did not speak Samoan. Many Tokelauans understand the Samoan language as Samoan religious texts and hymns have been used since evangelisation by Samoan missionaries occurred in Tokelau more than 150 years ago; the translation of the Bible to Tokelauan has only occurred in recent decades. Furthermore, Tokelauans are familiar with Samoan since Samoa is Tokelau's access point for overseas travel and many national government functions operate out of the Tokelau office located in Apia, Samoa. The issue of language barriers was raised principally in Nukunonu, where there are only two nurses of Tokelau ethnicity, and did not surface as an issue in our consultations in the other villages. The way in which language barriers can inhibit quality service provision is illustrated by the following statement: *"Kua iei na teine fomai paahi mai fafo i te taimi nei ka ko te lave, ko te tokalahiga o tagata e he malamalama i te Igilihi, kua he olo la ki te falemai"* [There are qualified non-Tokelau clinicians but a significant number of people speak limited English, so they choose not to go to the hospital]. It was reported in Nukunonu, however, that the then MO (who has since resigned) had effective skills in explaining diagnoses and medications, was also professional and respectful, and Samoan speaking, had improved the patient uptake of health services and the overall patient experience.

Accessibility for different groups

Consideration of whether health services are accessible for different parts of the community is needed. A positive initiative instigated by the MO and team at St Josephs, was to run health checks for groups. This included, for example, men coming in groups for a consultation with the MO (who was female) to check blood pressure and so forth and for discussions on health literacy. Community feedback suggested that this initiative was a suitable way to address men's health.

Young people interviewed for this review felt, however, that the services provided did not always meet their needs. They were particularly concerned about confidentiality when accessing services (for example, in Atafu, consultations took place under the veranda, in ear shot of the waiting area) and this acted as a barrier to achieving good sexual and reproductive health. Mental health services were also lacking - a situation which needs to be urgently remedied given past survey's pointing to high rates of mental distress amongst young people in Tokelau and the continued presence of risk factors in this population such as high rates of alcohol consumption.

All health centres/hospitals should, therefore, develop a plan for ensuring health services are youth-friendly, and implement a mechanism for systematically gaining feedback from young people on the youth-friendliness of the services.

Recommendations Related to Client Access and Cultural Competency	
Recommendation 3	Ensure health services are youth friendly

Physical infrastructure – facilities, medical equipment and pharmaceuticals

Hospital facilities

Physical infrastructure development for health has taken place as part of the Tokelau government infrastructure development planning and is also specifically addressed in the DoH Plan. There was a noticeable variance between physical infrastructure in the different hospitals. While St Josephs in Nukunonu had been developed in Phase One infrastructure development, the Fakaofo and Atafu hospitals buildings were part of Phase Two. The new Fakaofo hospital building was completed in 2018 and at the time of the review team's visit in January 2019 the 12-bed facility was not being utilised since it had yet to be outfitted. The Fakaofo Taupulega had expected that the funding would cover furniture and outfitting (as was the case with the primary school infrastructure development), however they had dedicated funds to contribute to some outfitting. The Fakaofo hospital was therefore operating from two small houses with a 1-2 bed in-patient capability in January 2019. When the team returned in October 2019, the hospital was operating from the new facility and new equipment and furniture had been procured (see medical equipment section below). The Atafu hospital has not yet undergone infrastructure development. There is a need to maintain and upgrade basic furniture at Lomaloma hospital in Atafu; and to maintain well the hospital boat in Fakaofo.

Medical equipment

Medical technologies have a critical role in the delivery of health services. For improved efficiency and sustainability, a national policy covering hospital equipment is needed. Effective operationalisation of a hospital equipment policy is especially important given the management of the hospitals by three different entities. This equipment policy could include how to deal with donations of equipment that may be inappropriate.

In Tokelau, all hospital equipment is imported and the majority of hospital equipment is purchased through EBOS International, arriving directly from New Zealand. An EBOS contractor, based in Fiji, is engaged by the Department of Health to assess, service and develop an inventory of existing hospital equipment in Tokelau (Appendix G).

The review found a certain degree of fragmentation, and no clear focal point with overall responsibility for the purchasing, maintenance and management of hospital and medical equipment at the time the fieldwork was undertaken. This seemed to have contributed to a wide variety in medical equipment being ordered, some of which had never been used, was no longer working or not currently used elsewhere in the Pacific. A case in point is the Drawover anaesthetic vaporizer (which is not usually used at Pacific islands hospital operating theatres) and which the current anaesthetist has no familiarity with or has used previously. A recent positive move has seen the Chief Clinical Advisor put in charge of identifying appropriate medical equipment for the operating theatre. The establishment of an Essential Equipment List in all three hospitals will be critical for the Chief Clinical Advisor to operate effectively in this role.

The new equipment sited in the Fakaofo facility during the October 2019 return visit demonstrates commitment by the Taupulega to support health service improvement. At the time of that visit, however, the equipment was not operational given that the power supply to the facility was not sufficient for the operation of the new equipment. A generator had been procured to deal with the issue of low voltage. Hospital equipment has been underutilised and, in some instances, unutilised

for long periods due to lack of appropriate staff and monitoring. For example, a dental compressor, a portable air rotor, a hot water system, and a centrifuge, all brand new and still in boxes were in a storeroom in Fakaofo hospital during the initial fieldwork. These scenarios highlights the need for a national policy and national coordination to support the purchasing, maintenance and management of equipment.

Often diagnostic equipment is available but not being used as consumables such as cartridges take long periods to arrive or have limited expiry dates requiring frequent software updates. This is a challenging task due to geographic isolation and infrequent use. This is the case with the I-Chroma (Tumour Marker) which has yet to receive cartridges ordered 3 months previously. There has not been regular national monitoring of hospital equipment assets and equipment maintenance. The Fiji branch of EBOS International periodically conducts an assessment and servicing of the hospital equipment. While there has been communication pertaining to individual requests from hospital staff for hospital equipment, regular monitoring or policies on the purchasing and servicing of hospital equipment are lacking. It is encouraging that the DoH has now commenced the initial step of reviewing individual hospitals' equipment assets (a summary is provided in Appendix G). This will be critical as basic secondary level surgical procedures (such as laparotomies or Caesarean Sections) will not be able to be carried out safely until medical and surgical equipment is available to support such procedures.

Tropical conditions also impact the life span of medical equipment and this needs consideration in the purchasing of medical devices. This is particularly so in the Atafu and Fakaofo hospitals where we observed that medical equipment (both emergency and routine) was not operational, not maintained or was missing. There is a need to upgrade all general ward furniture including beds, refrigeration, as well as selected specialised furniture. The Nukunonu referral hospital for example did not have a delivery bed at the time of the fieldwork - a basic need for a primary health care delivery setting.

Table 6: Proposed Medium Term Scope of Services and Equipment Requirements

	Nukunonu	**Fakaofo and Atafu**
Current scope of clinical services	Primary Health Care (and limited secondary care investigative procedures)	Primary Health Care
Proposed scope of clinical services for the medium term	• Full primary health care level services • Basic dental procedures • Routine maternal care • Basic secondary level surgical procedures including Caesarean Sections • Basic Ophthalmology procedures (visiting teams)	• Primary Health Care • Normal deliveries • Limited surgical procedures including simple fractures not requiring intubation for general anaesthesia • Basic dental procedures • Basic ophthalmology procedures
Equipment requirements for the medium term	• Upgrading of current x-ray facility • Portable scan and ultrasound • Current laboratory facilities including creatinine, cross matching facilities	• Portable x-ray • Fulfil the asset needs tabled in the Tokelau health asset inventory of February 2019 except an anaesthetic machine.

Recommendations Related to Client Access and Cultural Competency	
Recommendation 4	Improve ordering, supply and maintenance of hospital equipment

Pharmaceuticals

Pharmaceutical supply emerged in the review as one of the key challenge for clinical health service delivery. Medicine expiry and short supply were issues raised by service users as illustrated in the following quote: "*Ko na fualakau e expire, e teki lava lea mai kua he iei ni mea. E inu lava aua kita e fia ola, oi fakatali ai lava ke pa mai te tahi ota".* [Even though medication is expired, I take it because I want to live and at times they have run out of medication, so I just have to wait for the next order].

The DoH has implemented *mSupply,* a computerised inventory control system. Despite this, there was limited indication of a regular stock take or close monitoring of drug usage. Oversupply of certain drugs was evident, and some these we assessed were not 'essential'. There are suggestions that there are limitations in choice of drugs received which often leads to radical revisions in disease management especially when a single drug is no longer supplied. This has implications for drug interactions especially in patients with NCDs and experiencing multimorbidity. The DoH does not have a Pharmacist or Pharmacy Technician. Ordering is usually designated to nursing staff but is not necessarily undertaken in close consultation with the medical officer. In the absence of a qualified pharmacist, a medical officer could be more involved in overseeing the ordering of pharmaceutical drugs.

To achieve better oversight of pharmaceuticals, a Drug and Therapeutics Committee (see http://apps.who.int/medicinedocs/en/d/Js4882e/13.html) could be established to:

1. Formulate and implement policies for selection and use of drugs:
    i. to annually review the Essential medicine list for Tokelau and to align with the products that are in the New Zealand (Pharmac) Pharmaceutical Schedule
    ii. to develop and implement standard treatment guidelines
    iii. to carry out drug utilisation reviews
    iv. to provide prescribers with objective drug information
    v. to monitor and analyse expenditure on drugs.
2. Carry out educational and other activities aimed at improving prescribing and dispensing practices in the hospitals.
3. Monitor adverse drug reactions.
4. Monitor medication errors and act to prevent their recurrence.
5. Regulate operations of the pharmaceutical industry in the hospitals.

Discussions between the Tokelau DoH and personnel in New Zealand towards with an arrangement with Pharmac are ongoing and this should be pursued. Tokelau's childhood immunisation programme vaccine supply is via the UNICEF regional procurement programme. This has been successful over the years except that the Human Papillomavirus (HPV) vaccine has not yet been received due to administrative delays between UNICEF and Tokelau and potentially also a problem with supply. For the small population of Tokelau, and as New Zealand citizens, there is urgent need to order and receive HPV vaccines from New Zealand. The introduction of HPV vaccination for boys and girls is critical if Tokelau is to avoid the high rates of cervical cancer reported from other Pacific countries (Foliaki, Best, Akau'ola, Borman and Pearce, 2011).

Recommendations Related to Pharmaceuticals	
Recommendation 5	Improve pharmaceutical supply and management

2. Information Systems and Decision Support

A comprehensive health information system should be the sustainable core of any health system. One stakeholder commented: *"E talitonu …e mafai e na toeaina oi fai na tonu lelei kafai ko na fakamatalaga uma e tuku mai ke fai ai na tonu"* [We are confident that the elders can make good decisions provided they are provided with adequate and comprehensive information that will enable them to make informed decisions]. Given different management of hospitals, good coordination of information systems and information sharing is critical to sustain quality health services across Tokelau.

It is clear to us that there is a lot of work needed to develop and sustain a more effective Tokelau health information system. MedTech, the system for ongoing data collection and analysis, is lacking, and the data available is difficult to verify for completeness and accuracy. For example, dates of discharge are often recorded as preceding the date of admission to the TPRS and the absence of a diagnosis is a frequent occurrence in TPRS cases.

The coding of diseases for morbidity and mortality is not adequate and often vague in its application. It is not only essential to collect good data on demography, morbidity and mortality, but it is also important that such data can be linked, in order to conduct analyses, for example, of survival. The inability to keep track of patients' records undermines transparency and monitoring. The development of the Medtech is encouraging but this is hardly used and the staff or the health sector in general are not well equipped to utilise this useful tool. Using a system which is dependent on internet access is costly and will be potentially unsustainable if current internet costs do not curtail as a result of the new cable expected in 2020. It would be advisable to institute a robust manual filing system across all hospitals to complement Medtech.

Across the health sector, there is a lack of suitable data for making decisions about priorities in health service delivery, disease management, health promotion, monitoring or public health policy. An important aspect of ongoing data collection and analysis is to have systems in place to ensure the completeness and accuracy of the data, since any results produced from incomplete or inaccurate data will be of questionable value. An audit of the health information system of the DoH on a regular basis will be important to ensure continuing high quality data collection, analysis and valid interpretation.

Data sources and quality

The data used for this report relied on data that is routinely collected as part of a health collection system. This include morbidity and mortality data from hospital and DoH reports. Hospital morbidity data gives an indication of the burden of serious morbidity in a population but does not capture a true picture of the burden of disease prevalence given people may not attend hospitals for a number of reasons. Periodic community based surveys referred to below would capture such information. A further source of data is for the Tokelau Patient Referral Scheme (TPRS). Collating TPRS clients' information has been problematic with critical information for analysis not being available including referral and final diagnosis as well as basic demographic information such as the age and sex of patients.

Training and auditing of health information protocols could ameliorate most of the deficiencies in disease classification and data management.

Linkage of data from various sources

The team observed that there were no unique identifiers in many patients' records and a significant number had no specific identifying numbers/codes; and in some cases, different full names for an individual presenting more than once. It is important that in future, all health records include a unique identifying number (UIN) to ensure that each person in Tokelau has one (and only one) which is accurately recorded on all of their health records. Given the relatively small population of Tokelau, ideally, it should be possible to link UIN numbers to census records in order to be able to make the fullest use of the UIN numbers, and the census information, to investigate demographic differences in hospital admissions, morbidity and mortality information. There is merit in Tokelau aligning with the New Zealand National Health Index (NHI) system as Tokelauan's are New Zealand citizens and this would potentially better facilitate data linking between Tokelau and New Zealand health information systems.

National Health Surveys

Specialised surveys are a key to determining the true burden of disease prevalence in the population. The Tokelau NCD Risk Factors STEPS Report of 2005 and 2014 are among these and has collected very useful data on NCS and their risk factors. Participation in similar such surveys is important to ensure the continuation of accurate determination of disease prevalence in Tokelau. A further source of data is the published Profile of Tokelau: 2016 Tokelau Census of Population and Dwellings and the 2011 and 2006 Census.

The picture of morbidity that is obtained from studying hospital admissions is very different to that which would be obtained from community surveys, since not all diseases or disabilities result in a hospital admission. Furthermore, hospital statistics are strongly influenced by access to health care, and some people may not to go to hospital, either through choice, circumstance or availability.

In many areas of health (e.g. diabetes, obesity, cardiovascular disease, mental health) there is a need for specific population surveys to determine the prevalence of the conditions in the community, the need for health services, and what proportion of the population in need is currently obtaining access to health services. This information is an absolute prerequisite for determining policy on disease management and prevention, and for monitoring the success (or otherwise) of interventions. Given the relatively small population it would not be too difficult to conduct such surveys with a vast majority of the population as has been the case with the STEPS surveys.

Previous research has been on non-communicable disease with an emphasis on diabetes, cardiovascular diseases and related metabolic disorders. There has been relatively little research into other equally important disease entities such as mental health and palliative care. Among the evolving issues related to health are climate change, pollution, water and sanitation. In particular, the marine environment's role in food sources, the fishing industry and the economy are areas needing strengthening. It is also important that any research both learns from the successes and avoids the mistakes of the past. In particular, it is crucial that research in Tokelau is not yet another opportunity for "research colonialism" and that data collected is owned by Tokelau and analysed appropriately for planning and evaluation purposes.

Evidence-based practice guidelines

Evidence-based practice guidelines are underutilised across the three hospitals. St Joseph's had undergone some improvements in infection control, which is part of preparedness for anticipated opening of the surgical theatre there. The MOs consulted for this review also routinely access online practice guidelines; wider use of online resources is currently impeded by internet access.

Emergency practice guidelines were put in place by the nurse manager in Atafu, following emergency training she had attended.

New Zealand Primary Health Organisations have access to 'health pathways' – a comprehensive suite of evidence-based clinical practice and referral guidelines. These should be adapted for the Tokelau context, particularly since all nurses and MOs undertake their training outside of Tokelau, including for some in New Zealand where clinical practice is quite different. More systematic use of evidence-based practice guidelines, such as the health pathways adapted for the Tokelau context, would support sustained quality clinical health services delivery.

Decision support is challenging in the Tokelau context with, usually, only one MO per hospital and limited opportunities to consult on clinical diagnoses. Telemedicine presents opportunities for better decision support.

Telemedicine

The DoH has commenced work on developing a telemedicine proposal, given the expected improvement in internet access with a new cable operational in 2020. Early investigations show $10-$20,000 investment per hospital for hardware could be required, in addition to personnel training and management costs. A comprehensive telemedicine plan, including technical and management requirements, needs to be finalised and properly resourced. Internet access is pivotal and as explained earlier, constrains quality clinical health services. Improvement in telecommunications overall in Tokelau is an important precursor to improving links with external health services and expertise to benefit Tokelau peoples' healthcare.

Recommendations Related to Information Systems and Decision Support	
Recommendation 6	Improve data collection, management, analysis and knowledge translation capacity
Recommendation 7	Improve clinical decision support through telemedicine and evidence-based guidelines

3. Self-management support

Self-management support is when health professionals and services work to ensure people with long term health conditions, including non-communicable diseases, have the knowledge, skills, confidence and support they need to manage their condition(s) effectively in their everyday life (see https://www.healthnavigator.org.nz/clinicians/s/self-management-support-introduction/). This is an aspect of clinical practice which should be developed in Tokelau, given the rising incidence of non-communicable diseases. The term "self-management support" as a central, strategic part of health care, was not familiar to most health professionals we spoke to. Involving patient's families improves self-management education and support, and given the communal Tokelau cultural context, is likely to prevent some chronic condition complications and therefore reduce the demand on the TPRS.

The positive role that traditional medicine and home remedies can play needs to be better valued and integrated into healthcare in Tokelau. Individual and family responsibility for healthcare, rather than reliance on bio-medical interventions as a first step, and the use of natural medicines should be further explored.

Recommendations Related to Self-Management Support	
Recommendation 8	Improve self-management support and use of holistic/traditional health care where appropriate

4. Links with Community, Health services and Other Services

Each hospital's links with community and health and other services are important in the Tokelau context, especially as the hospitals are the only health service on-island. The referral scheme (TPRS) provides an essential avenue for hospital service-users to receive secondary and tertiary level services not available on-atoll. Our review found that improving hospitals' coordination with community, health services and other services will have benefits for clinical health services delivery in Tokelau.

Links between hospitals and villages

Stronger links and cooperation between village management and the hospitals are needed, particularly in Nukunonu and Atafu, where the Taupulega were not managing the hospital. Village inspections, for example, which nurses had previously led for public health purposes, were reportedly no longer routinely undertaken. Community members expressed concern about the risks to public health with the lack of monitoring of stagnant water providing breeding grounds for mosquitos around the villages. For example, one stakeholder commented: *"Kua he iei lele ni ahiahiga e fai ve ko na aho, ka havali koe i te auala ko na sink e sauga, lahi te namu ko te fenua kua he tumama ma fai fakalelei"* [Village inspections are now a thing of the past, you can smell stench from peoples drains when you walk through the village, there's plenty of mosquito breeding areas, the village is not clean, it's not maintained properly].

While there were public health assistants employed by the DoH, they were more focused on NCD activities such as exercise and nutrition and had little background knowledge in health topics to adequately carry out public health duties in the community including responding to health queries. As such, there was concern that that the public health knowledge that nurses had was not being fully engaged to benefit village health. Several stakeholders suggested that stronger partnerships with relevant community groups – such as Fatupaepae – are a means for making sure community programs have a positive health impact.

Stronger, more effective links, could be achieved through more active Village Health Committees, ensuring health professionals are contributing as members to share information. In Nukunonu, none of the clinical hospital staff are members of the Health Committee. While St Josephs is officially a national referral hospital, it is also the only health service for Nukunonu. For this reason, the review team sees benefit in the Doctor and the Nurse Manager being members of the Nukunonu Village Health Committee. Village Health Committees could facilitate, for example, quarterly health reports (written and verbal) to the Taupulega. In this way, Taupulega are kept well informed on village health concerns and will be better placed to carry out their governance role in relation to village health services. Such links can provide avenues for hospitals to gain systematic feedback on whether their service is satisfactorily meeting community needs.

Village Health Committees in all three villages are established, but were not optimally functional, as gathered from consultations with health committee members. The Fakaofo Health Committee produced a terms of reference and draft village health plan. The Atafu Village Health Committee tended to meet ad-hoc in response to issues. The Nukunonu Health Committee had met occasionally and, according to a member interviewed, had been focused on public health activities such as Lakapoto, a village exercise initiative.

Visiting clinicians

Visiting clinicians are an avenue for improving links to external resources to strengthen clinical health services delivery in Tokelau. Work on health corridors as part of the Pacific reset could include development of these avenues (see Appendix H). The current Memorandum of Understanding (MoU) with CCDHB caters for visiting specialists and states that the relationship may include: Specialists to provide clinical assistance and advice for Medical Officers in Tokelau through phone calls and emails, visiting medical teams (for example, eye team, breast screening), visiting specialists/consultants, and opportunity for capacity development of Tokelau clinicians.

Even if funding is available for specialists teams to visit and conduct secondary and/or tertiary level medical procedures in Tokelau it is clear that such an exercise would not be feasible given the lack of support services needed for these visits such as appropriate laboratory, radiology, intensive or post-operative services. Neither would such visits be cost-effective given the total number of cases anticipated to benefit from a medical team visiting time frame which would be a week or two. On the other hand, the number of cases referred to Samoa for debridement of diabetic related wounds and eye cases would benefit from public health-oriented teams including specialist nursing teams and eye specialist teams (see also section on TPRS effectiveness) who could conduct training and some basic procedures not necessarily requiring intensive care level support or general anaesthetics. Consideration could be given to how the Health Corridors initiative that is currently under development could open ways for New Zealand to share expertise and programmes for culturally informed NCD programmes, women's health and mental health. Screening services not fully developed in Tokelau could also be covered by visiting clinicians where relevant including cervical screening.

Recommendation Related to Links with Community, Health Services and Other Services	
Recommendation 9	Improve coordination, planning and information sharing between villages and hospitals
Recommendation 10	Strengthen environmental health as part of public health delivery

5. Organisational influence and integration

Organisational commitment

Vision

The DoH Plan provides a solid a vision for "a healthy Tokelau – today for tomorrow" with an appropriately focused set of targets towards achieving this vision. At the hospital level, however, there was little awareness or ownership amongst leadership of health strategic and business plans and how these could be engaged to support improvements in local clinical health services.

Relationships

Our review also found that village leadership, the respective Taupulega, places a high priority on healthcare and has a genuine commitment to the health and wellbeing of their people. Fragmentation of the health system, however, is a challenge. The constraint is less that the hospitals are managed by different bodies – the DoH or the Taupulega – but more that there is a lack of trust and dialogue between some key stakeholders. Health is a site in which power struggles and tensions between traditional and modern structures and leadership have played out. Such dynamics have

directly, and indirectly, constrained quality clinical health services delivery and created inefficiencies. A stakeholder commented:

> "I tried to implement [a health programme] there and share it with them [but] it will depend on their Taupulega whether they to do it or not… it's been a challenge to try and implement the programmes."

On the other hand, a different stakeholder reported:

> "Sometimes when there's [health] programmes from the government, they just go straight to the NGOs without information… [to] the Taupulega, there's missing communication… They can't achieve their purpose without the support of the Taupulega and the people that works for the Taupulega".

The need for good working relationships, was summarised by yet another stakeholder:

> *"E manakomia lele te fehoahoani a te Mataeke ki te Taupulega ite fakatinoga o na galuega i te falemai. "Vena foki te manakomia e te Mataeke o te fehoahoani a te Taupulega i tana pulepule lelei ki na polokalame a te Mataeke".* [The Taupulega needs the support of the Department to run the hospital and the Department needs help from the Taupulega for health initiatives and programmes].

A health compact or MoU was suggested by the 2014 health review, in order to promote streamlined and united health leadership and shared accountability for improving health outcomes among stakeholders. Unfortunately, there had been no action on that recommendation. While various parties must humbly take responsibility for their part in any relationship breakdown, the review team suggests re-setting the relationship foundation for a collaborative and effective partnership that will sustain good quality health services for Tokelau. After a suitable relationship-building process, a Health Compact could then affirm a way forward.

Face-to-face dialogue, to build trust, improve collegiality, and to leverage the respective of knowledge and skills of DoH national staff and Taupulega members, was catered for in the devolution of the public services to Taupulega. The 2001 Commission of Inquiry recommended that departmental Directors should visit and meet Taupulega on a quarterly basis, and that these visits be a job requirement in their employment contracts. The Review term heard that on-island visits are not happening with such regularity and are of the view that this has contributed to poor communication and a lack of coordination between the Department and Taupulega. Village visits by Senior DoH staff will facilitate better relationships between the Departments and the Taupulega. Apart from face-to-face visits on island to dialogue with village leaders, health talks around General Fono meetings, are also important mechanisms Taupulega representatives and senior health staff can meet to progress health plans, share information and seek to collaboratively address health issues.

Recommendation Related to Organisational Commitment	
Recommendation 11	Improve working relationship between the Department of Health and Taupulega

Quality improvement strategies

Embedding quality improvement into day to day running of clinical services and health systems is a shift which will fundamentally improve clinical health services delivery in Tokelau. Currently, there are inadequate mechanisms for dealing with errors and problems in clinical and healthcare practice. This vacuum means that if service users, community members or even staff have concerns, it may not get heard or dealt with in a way which promotes learning. An independent and fair process is needed to deal with grievances or complaints and to maximise learning.

Accountability can be enhanced through good quality reporting and feedback. Given the governance role which Taupulega have for both Fakaofo and Atafu, hospital managers (Nurse Managers and MOs in particular) need to provide regular reporting to both their Taupulega and the DoH. The Taupulega need to be well informed about local hospital operations as well as about national and regional health developments, in order to make good governance decisions. Taupulega also need to ensure that records are kept well. A report from one hospital indicated that 50% of outpatient consultations in 2018 did not record the age of the patient.

A further way in which quality improvement can be embedded is with the establishment of a Mortality Review Committee. The purpose of such a committee is to review systems impacts and learning surrounding deaths. Mortality review should also include review of any TPRS patients who pass away whilst under the scheme. A system for reporting and learning from "near misses" would also be important. Developing a learning culture within the Tokelau health system will go a long way towards improving clinical health services delivery in Tokelau.

A health professionals' Registration Framework developed by the DoH is a positive step forward. Although not available for the review team, The Registration Framework should help protect the public by ensuring health professionals are properly qualified and credentialed and by providing processes for maintaining minimum clinical practice standards in Tokelau. Typically, ongoing professional development of health professionals is a key component of professional registration systems. Professional associations provide networking to counter professional isolation due to geographical remoteness and, importantly, learning and development opportunities to continually improve clinical practice. The formation of a Tokelau Nurses Association could be encouraged, with mutually beneficial links with the Pan Pacific Nurses Association (https://www.ppna.org.nz/) and the South Pacific Nurses Forum (http://www.spnf.org.au/).

Health professionals' clinical skills and knowledge could also be enhanced through internships and the use of short training awards. Given the relatively small number of patients seen by clinicians, exposure to build experience and confidence in various procedures (for example to perform a caesarean section) could occur via short term internships under the CCDHB MoU or the Samoa Ministry of Health MoU being developed.

Recommendations Related to Quality Improvement Strategies	
Recommendation 12	Develop ongoing quality improvement, a learning culture and better performance accountability
Recommendation 13	Strengthen the health workforce through professional development strategies such as internships, training and professional associations

Integration of health system components

The organisational structure for health ought to be revisited, to ensure the structure is congruent with the scale of the health service for the population. Some stakeholders questioned whether the current structure is too top heavy given the size of the population being served.

Clinical Health Advisory

Links with clinical and health expertise from the Region could support the strengthening of clinical service delivery and the overall health system in Tokelau. Consideration could be given to establishing an independent Health Action Committee (potentially supported through the Health Corridors work that is currently under development) to provide technical advice to the Taupulega and the DoH. The Health Action Committee could also play a monitoring and auditing role and in this way act as a 'critical friend' to Tokelau's health sector. A draft terms of reference for the Health Action Committee is included as Appendix H.

Recommendation Related to Integration of Health System Components	
Recommendation 14	Improve clinical governance and clinical specialist support

Improving clinical health services quality in Tokelau through strengthening the components discussed above (delivery system design, information systems, self-management, links and organisational influence and integration) is important given the increased incidence of NCDs. The next section discusses health financing, which then leads to a discussion on the growing burden of NCDs for clinical health service delivery in Tokelau.

6. Health Financing

Funding required to deliver adequate levels of health service

Overview

Tokelau's Gross Domestic Product (GDP) for the 2015/16 Financial Year was NZ$ 14 million. This equates to US$ 6,275 per capita and is roughly 1.5 times the per capita GDP of Samoa, Fiji, Tonga and Tuvalu. The Tokelau economy is dependent on two major financial resources: Aid from New Zealand and income from the fisheries license fees for access to the Tokelau Exclusive Economic Zone. Actual income in 2014/15 was NZ$ 8.4 million, estimated to be NZ$ 24.8 million in 2015/16 and was budgeted at NZ$ 14 million per annum thereafter (HIES 2015/16 Report).

During this period, total health expenditure (excluding TPRS expenditure) more than doubled from NZ$702,910 in 2014/15 to NZ$1,688,521 in 2017/18 (+986k). This was driven by growth in labour costs (approx. $650k), IT/internet (+$74k), office costs (+$55k), airfares (+$45k), allowances/hospitality (+$26k) and medical costs ($19k). Approximately $400k of these costs were accumulated through taking on management of Atafu and Nukunonu health services. At the same time, the expenditure for the TPRS more than doubled in the 12 months from 2016/17 to 2017/18, rising from NZ$426,045 in 2016/17 to NZ$1,056,976 in 2017/18(+$630k). This was driven almost entirely by growth in expenditure on accommodation (+$300k), meals and incidentals (+$251k), airfares (+$48k) and medical (+$23k).

Many of these cost drivers are not directly associated with increased healthcare provision but may reflect modernisation and implementation of facilities and systems needed to coordinate good

health. Where, for instance, one-off investments in IT systems to collect and manage data are incurred this is likely to be money well spent (a national health financing platform with clear criteria to guide prioritisation of local and national health interventions was recommended by the 2014 health review but had not yet been implemented), but care should be taken to ensure health costs are not inflated without concurrent improvement in health delivery.

From 2014/15-2015/16, Village hospital costs (Table 7) are included within village budgets and are not reflected in the Health expenditure lines. In 2016/17-2017/18, Atafu and Nukunonu allowed the DoH to manage their health expenditure, and this is part of the decline in village-level expenditure and rise in national expenditure over this period ($400k transferred from villages to department expenditure).

Table 7: Village Health Expenditure $'000 with % of total village spend in brackets (all figures are approximate due to rounding)

	2014	**2015**	**2016**	**2017**	**2018**
Atafu	296 (10.9)	257 (9.9)	256 (7.5)	11 (0.2)	17 (0.5)
Fakaofo	156 (5.2)	192 (6.8)	157 (4.5)	318 (7.2)	318 (8.6)
Nukunonu	181 (7.2)	244 (9.4)	164 (5.1)	37 (1.0)	9 (0.3)

Other health expenditure or resources not captured in these tables includes medivac costs borne by the Transport Department, and donations from actors other than the Tokelauan government.

Funding levels

Determining the funding required to deliver adequate levels of health services is a difficult task in the Tokelau context. Limited epidemiological and economic data is available, with a lot of variation suggesting consistency or quality issues. Data for when individuals access health services, or the costs of providing those services are unavailable. We do not know how many clinics, consultations or other health service events occur, nor what is provided within those events. Health service demand can be estimated, drawing on TPRS 2014-2018 and STEPS 2014 datasets (Tokelau, 2005; Tokelau, 2014), but this is very complex.

Data does exist as to the supply of health services, with the health workforce, infrastructure and capital assets well documented. Unfortunately, utilisation of these services as well as data on consumables such as pharmaceuticals, labs, diagnostics and dressings are not available. Without data, the team is restricted to drawing conclusions from data provided in summary tables and published reports, or that collected during fieldwork.

Within the data we had available, several themes regarding the funding requirement of healthcare in Tokelau reoccur:

1. **Adequacy** of healthcare, meaning the people of Tokelau are satisfied with their level of care and equivalency across villages;
2. **Data** standardisation and collection is limited, meaning evidence-based decision making and planning is challenging. This is especially true for Epidemiological data, where limited understanding of NCD/health need change over time means financing is difficult to plan;
3. **Distance,** both domestic and international, creates extra costs and limits the mobility of patients and health services;

4. **Dispersion** of Tokelau population makes centralising services technically challenging and politically complicated;
5. **Procurement** planning, from pharmaceutical supplies and medical equipment to labour and capital projects is challenging due to lack of systems, delegation of responsibility and the uncoordinated role of non-Tokelauan actors who donate or discount health inputs to Tokelau without coordinating or planning for their use.

These themes point to the challenges and key considerations for health financing. Drawing on these, we recommend that health financing is enough to provide:

- **Health governance/administration:** Management, co-ordination, systems, planning, analytics, national infrastructure, national health programmes (e.g. public health), consultant contracting.
- **Health delivery:** Local infrastructure, sufficient resourcing to provide routine care, emergency medicine and timely identification of patients who require TPRS.
- **Patient transfers:** Sufficient funding to allow all Tokelauans to access definitive care for illness or injury in either Samoa or New Zealand, including transport and provision of resources to maintain good health and wellbeing while abroad.

It is difficult to estimate what funding is required to deliver these services, especially in the absence of quality data or resources for significant field work including epidemiological and economic investigation. One way of estimating the funding required is to look at what similar Pacific countries are spending as a proportion of GDP, and then allocate some additional spending to compensate for the logistical challenges. Table 8 below shows a range of health expenditures as a percentage of GDP from 2013 to 2016. When looking at Pacific nations, there is wide variation of expenditure, from 3.5% (Fiji) to 11.9% (Tokelau). Even without the TPRS, Tokelau's health expenditure as a percentage of GDP is near the top for Pacific countries and well above the average for the region.

Table 8: A Range of Health Expenditures as a Percentage of GDP from 2013 to 2016

Current health expenditure (% of GDP)					
Country	**2013**	**2014**	**2015**	**2016**	**Average**
Kiribati	9.5	10.0	7.8	11.9	9.8
Fiji	3.5	3.6	3.6	3.5	3.6
Nauru	7.3	8.8	11.4	11.1	9.7
New Zealand	9.4	9.4	9.3	9.2	9.3
Vanuatu	4.2	3.5	4.2	3.7	3.9
Samoa	6.2	6.2	5.7	5.5	5.9
Pacific island small states	5.2	5.3	5.3	5.3	5.3
Other small states	3.8	4.0	4.7	4.8	4.3
High income	11.8	12.0	12.4	12.5	12.2
Middle income	5.3	5.3	5.3	5.4	5.3
Low income	5.5	5.6	5.7	5.6	5.6
World	9.5	9.6	9.9	10.0	9.8
Tokelau (Incl. TPRS)		10.3	11.1	14.2	11.9
Tokelau (Excl. TPRS)		6.3	8.3	11.2	8.6

Source: World Bank Group (2019)

Given these values, it seems reasonable to recommend Tokelau budget approximately 9% of GDP for health delivery, and an additional 3% for the TRPS scheme, which would translate to $1.26m and $0.42m respectively in 2016 (actual figures were $1.57m and $0.42m).

Understanding adequate health service

Definitions of adequate healthcare have had a long and well debated past. Societal expectations and cultural differences are important to understanding what constitutes adequate healthcare for a population. What people consider adequate is also determined by how much resource is available, so the overall budget provides context within which an adequate level can be negotiated. Some suggestions for adequate healthcare include:

- Reflects the priorities of the population who use the healthcare;
- Provides care for routine illness or injury;
- Provides timely and effective pathways to definitive care.

Many definitions of adequate healthcare come from the United States, where insurers and policy makers determine what should be offered in 'minimum' or 'basic' insurance packages. One particularly clear definition includes "physician services, inpatient and outpatient hospital services, laboratory and roentgenogram services, prescription drugs, institutional care for the elderly and mentally or physically disabled, dental services, early and periodic screening, diagnosis and treatment services, family planning services, home health and personal care services, and other medically necessary professional services" (Tallon, 1989). Applying population-expectations to each of these service areas would be a reasonable approach for understanding healthcare adequacy.

Were we to define adequacy for Tokelau as an access issue across these areas, we would find many services provided by families, religious organisations and communities, outside the formal health service (e.g. personal care and services, mental health support), others inside the health service at the village level (e.g. physician, prescription), some through TPRS (specialised inpatient hospital services) and others at mixed levels depending on complexity (e.g. laboratory, imaging, diagnostics). Drawing on the fieldwork findings, while there are some services which could benefit from inclusion inside the health service, and some which need improved planning and delivery (e.g. pharmaceuticals), it seems that the current level of health care for Tokelauans approximates adequate healthcare given the priorities, expectations and challenges of the Tokelau context.

Understanding cost drivers

The Tokelau health service appears to face a very different cost profile compared to other island nations due to isolation and being dispersed across the three atolls. This creates two major cost drivers which are difficult to match to comparable cases:

1. **Fixed cost** is a term used for costs which do not change if volumes change (in the short term). An example of fixed costs is the hospital facilities on each island, where the cost of maintaining these facilities varies little regardless of patient volume. For Tokelau, the need to provide a minimum and equitable standard of healthcare to each village requires fixed costs (building costs, minimum equipment, medical staff, and support staff) which are divided by a relatively small population base and there is little that can be done to reduce their budget impact.
2. **Logistical costs** (to providers and patients) both within Tokelau and between Tokelau and specialised health facilities (Apia, New Zealand) are large budget items which are not faced by many other comparable Pacific nations.

Fixed costs are particularly important when considering the health governance/administration costs, with current Tokelauan health governance/administration being scalable to much larger populations

with little additional resourcing. They are also important when considering providing adequate health service provision, again because the resources needed to meet acceptability, equivalency and adequacy tests for each village, resulting in significant underutilisation of health resources which could scale to service larger populations at low additional cost.

The over-capacity due to the dispersed nature of Tokelauan healthcare means that variable costs for routine procedures are comparatively low, with the large exceptions of logistical costs and providing specialist care. This includes inter-atoll transport and, more significantly, international logistics with the TPRS scheme through to Samoa and New Zealand. Logistical costs arise when individuals are unable to receive definitive care within the local resources available, and are required to either:

- Be transported to receive definitive care (either between atolls or internationally);
- Have resources transported to them; or
- Remain in place and receive sub-optimal care.

These logistical costs are significant given both domestic and international logistical challenges, which means that local hospital specialisation and health industry agglomeration benefits are difficult achieve due to the high logistical costs offsetting any agglomeration benefits, including accessing international health services (e.g. Samoa, New Zealand).

A further significant concern for the economics of Tokelau's healthcare service is the potential for administrative and political decisions to result in wide variation of health service costs. For instance, the decision on the support provided through the TPRS, or the decentralisation of health service provision in Tokelau both have cost implications which are difficult to predict or manage. Finding contractual agreement over protocols and policies which ensure stability is likely to be more important for allowing predictability and planning of the health budget, and overall improving the health economic position of Tokelau.

Balancing the desire to provide definitive care for all illness and injury within Tokelau against high costs per capita and resource under-utilization creates a complex problem for health officials and budget pressure disproportionate to island nations which are more centralised or face less tyranny of distance. However, with technological advances, careful planning and good quality data collection, these costs can be mitigated or planned for. Clearly, efficiencies can and should be sought where possible. Using data and technology to achieve these and understand future budget need is also important. However, the relatively low overall cost of providing healthcare despite these challenges is likely best managed by acceptance, careful planning and forecasting to ensure that budget is well signalled, and efficiencies are protected by contractual agreement between parties.

Budget impact of the growing incidence of NCDs

As noted, despite strong signals indicating the growing incidence of NCDs amongst Tokelauans, there remains little data available to estimate current and future prevalence and incidence of NCDS. This lack of data makes accurately predicting the budget impact of growing incidence of NCDs difficult and addressing this gap through the introduction of standardised electronic record keeping is recommended to enable better quality epidemiological and economic analysis to inform policy, planning and resource deployments.

Of NCDs in Tokelau, while there is mention of the five major NCDs[1] in various reports, only the prevalence of diabetes and CVD appear to have received significant epidemiological attention. The two main sources of data, STEPS 2005 (Tokelau, 2005) and 2014 (Tokelau, 2015), suggest an increase

[1] Cardiovascular disease (CVD), respiratory disease, cancers, diabetes, mental illness

in risk factors associated with CVD, and some of these are also associated with increased risks of cancer and respiratory illness. This has led to the assumption of large increases in the proportion of the population with NCDs and subsequent budget impact.

Given the available evidence all points to a rise in NCD prevalence and incidence, there will be a non-negligible budget impact from increased health service demand, especially where illness is poorly managed or progresses to requiring offshore healthcare through TPRS. However, Tokelau has a comparatively small population. There are limits to the number of people who are at risk of developing NCDs and even large percentage changes may have a comparatively small impact on the headcount of individuals suffering from NCDs. Growth rates may also decline as the Tokelauan population reaches a ceiling on the adoption of practices associated with higher risk of NCDs.

Further compounding the difficulty in undertaking budget impact assessment, the cost-profile of treating NCDs in Tokelau is different from that in many countries due to relatively low/fixed labour and infrastructure costs, procurement agreements (e.g. donated/discounted pharmaceuticals) and high transfer costs. The data to estimate the cost of providing event-level health care in Tokelau is not currently available, though could be collected with extensive field work. Again, the importance of electronic record keeping and adopting common accounting standards should be stressed.

To evaluate budget impact, we consider the health service in three sectors: Health governance/administration (management, policy, administration); Health delivery (village health service provision) and TPRS. It seems reasonable to assume that expected growth in NCDs, while a major health issue, is unlikely to result in significant budget pressure on the budget of **health governance/administration and delivery** within Tokelau over the next 5 to 10 years:

- **Excess capacity exists in governance/administration and in Atoll level service delivery**. Variable costs per patient appear low, and increased volumes, assuming these will not require additional facility or labour deployment, will add little additional cost to the service. These will mostly be consumables (e.g. dressings) and pharmaceuticals (e.g. beta blockers).
- **Health service delivery in Tokelau has many opportunities for efficiency gains** (e.g. pharmaceutical purchasing), and these may be easier to realise as health service utilisation is increased, lowering average per-consultation costs. Importantly, **these efficiency gains may deliver both budget savings and health outcomes,** for example through better pharmaceutical access and health management plans.
- While large percentage increases in NCDs may be observed, the absolute size of the population at risk remains small, and the headcount number of cases is likely to remain small, limiting budget impact.

For local service provision, risks still exist. For instance, mental healthcare is difficult to access at the island level. Adding **new** services such as mental health workers or a screening programme at the atoll level will have a budget impact (approx. $120-150k NZD for three resourced mental health workers at estimated local salary rates). Increases in pharmaceutical prices, demands for new technologies locally and providing emergency care for individuals with poorly managed NCDs are risk factors for local budgets, though again the overall impact is not expected to be significant.

However, NCD growth may have a more significant impact on the **TPRS** scheme, as each transfer is an out-of-pocket expense for the health service with direct budget impact. Individual data was made available for TPRS recipients from 2014 to 2018. While valuable, unfortunately this data was not clear enough to reliably use in statistical analysis. Furthermore, cost data was not present in the dataset, leaving duration of stay and destination (Samoa or NZ) as the only economic measure, with approximately 76% of the 315 records having some information as to duration - though these dates appear unreliable. Exploratory statistical analysis predicting transfers to New Zealand and duration from arriving in Apia to ending TPRS both suggest medical intervention associated with Cancer

(n=20) was associated with increased transfers to New Zealand and duration of stay. COPD (n=4), CVD (n=22) and complications associated with diabetes (n=19) are all associated with increased transfers and duration of stay. It is likely that there is an undercount within the dataset of NCD related TPRS transfers due to difficulty attributing the transfer to an underlying cause. A further complication in projecting TPRS costs is that non-New Zealand citizens (for example, those who may be Samoan or Tuvaluan) are also entitlement to access the scheme under the policy, yet the DoH covers the cost of medical services and benefits given their non-entitlement to access these services in New Zealand.

While average costs per transfer have varied widely over time, the current increase in allowances and other factors suggest an average cost of close to $20,000NZD per TPRS recipient. While the data does not appear to be of enough quality for statistical analysis, regression results suggest that NCD related TPRS transfers, particularly cancer related transfers, are more likely to be transferred to New Zealand, and to last for a longer duration. If true, this would suggest they fall at the higher end of the TPRS distribution, and an estimate of $30,000NZD per admission might be more appropriate. Approximately 22% of the 235 TPRS referrals from June 2015 to December 2018 (3.5 years) were identified as NCD related, though this is likely an undercount. This corresponds to around 52 NCD related transfers over the period or 15 annually. Growth in prevalence of NCDs is unknown but could be as high as 30% over 10 years. Assuming this scenario, and high cost per admission, there would be approximately 5 additional TPRS referrals after 10 years, with a high estimated cost of $30k/annum, the budget impact would be a growth of approximately $150,000 or 10%. A reasonable estimate might be $10k-$20k additional funding required for TPRS per annum to deal with rising NCD rates, though the data simply does not exist for an accurate estimate suitable for planning purposes.

Recommendation Related to Health Financing	
Recommendation 15	Develop a health financing platform to reflect the growing burden of NCDs

7. Non Communicable Diseases (NCDs)

Cardiovascular disease, diabetes and cancer are already the leading cause of morbidity and mortality in Tokelau (WHO, 2014). With regards to mortality, the available civil registration records figures from 2014-2018 showed that 75% of all deaths for Tokelau were due to NCDs. Importantly, most of these deaths were premature as well as being largely preventable. As noted above, the increasing burden of these diseases will continue to stretch an already compromised health budget, as well as incurring substantial costs to productivity, communities and individuals. Interventions are urgently needed to prevent or control these trends.

Among the NCDs, Cardiovascular Disease (CVD) is the leading cause of death in Tokelau, as has been the case in most Pacific Islands countries over the past three decades. It is imperative that in Tokelau, new and ongoing disease prevention and control measures are conducted to combat this epidemic. Based on data from death certification, the vast majority of deaths attributed to NCDs are due to cardiac arrest/infarct/failure, with smaller numbers recorded as cerebrovascular accident (or Stroke). While the majority of these deaths are among the 65 plus year olds, there are a number of cardiac deaths occurring among younger age groups, such as 50 to 55-year olds.

The World Health Organization (WHO) STEPwise approach to Surveillance on NCD Risk Factors (STEPS) is among the surveys that assess six of the nine targets adopted by the World Health Assembly in its comprehensive global monitoring framework for NCDs. Results from the Tokelau STEPS Survey of 2014 report that almost a quarter of the 580 participants had an elevated plasma glucose. Among men, 27.3% had elevated plasma glucose with the highest (58.9%) among the age group 45-59 years old. Among women, 21.8% had elevated plasma glucose also increasing markedly in the 30-44 age group and highest in the age group 45-59. A worrying point about the trend seen in this figure is the prevalence of diabetes in young adults (18-29 years old) which was 7.9% and 4.7% among men and women respectively in 2014 STEPS. The same survey reported that 89.6% of the study population were either obese or overweight.

The epidemiological transition to NCDs means an increase in the number of people with a compromised quality of life is likely to rise. The 2016 Tokelau Census was the first time the quality-of-life questions were asked hence the absence of an observable pattern. The findings from the survey indicated that Tokelauans generally have a greater life satisfaction than New Zealanders (2016 Tokelau Census of Population and Dwellings). A further consequence of the above epidemiological transition is a presumed rise in people living with disabilities from the sequelae of stroke, diabetes, heart diseases and cancer; with personal, family and social effects. The collection of such data is an important first step to address the needs of people with disabilities.

Tokelau, including both the DoH and the various Taupulega, has taken considerable steps to address NCDs. Initiatives have included: the adoption of an NCD policy, appointment of a Deputy Director Public Health and public health assistants, a recent NCD summit, banning fizzy drinks, village exercise activities (walking or Zumba) and reducing tobacco supply. The STEPS Report (2014) recommended that the Tokelau Health Services:

- Strengthen a responsive health care system to address early screening, diagnosis, treatment and referral through an effective primary health care system that delivers the package of essential NCD interventions. This requires appropriately trained human resources and basic equipment and supplies made available at all levels of the health care system.
- Strengthen community-based care and management of individuals with diagnosed NCDs.
- Support behaviour change in organizations and workplaces through screening and referrals.

To design and implement a comprehensive and integrated approach to the prevention and control of NCDs various components need to be in place. Among the priorities as identified throughout this report is the need for quality and reliable data through the establishment of a disease registry for leading NCD diseases including diabetes, CVD, cancer and chronic respiratory illnesses. These registries are platforms to collect and manage appropriate data to ascertain the burden and causes of the leading NCDs (including obesity, diabetes and cardiovascular diseases and chronic respiratory diseases) in Tokelau and develop appropriate prevention, treatment, and control strategies. While the establishment and implementation of individual registries for leading NCD diseases is important, there are also considerable advantages in addressing NCDs as a group, rather than individually. Registries need to be integrated and regularly reviewed, audited and strengthened. Trained staff are also needed to manage and monitor NCD registries and facilitate collaboration between sections in the DoH and data sharing with relevant non-health entities and other departments.

The 2014 health review recommended a higher percentage of tax on tobacco and alcohol with revenue generated being ring-fenced for health. While there has been increased tobacco tax, this has not been ring-fenced specifically for health. Our review heard some concern from stakeholders

about the effectiveness and sustainability of public health interventions aimed at addressing NCDs. For example:

> "They had a plan for physical activities, and it didn't work… because there's a lot of things happening in the community at the same time... It didn't last because… for an example, if this is [an NCD activity] and there is a boat expected to come over from Apia with all these people coming going, the consultations…"

Given the issue illustrated by this quote, consideration might also be given to how health promotion programming might be more culturally and contextually aligned. For example, how could traditional boat building and sailing be encouraged for physical exercise which is also environmentally friendly and productive (fishing). While a number of public health assistants had been employed – with three in Nukunonu and two in Atafu – many of these are learning on the job whilst undertaking training modules. Importing activities, such as dancing to recorded music, which have worked/or not worked in metropolitan centres regionally or globally, may not be ideally suited to the Tokelau context. Culture-centre innovations in NCD programming are worth exploring for impact and sustainability. While the NCD policy itself is acceptable, as it is a standard policy, careful tailoring is needed in the implementation.

Recommendations Related to NCDs	
Recommendation 16	Improve collaboration and information sharing on NCDs and ensure policy coherence
Recommendation 17	Streamline treatment of patients with NCDs through NCD registries
Recommendation 18	Improve access to NCD programmes and initiatives which are relevant, effective and sustainable in the Tokelau context

Tokelau Patient Referral Scheme: An Experience

"Ko au na kave fakafia ki te falemai na e inu na fualakau kua he popole foki ki na fualakau kua paahi te taimi aoga ka e inu lava ki te fia maua o he fofo mo to toku tauale. Na pa ki he tulaga ko au kua tigaina lele i toku tauale, kave ai au ki Hamoa. E heki fano au ma ni oku lipoti pe ko ni pepa fakamaonia o oku e manakomia i fafo. Na fakaalofa lele i te taunukuga o te vaka ki Hamoa ona na fatoa maua lele to ma fehoahoani ma toku tauhi i te taeao alafaki. Na mataloa ki maua i Hamoa na e fai ai na hiakiga i te falemai. E pa atu te au ki Niuhila, tapa mai na fomai ki te lipoti, e heai he lipoti. Na fakaalofa lele foki i Niuhila aua e he matua lelei taku Igilihi vena foki toku tauhi. Na fakafaigata ai ke fakamatalaga ki na fomai na mea na e ko lagona i toku tauale. Kaemaihe foki te fefaiakiga o te penefiti ki te WINZ. Haloa toku kaiga i Niuhila na tutu malohi ke fakatotoka na hiakiga i te falemai vena foki ma na penefiti a ki maua. Ko te lahiga ona taimi e kave na aho livi o toku kaiga i Niuhila ke hau he tino kave au ki oku hiaki kaemaihe lava ki te WINZ. Ko au na e kikila ma te alofa ki toku kaiga i Niuhila aua e tokalahi, e gaea foki ina galuega ma na tiute i loto i te kaiga ka tenei foki toe fakaopoopo atu ki maua ma toku tauhi. E tiga lava toku kaiga e alolofa mai i te kikilaga o au ka ko au kua leva te toe fia foki ifo ki Tokelau". [I was taken to the hospital on a regular basis and prescribed expired medication. I continued to take the medication to relieve my symptoms. My symptoms continued to get worse and was put onto the Patient Referral Scheme. I was not aware that I needed to take medical report and other documentation with me before leaving Tokelau. I was extremely distressed upon arrival in Samoa due to lack of support and direction until 24hrs later. I was in Samoa for considerable amount of time, undergoing blood tests with no information about diagnosis and so forth. I was then referred to New Zealand for treatment and the doctors asked for

my medical report from Tokelau and Samoa. I didn't have any reports to give them. English is a second language and my attendant and I struggled to communicate with Health Professionals in New Zealand. We also found it difficult to navigate the WINZ system to apply for a benefit with the three week timeframe. My host family in New Zealand took annual leave to transport me to my appointments and to support me and my attendant at WINZ appointments. I felt I was a burden to my host family despite their love and support and could not wait to finish my treatment so I can return to Tokelau. My host family in New Zealand all work full time, they were inundated with family commitments and then on top of that, they had to also cater to me and my attendant].

8. TPRS Relevance

Te aoga ma te uigā ona tautuaga

"Ko au e fakafetai ki te Atua e iei ni tautuaga venei i luga o fenua ma te hikimi hiki tauale mo na tino e manakomia te kave ki fafo. Talohia ke iei ni huiga lelei ka uma te iloiloga, ni tautuaga e aoga mo au, toku kaiga ma Tokelau katoa. Ni tautuaga e manakomia lahi lele i luga o fenua" [I thank the Lord for these services, the hospital on island and that patients can be transported overseas for treatment when needed. I hope there will be changes after this review. It would be good for services that are relevant to me, my family and the whole of Tokelau. Services that are needed on island]

Strategic relevance of the TPRS

The TPRS is long established, and as the statement above by a Tokelauan community member attests, still represents a critical and necessary component of Tokelau's clinical health service delivery. The TPRS provides life-saving treatment and prevents further disability. Without the TPRS, Tokelau would not be able to achieve the overarching vision outlined in the DoH Plan of 'A Healthy Tokelau-Today for Tomorrow'.

The Delivery of the TPRS falls under the DoH's 1st Strategic Goal of 'Improving clinical health services in all three atolls'. This strategic goal has the following focus areas:

- Improve the quality of clinical services in all areas
- Maintain skilled health workers and upgrade capacity through ongoing professional development
- Improve the quality of allied/support health services
- Secure specialised medical staff

While this strategic goal is primarily focused on clinical health services in Tokelau, as we have noted in the previous section, the TPRS is inextricably linked to this and to all other strategic goals in the DoH Plan which support a healthy Tokelau. In fact, it was made clear to us throughout this review that Tokelau will not be able to make any real progress on reducing the number of referrals outside of Tokelau (a long term outcome of the Plan) until improvements have been made in all of the strategic goal areas of governance and corporate services, public health, and infrastructure development.

MFAT's strong and enduring partnership with Tokelau is articulated in a four-year plan which aligns with Tokelau's overarching development plan, the National Strategic Plan. Given the wider social, environmental, economic and cultural determinates of health, the effective and efficient delivery of the TPRS is relevant to all three 20 year strategic priorities of the four year plan, namely; that core public service delivery is improved, that Tokelau is well supported to improve its climate change resilience and mitigation, and that Tokelau is supported to strengthen public sector governance and management capability.

At a regional and international level, the TPRS is relevant to Tokelau's efforts to work towards the Pacific 'Healthy Islands' declaration or 'a place where our children are nurtured in body and mind; environments invite learning and leisure; people work and age with dignity; ecological balance is a source of pride; and the ocean which sustains us is protected' (DoH, 2016:2). Tokelau's efforts to achieve SDG 3 – Ensure healthy lives and promote wellbeing for all at all ages - are also supported by the TPRS which, in turn, specifically influences Tokelau's work towards SDG 3's targets including:

- 3.2 – End preventable deaths of newborns and children under five
- 3.4 – Reduce by one third premature mortality from non-communicable diseases
- 3.7 - Ensure universal access to sexual and reproductive health care services
- 3.8 - Achieve universal health coverage.

Tokelau's isolation, small population, and current lack of capacity to deliver comprehensive clinical health services on its three atolls, means that the TPRS will remain relevant and will form a critical component of Tokelau's clinical health services for many years to come. There are, however, several ways to improve the effectiveness and efficiency of the scheme including periodic reviews of the relevance of the clinical decisions for patients whose treatment was supported through the TPRS. Below we provide a review of clinical cases supported through the TPRS.

Relevance of clinical cases supported through the TPRS

From the Financial Year 2015/16 to December 2018, a total of 235 patients were sent to Samoa and New Zealand through the TPRS (Table 9).

*Table 9: Summary of the Number of New TPRS Referrals per FY **

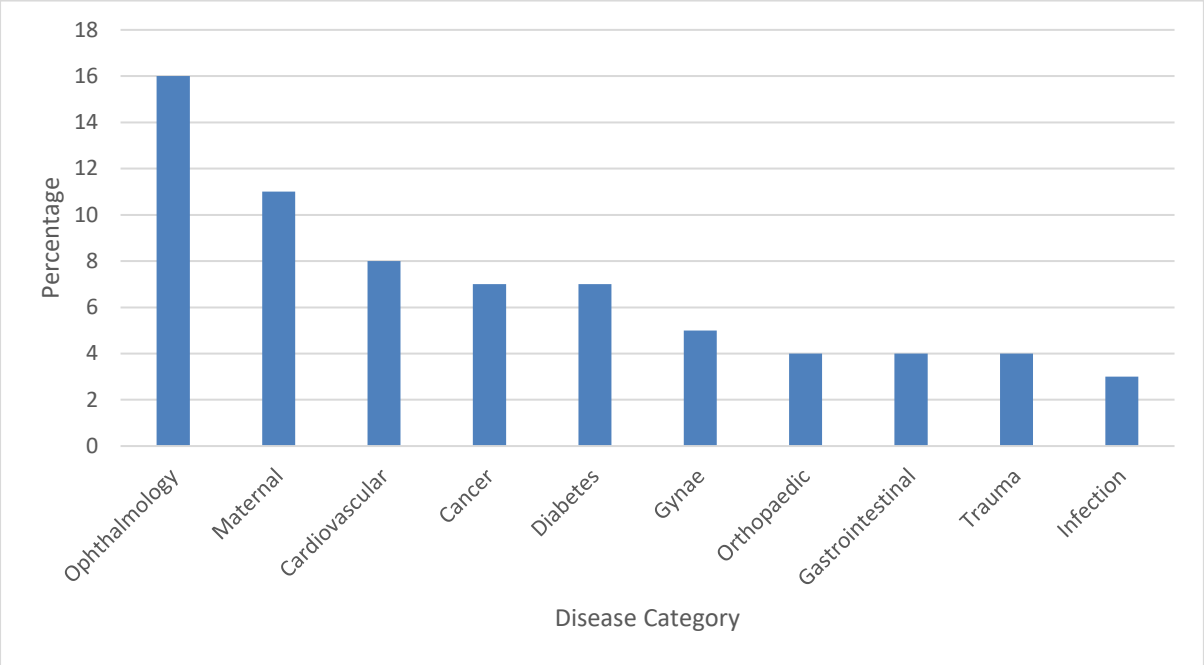
Financial Year	**No. of Patients under TPRS**		
FY 2015/16	**Apia**	**NZ**	**Total**
1st half	22	1	23
2nd half	14	1	15
Total	36	2	38
FY 2016/17	**Apia**	**NZ**	**Total**
1st half	23	3	26
2nd half	28	12	40
Total	51	15	66
FY 2017/18	**Apia**	**NZ**	**Total**
1st half	42	10	52
2nd half	26	11	37
Total	68	21	89
FY 2018/19	**Apia**	**NZ**	**Total**
1st half (1 July to Dec 2018	19	23	42
Total	**19**	**23**	**42**

* Source: Summary report of TPRS data for the last 3 Financial Years to end of December 2018. Joint paper (Tokelau Departments of Health and Finance) submitted for Atafu 2019 General Fono

As noted in the previous discussion on NCDs, civil registration records from 2014-2018 show that 75% of all deaths of people on Tokelau were due to NCDs. Given this fact, it would be expected that the majority of clinical cases sent through the TPRS would be related to illness associated with the high rate of NCDs in Tokelau. Figure 7 shows that this is indeed the case despite the fact that more than a quarter of all TPRS cases were for Ophthalmology (Eye referrals (16%) and Maternal Health related conditions (11%). Our analysis has revealed that the majority of Ophthalmology referrals

were for minor 'day procedures' and that most of the Ophthalmology referrals were for NCD-related illness such as diabetes. Maternal Health referrals were primarily for normal deliveries and a few 'elective' procedures. These referrals are relevant because of the current lack capacity to manage ante-natal complications and emergency obstetric care in Tokelau and, in some cases, Samoa.

Figure 7: Leading conditions referred under the TPRS Scheme (2014-2018)



The review team also understands that there may be some patients that are being supported under the TPRS long term. A case in point has been supported for over 10 years and ongoing, having been approved by past DoH and Taupulega officials. This type of support through the TPRS may be relevant in some instances but we believe it is important to review, as a matter of urgency, all clinical cases to determine which cases should remain supported under the scheme and which should be accommodated through other mechanisms such as WINZ and the New Zealand public health system. Our analysis also identified cases where the location of TPRS treatment was unknown and being sought by Tokelau with no timely response from New Zealand. Improving information and client records systems will assist to track and review long term cases (see discussion and recommendations related to this in section 2 Information Systems and Decision Making).

Recommendations Related to TPRS Relevance	
Recommendation 19	Establish an annual review mechanism of TPRS decisions to be undertaken by the Health Action Committee

9. TPRS Effectiveness

Ni tautuaga tali manako, ni tautuaga tuku avanoa ki lagona o tagata uma, ni tautuaga katoatoa i ona vaega kehekehe

"Mautinoa e iei na itu lelei ona tautuaga ma na galuega fakatino. E kitea foki ko na tautuaga i fenua e lave aua ko heki fakatotoga lelei o tatou falemai ni. Ka e maimau ake ke fakatutuha ia tagata uma, ke fai ma te alolofa aua ni ola e o ni tino". [There are definitely strengths regarding health services

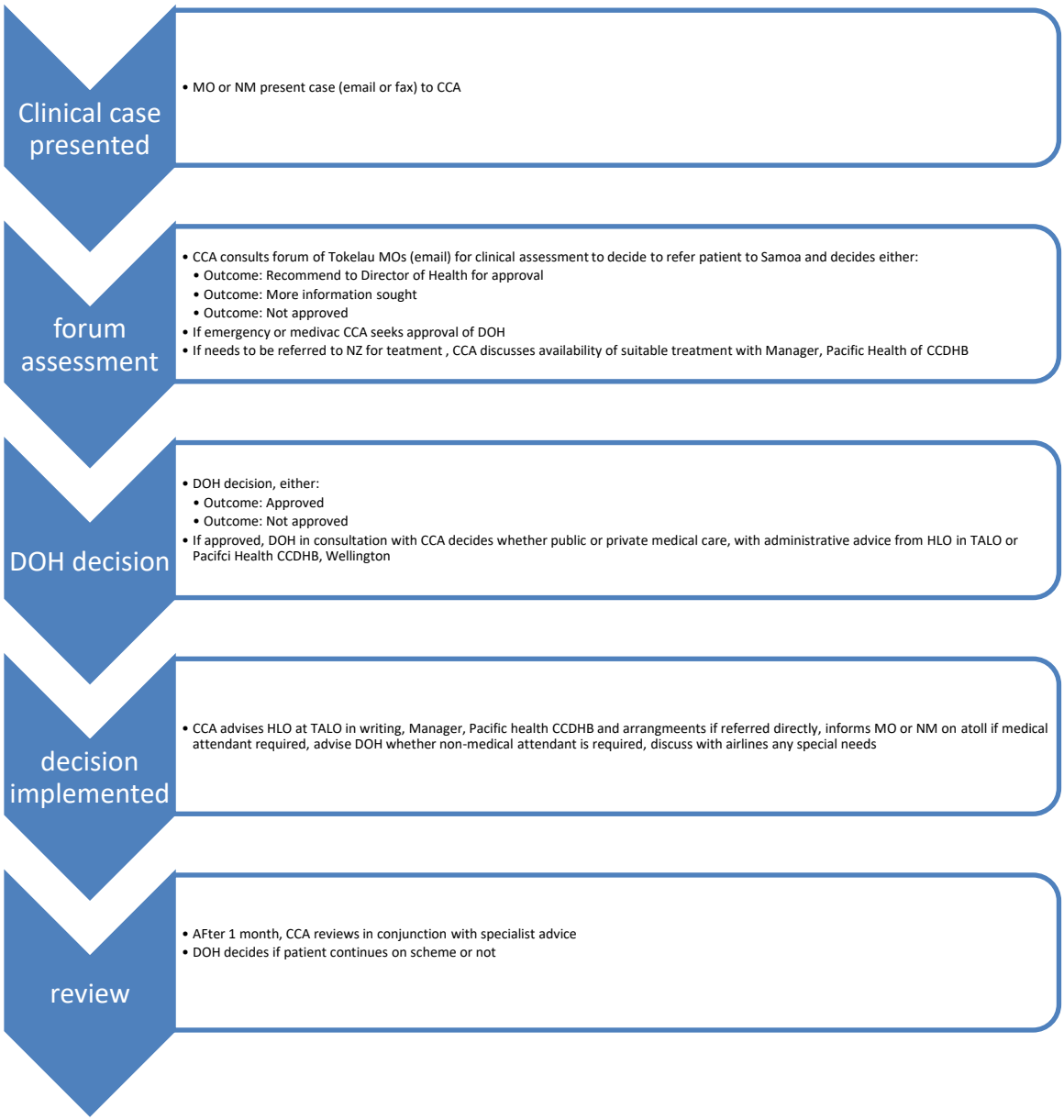
and the work being done. It is also notable staff have limited resources/equipment on island. I just wish everyone receives the same treatment and for love of and for people to govern everything they do because it is people's lives]

Effectiveness of the TPRS from a Tokelauan perspective means those patients who require a diagnosis and treatment receive it, in a timely manner, through a quality health service by skilled health practitioners in either Samoa or New Zealand when adequate care cannot be provided in Tokelau. It is critical that patients, their attendant and family have adequate information to support their movement through the health service system, with social and cultural supports that are required for positive health outcomes, available wherever possible.

The TPRS has been found to be an effective mechanism through which to support improved health outcomes for the people of Tokelau. However, by examining the evidence through this review, the effectiveness of the TPRS could be improved.

The effectiveness of the TPRS policy and Referral System

Figure 8: TPRS Flowchart



The TPRS Patient Referral Policy and process detailed above in Figure 8 was developed in 2000 by the DoH and has been the basis for the decisions made since that time (DoH, 2018), with the purpose of the TPRS being to "ensure that people with health conditions that cannot be appropriately addressed in Tokelau can have further examinations, diagnosis and treatment outside Tokelau in order to save their lives or to improve their health and wellbeing." (DoH, 2018)

The TPRS is available for all Tokelauans resident on the atolls of Fakaofo, Nukunonu and Atafu. In addition, the policy outlines several other eligible people including those who have been resident on one of the atolls for more than six months, locum workers and government contractors (DoH, 2018). The TPRS is also open to Tokelauan staff and students serving or being educated in Samoa. There are a number of groups ineligible for TPRS support, including Tokelauans who are usually resident outside Tokelau.

The review found that many people found the TPRS an effective way of accessing health care for improved health outcomes. The existence of a scheme which fully funds access to clinical health services outside of Tokelau in health care systems overseas (Samoa and New Zealand) was appreciated. It was recognised that the existence of TPRS and the access to funds to support access to health services is much better compared with most Pacific Island nations.

There are several areas in the TPRS process, however, that could be addressed to improve the overall effectiveness of TPRS.

Available information and clear communication

The TPRS policy and process is understood variously across the three atolls and by Tokelauan officials and employees in Samoa and New Zealand. There is a small booklet that outlines some aspects of the TPRS and what patients and their families can expect, but people are not always fully aware of the processes within the TPRS. As a family members of a TPRS patient commented: "He has another appointment [soon]… but I don't know whether we're out of the scheme, and yet all these treatments are still on, so we don't understand".

Delays in referrals and follow-up

Stakeholders reported that delays can occur in referring and enacting the TPRS, thus impacting the potential effectiveness of the TPRS. These delays can be due to irregular meeting of the Forum, the quality of clinical reporting to the Forum or technical challenges with communication between the members of the Forum who communicate via email. The lack of a MoU between Tokelau and the Samoan health authorities means TPRS patients arriving in Samoa must access the Samoan health services through the Outpatients Department and are often referred to private practitioners and not necessarily specialists. This may partly explain the higher average number of days under the TPRS scheme for Samoan patients (63 days) compared to those referred to NZ (42 days). These delays have obvious implications for the quality of health care provided to patients and can impact on expenditure in an already financially strained system. There are also major concerns about the difficulty of Tokelauan health care providers to access discharge notes from either Samoa or New Zealand. Discharge notes are not provided directly to clinicians for follow up resulting in reduced quality of care or a re-entry into the TPRS for further (and sometimes higher-level) care. Confusion about patient records was an issue that was raised often during the review, as illustrated by the following account by a family member of a TPRS patient:

> "Lucky I took all [my family member's] reports from Samoa. That's the other thing lacking in the service from TPRS, staff don't organise patient's reports properly. Luckily, I made sure to ask for all [my family member's] reports… I had to beg the nurses for a copy of the original before we went to New Zealand… When we arrived in New Zealand, the nurse… did not turn up so my husband's family had to arrange everything. I was completely lost I don't know neither do I understand the New Zealand system."

Process outlined in policy not consistently followed

The process for being accepted onto the TPRS requires recommendation by the Forum and approval by the Director of Health, then TALO is notified (as detailed in Figure 8). This process, however, does not always happen. Stakeholders reported that there are times a patient is on the boat bound for health care in Samoa or New Zealand, before the Forum and therefore TALO are notified. This means that the patient is not met at the wharf and thus the opportunity to provide timely, quality care is compromised, potentially reducing the chance of an improved health outcome for the travelling patient. This can occur because patients (or their families) who are concerned about their health travel on their own accord, or the respective Taupulega sponsor them to go. On some occasions this scenario unfolds because a medical officer has advised the patient to travel when the approval has not been received.

The single strongest criticism of the TPRS, expressed by service users across all sites (Fakaofo, Nukunonu, Atafu and New Zealand) in both individual and community consultations, was their reported experience of favouritism in the selection of TPRS patients. Some stakeholders felt that the TPRS is not operationalised in the same way for every patient and their attendant. This included claims that people of status were given preferential treatment (such as patients and their attendants staying in hotel accommodation for long periods of time) and also claims that referrals from some villages were more readily accepted onto the TPRS. The table below, however, demonstrates that the referral numbers from each village are largely on par. While every year since from 2014 to 2018 the percentage of TPRS referrals from Atafu is slightly higher than the other two villages, Atafu also has the highest population.

Table 10: Percentage of TPRS Patients per Atoll by Year

Year	**Atafu**	**Fakaofo**	**Nukunonu**
2014	38%	35%	27%
2015	40%	34%	26%
2016	40%	34%	26%
2017	40%	34%	26%
2018	43%	27%	30%

It would have been possible to confirm favouritism or otherwise in the TPRS decisions, if actual spending per individual patient was provided; TPRS costs for specific individuals could then be assessed against the medical reports and the patients' dates on the scheme. Disaggregated costs per individual patient, however, could not be determined due to the nature of data available data. This underscores the importance of Recommendation 6 for improving reporting, accountability, transparency and decision-making in relation to the TPRS.

A clinician reported pressure from their Taupulega to change a clinical diagnosis. This report, and information shared in other interviews, suggest that there have been instances where political, rather than clinical reasons, have influenced the eventual decision as to whether a patient enters the TPRS.

The widely held views about favouritism also sit alongside the view expressed by a few stakeholders that the TPRS financial allowances incentivise people to be on the scheme when it might not be necessary. There is, on the other hand, a lack of community confidence in health service provision in Tokelau which exacerbates the push for TPRS admission. In some instances, Taupulega have stepped in and funded patients for further treatment in Samoa and/or NZ when patients require treatment

and a decision has not been forthcoming. As highlighted earlier, improving clinical health services (including diagnostics) in Tokelau is an essential foundation for an efficient, effective and sustainable TPRS. Further, improving communication, information and system transparency is needed to promote public confidence in the impartiality and timeliness of the TPRS decisions.

Consistent application of a set of clinical criteria, used by the Forum to guide their decision, is critical. In the review of the five country MTS programme funded by MFAT, the application of robust clinical criteria was identified as a mechanism through which the overseas referral committees could make impartial referral decisions (Blick and Smith, 2015). It is the view of the review team, that robust clinical criteria - together with improved data collection, analysis and reporting (Recommendation 6), an annual independent review mechanism (the proposed Health Action Committee in Recommendation 19), and improved communication (Recommendation 20) – would address the concerns around the process in the policy not being consistency followed.

Relationship between the Taupulega and Department of Health

As discussed previously, there is an obviously strained relationship between Taupulega and the DoH, which acts to reduce the effectiveness of the TPRS. The review team heard from some Taupulega members that they would like to see the TPRS being devolved and managed by respective Taupulega. The concerns leading to this suggestion, however, are probably better addressed by improving the communication and accountability mechanisms between the Forum/ DoH and each Taupulega. Addressing the recommendation to nurture a positive working relationship will set the appropriate foundation for developing such mechanisms. The development of an ongoing audit mechanism is one possibility, as well as regular communication mechanisms. In the later, for example, it would be advisable to ensure that village protocols for coming into villages are appropriately adhered to.

Transport concerns

Transport of patients is a challenge for the TPRS given the geographical isolation and the requirement for travel by ship in excess of 24 hours in order to access services in Samoa or New Zealand. Tokelauan participants, including health care providers, raised concern about the safety of nurses and the equipment on boat transfers. Nurses accompanying patients to Apia reported not receiving allowances for the time they spent travelling, as allowances only cover the period starting when the nurse reaches the shores of Samoa. More effective collaboration between the Transport Department should collaborate with the DoH is needed to ensure robust and regular health inspections (including pest control) and appropriately equipping the medical room on the passenger boat.

Accommodation and burden on families in New Zealand

It is evident that the requirement for many patients and their attendant to stay with families in New Zealand is causing a strain. This was reported by both the Tokelau participants and those supporting the patients and their families in New Zealand. While the DoH has explored the options of rental properties and has engaged in discussion with the New Zealand Ministry of Social Development, these efforts have not resulted in a workable solution. It was evident from the consultations that there was potential to engage discussions with CCDHB on negotiating a suitable accommodation arrangement within the Wellington hospital facility. While such an arrangement would provide some relief, it is acknowledged that this would not serve the needs of those needing to receive TPRS health services in Auckland.

There are many challenges experienced in navigating systems, including operating in English and navigating medical jargon. The process through which financial support is accessed via WINZ is often unclear for patients and their attendant, and can be delayed, adding further burden on the host families in New Zealand. The intended social and cultural support that this system should be providing has the unintended consequence of causing greater stress for the patients, their attendant

and the host family, which is not conducive to improved health outcomes, and thus an effective TPRS. Generally, stakeholders also identified a need for better advocacy and social support role in the TPRS to enhance the effectiveness of the scheme for improved patient outcomes. New Zealand based support for the TPRS, for example, often needed to include support for the host families although their funding did not extend to cover this needed support.

Clarity of service provider role in New Zealand

In an effort to provide better support to TPRS patents in New Zealand, the DoH employs a New Zealand nurse of Tokelau ethnicity, based in the Wellington region. This service provider, while reporting to the Tokelau DoH, works within the Pacific team at CCHDB. Amongst stakeholders both in New Zealand and Tokelau, however, the review found a lack of clarity about the extent to which the role has clinical or pastoral care responsibilities. This lack of clarity has led to unmet expectations, for example, around transport to and support in medical appointments or support and advocacy for WINZ applications. There can also be confusion for patients when clinical information and advice is provided by both a CCDHB personnel and a New Zealand based Tokelau DoH personnel. Clarity would be better served by having the role formally managed within the CCDHB as part of a revised MoU, so service provision is more streamlined. It will be important, however, that such any such service provider is able to continue to work beyond the geographical boundaries of the CCDHB, since many TPRS patients also reside in Lower Hutt and other parts of New Zealand or are treated in Auckland.

In-Tokelau options for increased effectiveness

The lack of visiting specialist teams was raised by participants, with recommendations for more diagnosis and treatment on the respective atolls, instead of TPRS being the only option. This issue was discussed previously in relation to clinical health care delivery in Tokelau and is also canvassed in more detail in the following section.

Recommendations Related to TPRS Effectiveness	
Recommendation 20	Improve understanding between the Taupulega, Department of Health and broader community about TPRS
Recommendation 21	Improve patient and nurse experience of boat transfers
Recommendation 22	Provide housing support for TPRS patients in New Zealand
Recommendation 23	Streamline pastoral and clinical support in New Zealand

10. TPRS Efficiency

Na tautuaga e fakatino ki ni auala e talafeagai ma te taimi fakatulaga ki ona vaega kehekehe, te tupe ma na lihohi patino kiei ma te taimi fakatulaga mo na tautuaga.

"Ko te agaga tautua e kitea ka e ko na hitemi, te fefaiakiga o te tupe ma na fakatulagaga ona taimi mo na polokalame ma na tautauaga ke fakamautinoa ma fakalelei atili" [We appreciate the desire to serve and that there are existing health services but the existing systems, management of the budget and resources for programs and services need to be efficient and improved].

The TPRS Expenditure Picture

While the TPRS is critical to the achievement of a healthy and prosperous Tokelau, it is simply too expensive in its current form to be sustainable within Tokelau's budget envelope. Table 11 shows the cost of the scheme between 2014-2018 and the relationship between health sector spending and the TPRS.

Table 11: Health Sector Expenditure and the Cost of the TPRS from 2014-2018

INDICATOR	2014/15	2015/16	2016/17	2017/18
Health expenditure (HE); Excluding Tokelau Patient Referral Scheme)	702,910.34	988,828.70	1,569,947.03	1,688,521.38
Total Tokelau Patient Referral Scheme (TPRS) expenditure	453,394	344,635	426,045.04	1,056,976.23
Total Health Expenditure: HE plus TPRS	1,156,304	1,333,463	1,995,992.07	2,745,497.61
Total Health Expenditure Per Capita (NZ$)	771	890	1,331	1,832
As a percentage of Total Recurrent Budget	5.77%	5.76%	4.17%	9.9%

As Table 12 shows, after a slight decrease in the 2015/2016 financial year, TPRS expenditure began to pick up again in 2016/2017 culminating in a doubling of expenditure in the 2017/2018 financial year. At the time of writing this report in March 2019, we understand that TPRS is again around one million dollars overspent.

While no stakeholders we spoke to felt that the budget should be the deciding factor in referral decision making, many stakeholders felt deeply concerned about the significant cost overruns in the TPRS. Over expenditure of this magnitude impacts on the ability of Tokelau to invest in much needed infrastructure as well as maintain existing facilities to a safe level. As it is not possible to increase Tokelau's budget envelope, the identification of short and long-term strategies to reduce TPRS costs becomes vital.

*Table 12: Summary of the Number of New TPRS Referrals Per FY and Actual Expenditure**

Financial Year	**No. of Patients under TPRS**			**Actual Expenditure NZ$**
FY 2015/16	**Apia**	**NZ**	**Total**	
1st half	22	1	23	
2nd half	14	1	15	
Total	**36**	**2**	**38**	**$ 453,394**
FY 2016/17	**Apia**	**NZ**	**Total**	
1st half	23	3	26	
2nd half	28	12	40	
Total	**51**	**15**	**66**	**$ 426,045**
FY 2017/18	**Apia**	**NZ**	**Total**	

1st half	42	10	52	
2nd half	26	11	37	
Total	**68**	**21**	**89**	**$ 1,056,976**
FY 2018/19	**Apia**	**NZ**	**Total**	
1st half (1 July to Dec 2018	19	23	42	
Total	**19**	**23**	**42**	**$ 955,907**

* Source: Summary report of TPRS data for the last 3 Financial Years to end of December 2018. Joint paper (Tokelau Departments of Health and Finance) submitted for Atafu 2019 General Fono

As Table 12 shows, approximately one out of every twenty TPRS patients were referred to New Zealand for the FY 2015/16, the majority being instead referred to Apia. This figure significantly increased to almost one in every 4 patients for the FY 2017/18 and for the period 1 July to Dec 2018 the number of patients referred to New Zealand surpassed those referred to Apia. It is worth noting that the cost for the first half of FY 2018/19 alone almost equalled the cost of the TPRS in the entire 2017/18 FY.

TPRS costs

The breakdown of TPRS costs for the period covered by the review, is presented in Table 13 below.

Table 13: Summary Breakdown of TPRS Costs 2014-2018

Descriptions	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**
Accommodation	449,840	521,721	114,461	414,035
Boat/airfares	161,110	193,350	57,695	107,381
CMI (meals/ incidentals/allowances/ clothing)	418,831	508,033	108,785	359,346
Immigration/legal costs	3,756	4,123	644	4,544
Local travel - taxis etc	15,732	20,553	18,845	20,904
Medical	149,987	164,021	121,992	145,814
Charter	27,876	152,459	*	*
Others	7186	7,471	3,205	4,049
Grand Total	**1,234,318**		**426,045**	**1,056,976**

The description 'Charter' in Table 13, refers to medivacs which in 2014-2016 were billed by DoH, however, these costs are now absorbed within transport costs. Our consultations also suggest a number of reasons why TPRS costs have exceeded the budgeted amounts in recent years. These reasons are discussed below.

Allowances

Allowances likely form a large part of the overall cost of the TPRS. As shown in Table 14, allowances were nearly doubled in mid-2017. We were not able to find any information or analysis which showed how the allowances were calculated. According to the TPRS policy, patients and their attendants are entitled to the following allowances presented in Table 14.

Table 14: TPRS Allowance Entitlements Amended by the General Fono in July 2017

Allowances each for patient and attendance	Tokelau allowances (NZD)		Samoa allowances (ST)		New Zealand allowances (NZD)	
	Previous	Since July 2017	Previous	Since July 2017	Previous	Since July 2017
Incidentals	$15/day	$20/day	$25/day	$50/day	$25/day	$50/day
Accommodation	$15/day	$20/day	$25/day	$50/day	$25/day	$50/day
Meals	$20/day	$20/day	$25/day	$50/day	$25/day	$80/day
Allowance after 3 wks if WINZ ineligible, 50% for host family	-	-	-	-	$150/week	$175/week
Clothing	-	-	-	-	$350/3 yrs	$680/3 yrs

Stakeholders expressed a number of sentiments in relation to TPRS allowances. Some felt that the allowances were too high and created an incentive for families to seek a referral decision while others felt that the allowances did not meet all of the needs of patients while on the TPRS. Some stakeholders expressed the view that the allowances were sometimes spent in ways other than intended, and that this then caused financial pressure for patients and their families. For example: "Most patients don't go on their own… they have the attendant and then on top of that they'll probably have grandchildren or children or other members that they take with them.. Then when they go over they're basically left with little money to take because they've had to use their allowances to pay for the extra family member that they're taking over."

While we acknowledge that Tokelau's isolation makes it a unique case and that the allowance structure needs to reflect this, in comparison to other schemes, the TPRS does seem very generous. The Niuean Government's referral scheme, for example, does not pay any allowances to patients or their attendants. Instead, patients are given a letter of introduction to work and income New Zealand (WINZ) and supported to access the emergency benefit as soon as they arrive in New Zealand. In Tonga's case, under the Medical Treatment Scheme funding by MFAT, no allowances of any sort are paid and only the patient's air fares and medical treatment are met by the scheme and partly by the Tongan government.

As noted througout this report, the high cost of the TPRS is inextricably linked to the lack of clincial service delivery capacity on Tokelau. This results in patients having to access the TPRS for basic clinical services such as blood tests, cervical smears and simple X rays. There are a number of other reasons, however, some of which are arguably out of the control of the Tokelau health sector, which act to increase the amount paid out in allowances, and thus the overall cost of the TPRS. These include:

- Delays in accessing diagnosis and treatment in Samoa due to weaknesses in the Samoan Health system, the process through which TPRS patients are triaged through the Samoan system, Samoa health services placing a low prioritisation on Tokelau patients, weak networks between MOs in Tokelau and specialists to focus and expedite response.
- High cost of accomodation in New Zealand for patients who are unable to stay with family
- Stand-down period of three weeks before patients and their families can access the emergency benefit through WINZ
- Lack of monitoring in New Zealand of whether patients are accessing the emergency benefit after three weeks

One obvious solution to reduce TPRS expenditure and allowances is to encourage more visits to Tokelau by medical and surgical specialists. The review of the five country MTS conducted by Sapere (Blick and Smith, 2015) found that visiting medical specialists costs represented around 10% of the overall cost of the MTS and contributed directly to the MTS long term strategic goal of building specialist medical capacity in participating partners countries. As discussed under section 4 (Links with Community, Health Services and Other Services), visiting specialists are feasible under Tokelau's current MoU with CCDHB but there are no specific expectations outlined in the MoU for this and the review found thatspecialists visits rarely occur.

This situation is, however, understandable. Tokelau currently does not have the medical or surgical capacity or equipment in its health facilities to host a range of visiting specialists and the small number of patients at any one time as referred to above. Vists may be possible for some ophthalmology minor procedures not requiring general anaesthetics but a more sensible strategy is to ask that Tokelauan patients be seen and treated by specialists visiting Samoa. The costing and process for this strategy should be clearly spelt out in the MoU that Tokelau needs to finalise with Samoa and in a revised MoU that Tokelau should negotiate with CCDHB.

A pragmatic approach to TPRS efficiency

Given the issues associated with TPRS treatment in Samoa, a more radical but arguably pragmatic approach to improve TPRS efficiency is to consider, where possible, bypassing Samoa and sending all TPRS patients to New Zealand for treatment. Samoa could still be used as a hub for visiting specialists (surgical and medical) and this should be reflected in the MoU (as above) but over time, and as secondary care and diagnostic testing improves in Tokelau, all non-emergency complex secondary and tertiary care could be accommodated in New Zealand with Tokelauan patients accessing support as New Zealand Citizens. TPRS patients often face long delays for treatment in Samoa so much so that it becomes more expensive to be treated in Samoa than in New Zealand where TPRS patients and their attendants who are Tokelauan New Zealand Citizens receive free medical care through CCDHB and can be supported financially through the New Zealand benefit system. By way of comparison, allowances for one person over a six-month period of treatment in Samoa totalled NZD $17,372 while treatment in New Zealand over the same period cost NZD$ 7,455.

To help facilitate this approach, a third party could be funded to manage the referral process to Samoa (for visiting specialists or emergency treatment) and New Zealand. This would take the pressure off the DoH to manage TPRS logistics and could potentially support greater transparency in the TPRS as the third party would be required to report back regularly to all relevant stakeholders on progress and results. The existing Forum would still operate in the same way but would liaise with the third party before a final decision is made, as the contact point for Tokelau in the third party would have clinical knowledge and skills.

Recommendations Related to TPRS Efficiency	
Recommendation 24	Streamline TPRS forum processes
Recommendation 25	Improve efficiency and effectiveness of treatment in Samoa
Recommendation 26	Improve TPRS efficiency by sending patients direct to New Zealand and management by a third party following referral decisions by Tokelau
Recommendation 27	Agree reasonable allowance structure and improve support to access WINZ

11. TPRS Impact and Sustainability

Taoga Tumau

"Ki tatou e tatau ke kikila totoka ki ni hitemi, ni polihi ma te fefaiakiga o te tupe ma na lihohi e mafai ke fakaauau aua ia Tokelau ma tana havali" [We need to look at our current systems, policies, the budget and resource to make sure we are able to resource a good health system for Tokelau in the long run].

As we have noted above and as the statement by a stakeholder shows, a more efficient and effective TPRS that operates along the lines that we have suggested in this report, is a sustainble solution for Tokelau's clinical health needs. There is no denying that the TPRS has made, and continues to make, a positive and long-lasting impact on Tokelau's overall population health, but changes will need to be made to ensure that the TPRS can be sustained within Tokelau's budget envelope.

In 2020, Tokelau's DoH will need to develop its new Strategic Plan and we hope that the wider social, cultural and determiniates of health that impact on the TPRS will feature strongly. At a minimum, the new Plan should aim to build the capacity of the Tokelauan health sector to achieve the following critical outcomes:

- Clinical health services to be offered at primary and limited secondary care (Nukunonu) and primary health care (Fakaofo and Atafu) levels in the medium term;
- The utlisation of information and communications technology for telemedicine;
- Comprehensive and Tokelau-wide action to substantially increase NCD prevention, treatment and care, including action on mental health and nutrition that builds on Tokelauan traditional knowledge (See Section 3 Self-Management Support and Section 6 NCDs);
- Mitigation of climate change related vector borne diseases through comprehensive environmental and public health planning and programmes;
- Improvements in sexual and reproductive health and child health through the introduction of new vaccines, and the upscaling of cervical and prostate secreening, youth friendly services and appropriate technology which allows for early detection.

MFAT's current work on health corridors provides opportunties for sustainable solutions in some of these areas and in the other areas that we have discussed in this report. This could include a partnership with the New Zealand Ministry of Health or a revised MoU with CCDHB that would allow Tokelau to access culturally appropriate NCD programmes and new vaccines such as HPV. According to one of the medical officers in Tokelau: "... my perspective, the health system in Tokelau heavily relies on the hospital in Motootua (Samoa) to provide those (TPRS) services … it's heavily reliant on Motootua services. But what surprises me too in a way is that there is no formal memorandum between Motootua and the Tokelau department of health." The completion of the MoU with Samoa, already initiated by the DoH, should allow Tokelau to more effectively utilise Samoa as a treatment hub. This could include access to specialists visiting Samoa and training programmes for Tokelauan health staff.

Finally, there is huge potential to improve both clincial health services on Tokelau and the efficient an effective operation of the TPRS through telemedicine. There was wide support amongst Tokelau health workers for telemedicine and the DoH has commenced planning for telemedecine implementation. Tokelau will need to progress this preparation, including through the provision of scholarships and short-term training, to fully capitalise on the potential of this technology.

Implementing the Report

The review team acknowledges the complexity of the report that we have presented and is cognisant of the large programme of the work that will be required to fully implement the review's recommendations and associated actions detailed in Appendix A. We are also aware that this is not the first such health review and the 2014 review findings and recommendations were not fully agreed at the General Fono and therefore not fully taken up. Throughout the course of this review, the review team heard the concern of key Tokelau stakeholders that there needed to be substantive and positive changes resulting from this review.

As a response to this concern, the review team strongly recommends that Tokelau and MFAT appoint a third party of programme manager to oversee the implementation of the review recommendations and to provide support to the DoH, as well as the Taupulega. The third party would need to validate and cost the review recommendations and develop a detailed design to ensure their timely implementation. As noted throughout this report, the Health Corridors initiative currently being developed by MFAT, could look to take responsibility, in partnership with the Tokelau health sector, for a number of the recommendations we have suggested.

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- Country situation on human resources for health (HRH)(2001b). Identifying issues, challenges and needs. Tokelau.
- HayGroup 26 May 2014 Report: Remuneration by Andrew MackMurdie
- NCDs in Tokelau (Prepared for discussions with Ross Ardern, Administrator, Tokelau, by Professors Robert Beaglehole and Ruth Bonita Beaglehole, with data and input from Dr Iapi Jasperse)
- Tokelau Department of Health Strategic Plan 2016-2020
- Tokelau GDP 2015/16
- Tokelau Health & Income Expenditure Survey 2015/16
- Tokelau Millennium Development Report 2012
- Tokelau National Strategic Plan 2016-2020
- Tokelau National Strategic Plan Matrix 2014
- Tokelau NCD Plan 2008
- Tokelau-WHO Country Cooperation Strategy 2018-2022
- TPRS Policy

Appendices

A: Actions to Implement Recommendations

The following table provides a list of suggestion actions which could be taken to implement each of the recommendations. The suggested actions and priority status could be used to inform the development of an implementation plan.

Issue	Ref	Recommendation	Actions to implement recommendations	Priority
Key health workforce gaps across Tokelau need to be filled in order to fully develop primary healthcare provision	1	Fill gaps in health workforce gaps in Tokelau	a) Recruit a pharmacist, laboratory technician, dentist and radiographer to be based at St Josephs b) Complete the MoU with Samoa and explore MoUs with other neighbouring countries (Tonga, Fiji) for South-South Cooperation to provide 'locums' for the above positions and to mentor local recruits trained in pharmacy, laboratory and radiology services c) Strengthen human resources practice for health services in Fakaofo	Medium
Lack of screening services	2	Implement screening programmes	d) Establish a cervical screening programme e) Establish a prostate screening programme f) Explore the engagement of a VSA placement to assist with the roll out of screening programmes	High
Serious youth health and wellbeing issues identified in Global School Health Survey (13-17yrs) and yet to be formally responded to	3	Ensure health services are youth friendly	a) Seek advice on the design of youth friendly services NZMoH b) Discuss the possibility of a VSA placement to support the roll out youth friendly services c) Establish a mechanism for ongoing youth feedback on health services in each village	High
Hospital equipment lacking, poorly maintained or unsuitable for requirements,	4	Improve ordering, supply and maintenance of hospital equipment	a) Establish a hospital equipment management policy b) Establish an Essential Emergency Equipment List that covers the minimum requirements for emergency procedures	High

particularly in Fakaofo and Atafu			appropriate for a primary health hospital and referral hospital in the context of Tokelau c) Review current arrangement/contract with EBOS International (Fiji Office) for servicing of hospital equipment d) Replace and upgrade hospital equipment identified in the DoH Inventory Asset of February 2019 (Appendix K) e) Monitor medical and surgical maintenance and orders annually f) Engage with MFAT and CCDHB to secure equipment maintenance training	
Pharmaceuticals often expired and in short supply	5	Improve pharmaceutical supply and management	a) Establish a Drug and Therapeutic Committee (DTC) to support the officer responsible to oversee all pharmaceutical processes and purchasing of medical drugs b) Review the Tokelau Essential Medicine List aligned with New Zealand funded pharmaceuticals and other PICS where appropriate c) Follow up with MFAT on the potential for partnering with NZMoH or relevant DHB on Pharmaceutical procurement through the health corridors initiative d) Recruit a Pharmacy 'technician' e) Establish a scholarship for a Pharmacy 'technician'	High
Inadequate data for health system planning; lack of data also leads to inefficiencies and follow up issues, especially with TPRS returning patients	6	Improve data collection, management, analysis and knowledge translation capacity	a) Adopt the NHI, aligned with the New Zealand health system, ensuring that each person in Tokelau has only one unique individual identifier which is accurately recorded on all of their health records b) Negotiate agreements between Teletok and Health to support full implementation of Medtech c) Establish a robust manual filing system to complement Medtech d) e) DoH to coordinate, collate and share an annual report with Taupulega and national Government	High

			f) Hospitals, Taugulega and DoH collaborate more intentionally with the Planning and Monitoring Unit and Tokelau Statistics Office to strengthen Information Systems and capacity build health staff g) Establish a Mortality and 'Near Misses' Review Committee with appropriate Terms of Reference h) Audit health information system on a two yearly basis, to ensure continuing high-quality data collection, analysis and valid interpretation i) Establish a five-yearly National Health Survey in collaboration with established surveys such as STEPS	
Clinicians work in relative isolation and have limited access to current and ongoing medical knowledge and evidence-based guidelines	7	Improve clinical decision support through telemedicine and evidence-based guidelines	a) Create a telemedicine plan including technical, training and management requirements with associated costings b) Engage the scholarships and short term training awards for telemedicine preparedness c) Improve networking with specialists d) Develop a suite of evidence-based guidelines for the Tokelau context and ensure these are included in staff training and orientation e) Consider adapting New Zealand's 'health pathways' system to support various aspects of clinical practice	Medium
Increase in NCDs and need for patient and family self-management of chronic conditions; heavy reliance on bio-medical/clinical interventions	8	Improve self-management support and use of holistic/traditional health care where appropriate	a) Develop and implement a self-management support practice guideline for the Tokelau context b) Train health professionals in self-management support c) Investigate how traditional medicine and home remedies can be integrated into health planning and programming	Medium
Lack of engagement and coordination of activities between hospital and village management, especially in Nukunonu; need to strongly	9	Improve coordination, planning and information sharing between villages and hospitals	a) Review and refresh Terms of Reference and plans for each Village Health Committee b) Ensure hospital MO and Nurse Manager are part of Village Health Committee in Nukunonu c) Engage Fatupaepae and nurses in public health initiatives	Medium

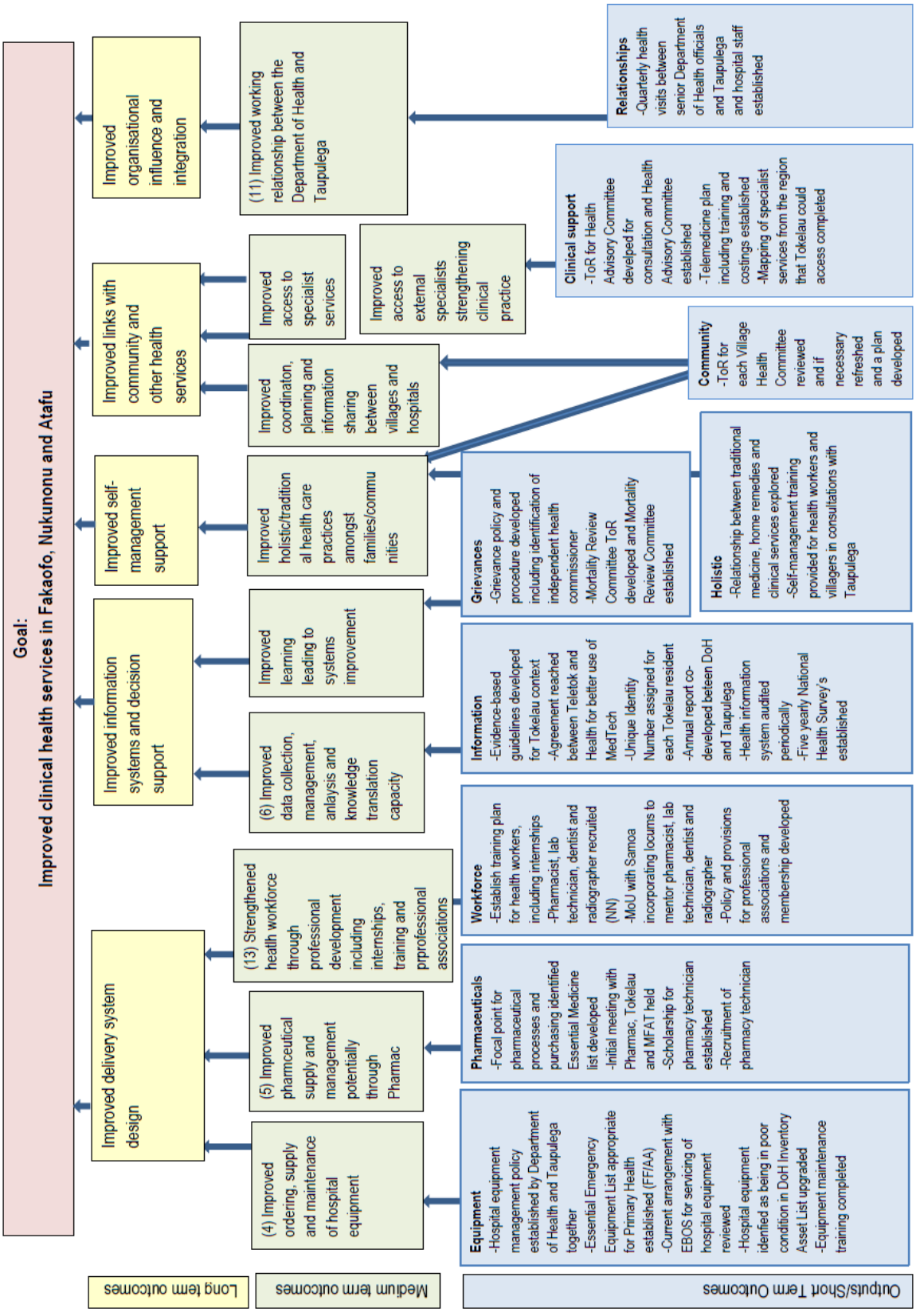
integrate public health into primary health care				
Community concerned about vector control which could worsen due to climate change	10	Strengthen environmental health as part of public health delivery	a) Review the number of public health assistants and their job descriptions b) Strengthen the working relationship between Fatupaepae and hospitals in relation to environmental health, such as mosquito control	Medium
Lack of trust and loss of confidence amongst health leaders	11	Improve working relationship between the Department of Health and Taupulega	a) Bridge divides and foster healing in village and national health leadership relationships b) Taupulega and Director of Health along with Senior Clinical plan for quarterly village visits including dialogue and planning with Taupulega, and consultation with Hospital staff c) Conduct an annual national health review/planning workshop involving all health sectors and key stakeholders including Taupulega representatives	High
Service-user dissatisfaction with quality of healthcare and no systematic way to learn from errors	12	Develop ongoing quality improvement, a learning culture and better performance accountability	a) Establish a complaints and grievance process that is fair, and maximises learning and system improvement. b) Appoint an independent health commissioner to receive and manage complaints and grievances that have not reached resolution (explore whether the NZ Health and Disability Commission could support this role through the health corridors initiative) c) Devise a mechanism for learning from complaints to be reported back to the health system in a way that supports systemic quality improvements	High
Clinicians have limited opportunities to be exposed to a range of clinical cases and to develop their skills due to small numbers accessing services	13	Strengthen the health workforce through professional development through internships, training and professional associations	a) Create rotational internships (for example, at least one health profession annually) in an area identified as needing development within specific Tokelau hospitals b) Utilise short term training awards to fund health internship c) Support health workers to join Professional Associations d) Provide payment of professional association membership fees for health workers (medical officers, nurses, public health assistants) with a relevant professional association	Medium

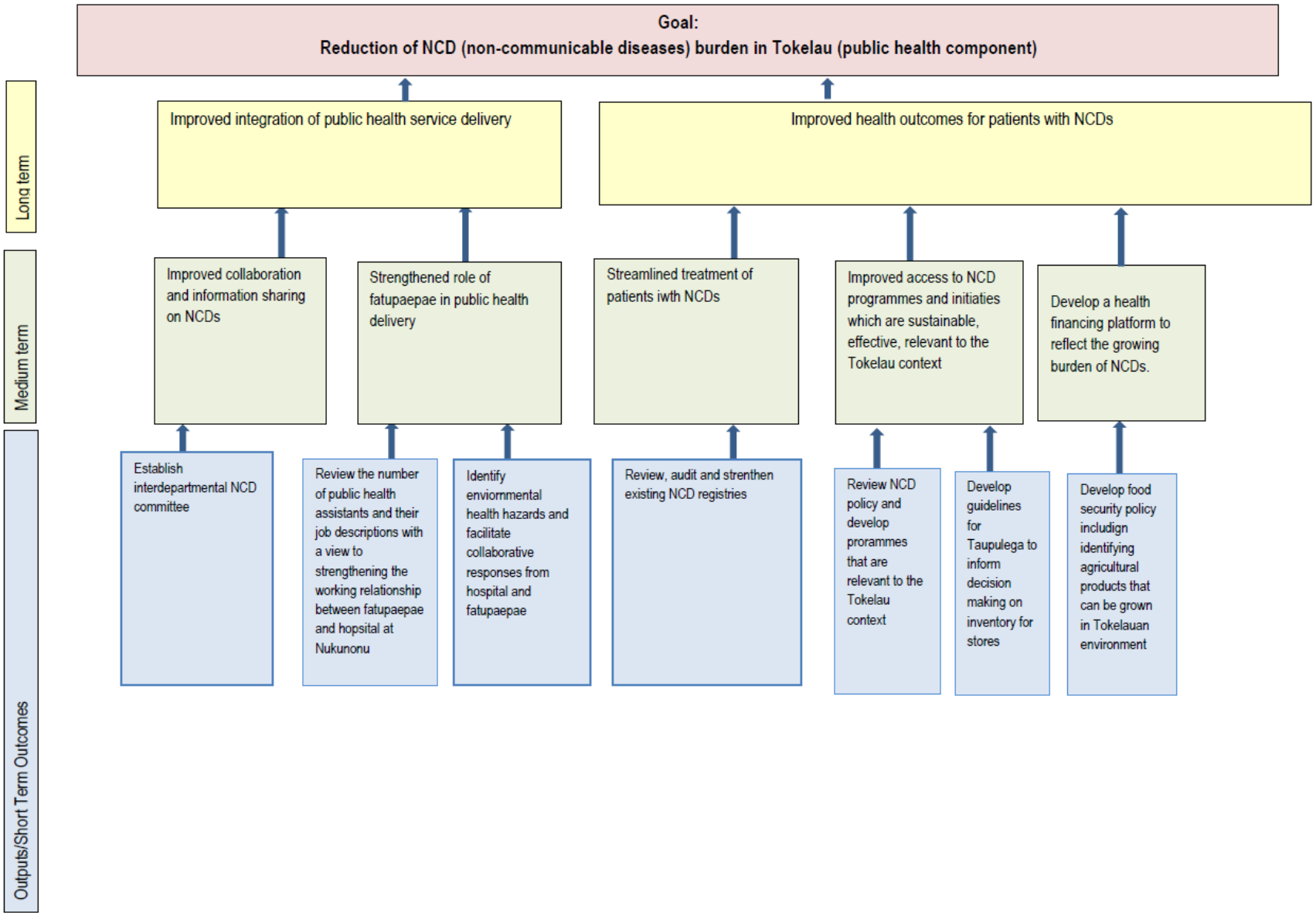
			within the region, where there is no equivalent Tokelau association e) Support the establishment of Tokelau Nurses Association as an avenue for professional development and networking	
Lack of clinical governance and overall integration	14	Improve clinical governance and clinical specialist support through establishing a Health Action Committee	a) Establish a Health Action Committee to provide clinical governance advice and monitoring b) Map and tap into specialist services from the Pacific region that Tokelau could access (eg visiting teams to Samoa) c) Once established, ask the Health Action Committee to review the DoH organisational structure	High
High level of health spending; growing burden of NCDs	15	Develop a health financing platform to reflect the growing burden of NCDs	a) Consider developing Terms of Reference for a Medium Term Expenditure Framework for health	High
Need for cross-sector coordination and responsibility for NCD strategies	16	Improve collaboration and information sharing on NCDs and ensure policy coherence	a) Establish an interdepartmental NCD Committee b) Legislate proper nutrition information requirements of food items, including beverages c) Review, strengthen and support anti-alcohol and anti-smoking policies and implementation	Medium
Data collection and analysis of NCD management is needed to monitor effectiveness of NCD treatment and strategies	17	Streamline treatment of patients with NCDs through NCD registries	a) Conduct a review, audit and strengthen existing NCD registries which keep record of key steps in management of patients with NCDs b) Train staff to sustain, manage and monitor individual registries	Medium
Village NCD programmes have been initiated but have not necessarily been sustained, given demands on villagers and cultural relevance of programmes	18	Improve access to NCD programmes and initiatives which are culturally relevant, effective and sustainable in the Tokelau context	a) Develop innovative NCD programmes aligned with the culture and context of Tokelau b) Develop guidelines for Taupulega to inform decision making on food items inventory for stores c) Develop food security policy including identifying agricultural products that can be grown in Tokelauan environment	Medium
The need for equal access, transparency and accountability in the TPRS	19	Establish an annual review mechanism of TPRS decisions to be undertaken by the Health Action Committee	a) Once established, Health Action Committee to review current cases under TPRS and then an annual audit of TPRS clinical decisions and processes	Medium

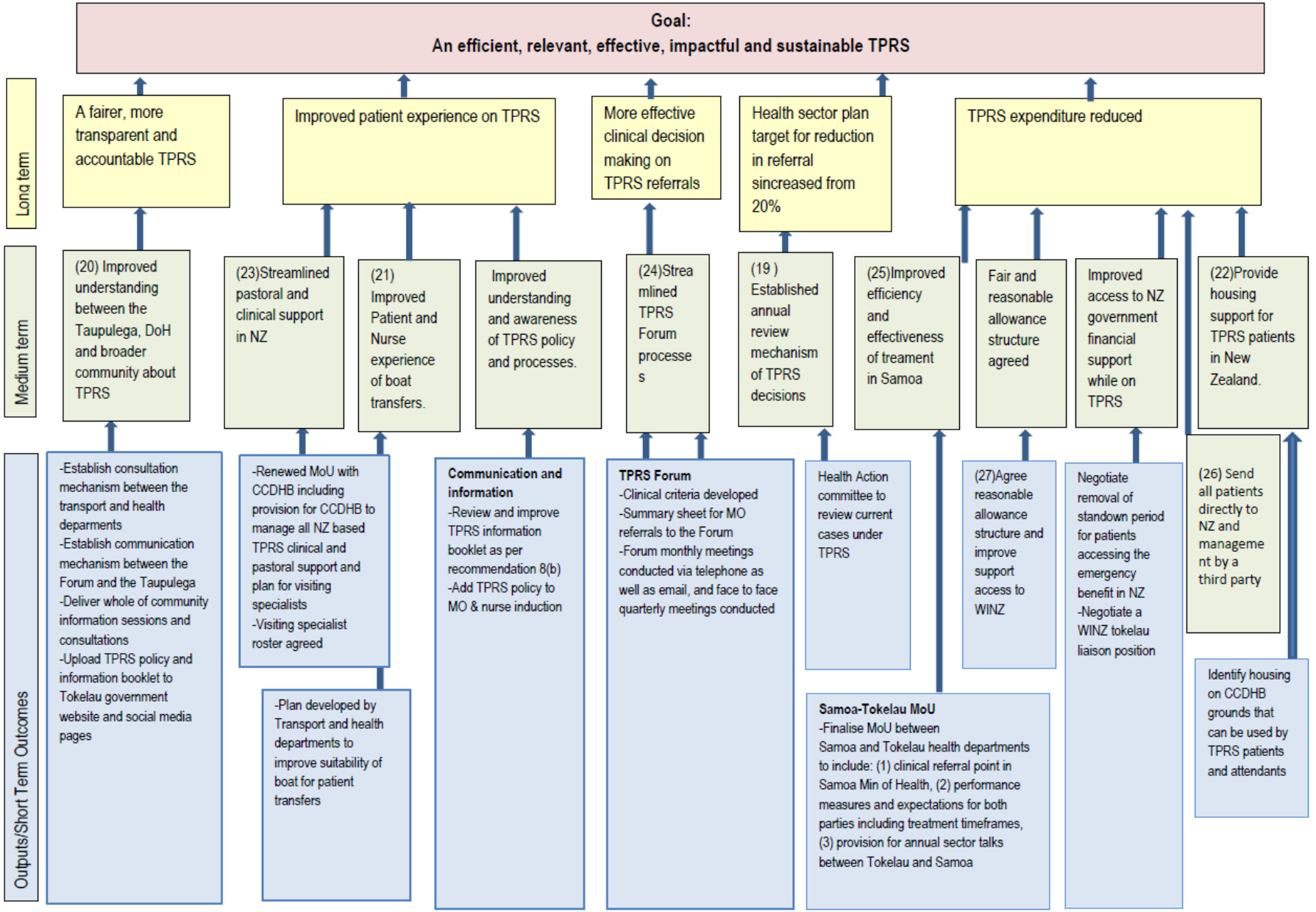
Poor communication and information within TPRS have led to inefficiencies	20	Improve understanding between the Taupulega, Department of Health and broader community about TPRS	a) Review TPRS information booklet to include more information such as a checklist of documents patients should take when they depart and what documents they need to bring back to Tokelau, information about health advocacy and translation, and, information on the process for making complaints b) Provide training to health professionals on TPRS processes and the implications for their roles a) Upload the TPRS policy and information booklet to the Tokelau government website and social media pages b) Deliver whole of community information sessions and consultations c) DoH to report to Taupulega (as governance bodies) on trends, processes, developments and issues related to TPRS in appropriate platforms such as the Annual National Health review/Planning workshop	High
Challenges of boat transfers such as cleanliness of boats and availability of equipment	21	Improve patient and nurse experience of boat transfers	a) Plan developed between transport and health departments to improve transfers for patients and for medical staff	Medium
Burden on Tokelau host families in New Zealand who are already bearing the brunt of a New Zealand housing crisis	22	Provide housing support for TPRS patients in New Zealand	a) Negotiate housing on CCDHB grounds that can be used by TPRS patients and attendants	Medium
Confusion about clinical/pastoral care roles in NZ; high pastoral support needs of TPRS patients, their attendants and host families	23	Streamline pastoral and clinical support in New Zealand	a) Review MoU with CCDHB including provision for CCDHB to manage all NZ based TPRS clinical and pastoral support	Medium
Forum processes delayed due to quality of MO referrals to the Forum; difficulties in making clinical	24	Streamline TPRS forum processes	a) Review clinical criteria and revise if necessary b) Ensure MO accountability for quality and completeness of referral information to Forum	High

decisions due to unavailability of diagnostics			c) Hold monthly meetings of the Forum via telephone as well as email, and hold face-to-face quarterly meetings	
Delays in diagnosis and treatment in Samoa increases costs and diminishes patient dignity	25	Improve efficiency and effectiveness of treatment in Samoa	a) Finalise MoU between Samoa Ministry of Health and Tokelau DoH to include; (i) clinical referral point within Samoa Ministry of Health; (ii) performance measures and expectations for both parties including treatment timeframes; and (iii) provision for annual sector talks between Tokelau and Samoa b) Gradually increase the capacity of all three health facilities on Tokelau to undertake basic diagnostic testing thus reducing the need to travel to Samoa for these services	High
Management and delivery of TPRS is challenged at every level	26	Improve TPRS efficiency by sending patients direct to New Zealand and management by a third party following referral decisions by Tokelau	a) Consider, over time, sending all non-emergency complex secondary and tertiary cases directly to New Zealand with Samoa used primarily as a treatment hub for visiting medical and surgical specialists b) Consider funding a third party to help facilitate the TPRS referral process to Samoa (for visiting specialists or emergency treatment) and New Zealand	High
Increasing costs; TPRS patients and attendants pastoral care and advocacy needs	27	Agree reasonable allowance structure and improve support to access WINZ	a) Agree formula to revise and set allowances b) Negotiate a WINZ Tokelau liaison position c) Negotiate removal of stand down period for patients accessing the emergency benefit in NZ	High

B: Results Diagrams




Goal:
Reduction of NCD (non-communicable diseases) burden in Tokelau (public health component)
Long term
Improved integration of public health service delivery
Improved health outcomes for patients with NCDs
Medium term
Improved collaboration and information sharing on NCDs
Strengthened role of fatupaepae in public health delivery
Streamlined treatment of patients iwth NCDs
Improved access to NCD programmes and initiaties which are sustainable, effective, relevant to the Tokelau context
Develop a health financing platform to reflect the growing burden of NCDs.
Outputs/Short Term Outcomes
Establish interdepartmental NCD committee
Review the number of public health assistants and their job descriptions with a view to strengthening the working relationship between fatupaepae and hopsital at Nukunonu
Identify enviornmental health hazards and facilitate collaborative responses from hospital and fatupaepae
Review, audit and strenthen existing NCD registries
Review NCD policy and develop prorammes that are relevant to the Tokelau context
Develop guidelines for Taupulega to inform decision making on inventory for stores
Develop food security policy includign identifying agricultural products that can be grown in Tokelauan environment


Goal:
An efficient, relevant, effective, impactful and sustainable TPRS
Long term
Medium term
Outputs/Short Term Outcomes
A fairer, more transparent and accountable TPRS
Improved patient experience on TPRS
More effective clinical decision making on TPRS referrals
Health sector plan target for reduction in referral sincreased from 20%
TPRS expenditure reduced
(20) Improved understanding between the Taupulega, DoH and broader community about TPRS
(23)Streamlined pastoral and clinical support in NZ
(21) Improved Patient and Nurse experience of boat transfers.
Improved understanding and awareness of TPRS policy and processes.
(24)Streamlined TPRS Forum processes
(19) Established annual review mechanism of TPRS decisions
(25)Improved efficiency and effectiveness of treament in Samoa
Fair and reasonable allowance structure agreed
Improved access to NZ government financial support while on TPRS
(22)Provide housing support for TPRS patients in New Zealand.
-Establish consultation mechanism between the transport and health deparments
-Establish communication mechanism between the Forum and the Taupulega
-Deliver whole of community information sessions and consultations
-Upload TPRS policy and information booklet to Tokelau government website and social media pages
-Renewed MoU with CCDHB including provision for CCDHB to manage all NZ based TPRS clinical and pastoral support and plan for visiting specialists
-Visiting specialist roster agreed
-Plan developed by Transport and health departments to improve suitability of boat for patient transfers
Communication and information
-Review and improve TPRS information booklet as per recommendation 8(b)
-Add TPRS policy to MO & nurse induction
TPRS Forum
-Clinical criteria developed
-Summary sheet for MO referrals to the Forum
-Forum monthly meetings conducted via telephone as well as email, and face to face quarterly meetings conducted
Health Action committee to review current cases under TPRS
Samoa-Tokelau MoU
-Finalise MoU between Samoa and Tokelau health departments to include: (1) clinical referral point in Samoa Min of Health, (2) performance measures and expectations for both parties including treatment timeframes, (3) provision for annual sector talks between Tokelau and Samoa
(27)Agree reasonable allowance structure and improve support access to WINZ
Negotiate removal of standown period for patients accessing the emergency benefit in NZ
-Negotiate a WINZ tokelau liaison position
(26) Send all patients directly to NZ and manageme nt by a third party
Identify housing on CCDHB grounds that can be used by TPRS patients and attendants

C: Information Sheet

Review of Tokelau's Clinical Health Services and Patient Referrals Scheme
INFORMATION SHEET

E fakatulou ma fakatalofa atu ki toulua mamalu i te agalelei o tana pule fakahoa kua mafai ke hokotaki atu ai i ni auala venei. Ke tau fakamataali ma fakailo atu i tenei laupepa ta matou haeleele mai, ko te fakamoemoe ma te nautaga ke kikila ki ni auala ke toe fakaleleia atili ai te galuega tautua a te Mataeke o te Hoifua Maloloina ma tana polokalame i te hakili malohi o tagata tauale o Tokelau ki nuku i fafo, Hamoa ma Niu Hila. E talohaga atu ai ma te fakaaloalo mo he tatou feiloakiga, ke fakaavanoagia houlua taimi ke talatalanoa ma fatu manatu ai kini taki lelei ke fakatamaokaiga ai te Mataeke aua tana galuega tautua ki hoifua o tagata Tokelau.

The Tokelau Government has asked for an independent Review of the Tokelau Patient Referrals Scheme (TPRS) and clinical health services. In partnership with the Tokelau Government, the New Zealand Ministry of Foreign Affairs and Trade (MFAT) has engaged a Massey University-led team to do the Review.

What is this Review about?

Improving Tokelau's clinical health services and patient referrals scheme is the main reason for this Review. The Review will be done in a way that respects cultural protocols, values the voices of a range of people, and focuses on solutions which are workable in a local context. In this Review we will talk with a range of stakeholders in Fakaofo, Nukunonu, Atafu, Apia and New Zealand – like those who have used the TPRS and their families, health professionals, leaders, and community. We will be talking to people in January to early February 2019, and the final report including recommendations is due by 5 April 2019. We kindly invite you to be part of this Review.

The Review covers July 2014 to June 2018 and its objectives are: (1) review the relevance and effectiveness of clinical health services on Tokelau; (2) review the relevance, effectiveness, efficiency, impact and sustainability of the Tokelau patient referral scheme (TPRS); (3) determine the funding required to deliver adequate levels of health service, and the potential budget impacts of the growing incidence of Non-Communicable Diseases; (4) identify the key changes needed to deliver and sustain improved results from health services delivered on Tokelau, and through its patient referral scheme.

How have stakeholders been identified and what will be involved?

Names have been identified through team member networks and the Steering Committee. All *talanoa*/interviews/group discussions/workshops will be audio-recorded and notes will be taken to help the Review team capture everyone's contributions. Stakeholders will be asked to sign a consent form before the *talanoa*/interview/group discussion/workshop.

- Patients and their families

Those who have used the Tokelau clinical health services and patient referrals scheme are invited to *talanoa* with one or two team members. We will talk with around 30 people in total, including about 5 in New Zealand, and 5-10 each in Fakaofo, Nukunonu and Atafu. They need to be 18 years or over and in a state of health which would not be compromised by participation in *talanoa*. Discomfort might be experienced if negative experiences are discussed. If discomfort happens, the option *talanoa* can be discontinued. The *talanoa* will take place somewhere that is comfortable for the patient/family member and will take up to 1 ½ hours.

- Other stakeholders talanoa

Other stakeholders are invited to *talanoa* with a team member. This will include: leaders, Health Department personnel, transport officials, public finance officials, clergy, community organisation leaders, Taupulega (Village Council) and community groups (Aumaga/ Men and Fatupaepae Women). If a team member has a conflict of interest or role with a stakeholder, another team member will conduct the *talanoa*. No discomfort or risk is anticipated. Most talanoa will be face-to-face at a location comfortable for the stakeholder, and will take up to one hour.

- Health professionals group discussion

Health professionals in each village are invited to a group discussion. The discussion centers on the Systems Assessment Tool (SAT) which supports ongoing quality improvement of clinical health services. The SAT facilitates a collaborative process where the whole health team has a discussion about the various components, and agrees on a score with justification. No discomfort or risk is anticipated. The group discussions will take about half a day.

- Combined community workshop

There will be four community workshops – one in each village and one in Wellington. Stakeholders (about 30 in each workshop) will work in small groups initially, and then together, to create a vision and solutions. No discomforts or risks are anticipated.

What will happen to the information?

Information you share will be typed out, carefully analysed by the team and used to inform the Report to MFAT/Government of Tokelau. No names will be used in the Report and comments will not be linked to particular individuals. Interview recordings, notes, consent forms and stakeholder details will be managed by the Team Leader in password protected electronic files only accessible to the Review team or in a locked office of the Team Leader. These documents will be kept until January 2021 when the Team Leader will ensure they are destroyed. A summary of the Final Report and recommendations will be provided to each participating stakeholder after the Final Report has been accepted by the Steering Committee.

What are my rights?

You are under no obligation to accept this invitation. If you decide to participate, you have the right to: decline to answer any particular question; withdraw from the study at any time until the final report is submitted; ask any questions about the study at any time during participation; provide information on the understanding that your name will not be used unless you give permission to the researcher; be given access to a summary of the project findings when it is concluded; ask for the recorder to be turned off at any time during the interview.

Who is doing this Review?

The Review team members have all had experience in health and social care in different parts of the Pacific. The team are:

- **Dr Tracie Mafile'o**, School of Social Work, College of Health, Massey University
- **Dr Sunia Foliaki,** Centre for Public Health Research, Massey University
- **Ms Tanya Koro,** Pasifika Health Service, Central Primary Health Organisation
- **Dr Helen Leslie,** School of People, Environment and Planning, Massey University
- **Dr Michelle Redman-MacLaren,** College of Medicine and Dentistry, James Cook University, Australia
- **Assoc Prof Caryn West,** College of Healthcare Science, James Cook University, Australia /Director of World Health Organisation Collaborating Centre (WHOCC) for Nursing, Midwifery Education and Research Capacity Building

A Steering Committee oversees the implementation of the Review. This includes representatives from each *Taupulega* (Fakaofo – Dr Iuliano Tinielu; Nukunonu – Mr Tumua Pasilio; and Atafu – Ms Rosa Toloa) and MFAT personnel (Anna Pasikale).

Who to contact for more information?

If you have any questions about this project, please feel free to contact Dr Tracie Mafile'o on T.A.Mafileo@massey.ac.nz or +64 6 9518027 or +64 212692236. This project has been evaluated by the team and their colleagues and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone +64 6 356 9099 x 85271, email humanethics@massey.ac.nz.

D: Interview Guides

D(i) Services Users Interview/Talanoa Guide

1. Please introduce yourself and share briefly the reason you or your family member were part of the TPRS.
   PROMPTS:
   - Name, where from?
   - Who was the recipient of the TPRS?
   - What was/were the medical condition/s that required support by the TPRS?
   - Approximate dates of TPRS involvement?
   - (Gently) What can you share about the outcome?

2. What was the process you and your family members went through when accessing the TPRS?
   PROMPTS:
   - How was the referral initiated?
   - What were the different steps that took place in the process?
   - How long did each step in the process take?
   - Who was your ally/could you talk to and feel comfortable/safe? Who was involved at different stages?
   - What information did you receive (written/verbal) and what information did you have to give?

3. Thinking about your experience, what worked well for you or your family being involved with the TPRS?
   PROMPTS:
   - What about the scheme worked for you and your family?
   - What was most helpful?

4. Thinking about your experience, what did not work well for you or your family member being involved with the TPRS?
   PROMPTS:
   - What about the scheme did not work for you and your family?
   - What was least helpful?

5. What recommendations do you have for how Tokelau clinical health services could be improved?
   PROMPTS:
   - What could be improved regarding your involvement in your care planning with the health providers?
   - What could be improved regarding follow-ups by health providers?
   - What could be improved regarding Tokelau cultural matters relating to healthcare?
   - Suitability of physical infrastructure?
   - Availability of supplies and equipment?
   - Involvement in self-management?
   - Community health promotion?

6. What recommendations do you have for how the TPRS could be improved?
   PROMPTS:

- What could be improved regarding continuity of care? Communication between health providers in different countries?

D(ii) Stakeholders Interview/Talanoa Guide

1. Please tell me about **your role** in relation to Tokelau clinical health services and the TPRS?
   PROMPTS:
   - If employed, how long worked in this role?
   - If voluntary/community, how long have you been involved in this way?
   - What are the main tasks in your role? Who do you work alongside?
   - How does your role relate to others in the organisation?

2. What **changes**, if any, have you observed in clinical health services and the TPRS **since July 2014**?
   PROMPTS:
   - What are positive changes you have observed or experienced?
   - What are the negative changes you have observed or experienced?
   - How have any changes impacted your role?
   - How have any changes impacted on patients? On family and community health and wellbeing?

3. What is your **understanding** of what the **TPRS policy** is?

4. To what extent is the TPRS **policy adhered to**?

5. How are **complaints** about the TPRS dealt with?

6. What is currently **working well** in Tokelau health services and the TPRS?

7. What constraints have inhibited quality care and progress?

8. How can improved **internet and transport connectivity** help to improve Tokelau-based health services and patient referrals?

9. What **services** currently provided through off-shore referrals could be provided in a cost-effective way **in Tokelau**?

10. What revisions to the **strategic and operational plans** would assist in achieving the health outcomes to which Tokelau aspires?
- Consider plans of the Department of Health, the GoT and the village of Fakaofo etc

11. What **other changes** do you think could happen which would improve clinical health services and/or the TPRS?
    PROMPTS:
    - Health systems changes? Resource allocation? Organisational structures? Staffing? Infrastructure?
    - Public health, primary health…?
    - Maternal and child health?

NCD focused questions

1. Please tell me about your **role** in relation to NCD work?
2. What are the anticipated **impacts** of the growing incidence of NCDs on **Tokelau's residents**?
3. What are the anticipated **impacts** of the growing incidence of NCDs on **health services**?
4. What is the existing **NCD Action Plan**?
5. How is progress with the **implementation** of the NCD plan?
6. How is the Tokelau NCD Programme aligned with the **Sustainable Development Goals**?
7. What are the associated **costings** of the NCD action plan?
    - Budgetary allocation to NCD preventive strategies
8. What are anticipated **impacts** of the growing incidence of NCDs on **health-related expenditure** in Tokelau and New Zealand?
    - Health financing support
    - -Efficiency savings in the health sector regarding the funding of preventative work to reduce the significant burden of NCDs

E: Consent Forms

Individual interview/talanoa consent form

I have read, or have had read to me in my first language, and I understand the Information Sheet [attached as Appendix C]. I have had the details of the Review explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this Review and I understand participation is voluntary and that I may withdraw from the Review at any time.

Kua uma toku faitau ki te pepa fakamatalaga, pe na faitau mai foki kia te au I taku gagana, ma kua malamalama ma nofo maina au I na fakamatalaga ma te mafuaga o tenei Iloiloga.

Kua malie katoa toku loto ki na tali ma te fakamainaga mai o tenei Iloiloga ki ni popolega ma ni fakafehiligia nae ia te au, e tuha ai ma toku kaufakatahi ki tenei galuega.

E lahi foki he taimi na kaumai ke fai ai haku tonu, ma e malamalama au, ko toku kaufakatahi e ia te au lava ma toku loto malie. E koiloa foki e mafai au ke fakamuta toku kaufakatahi I ho taimi.

1. I agree/do not agree to the interview being sound recorded. (if applicable include this statement)
2. I agree to participate in this Review under the conditions set out in the Information Sheet.
1. Ko au e malie/he malie ki te talanoaga ke puke
2. Ko au e malie ke kaufakatahi i tenei Iloiloga i lalo o na tulaga e ve ona fakatatia mai i te pepa fakamatalaga.

Declaration by Participant:

Folafolaga mai te Hui Kaufakatahi:

I _____ hereby consent to take part in this Review.

Signature: _____ Date: _____

Community workshop or health professionals SAT consent form

I have read, or have had read to me in my first language, and I understand the Information Sheet [attached as Appendix C]. I have had the details of the Review explained to me, my questions have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this Review and I understand participation is voluntary and that I may withdraw from the Review at any time.

Kua uma toku faitau ki te pepa fakamatalaga, pe na faitau mai foki kia te au I taku gagana, ma kua malamalama ma nofo maina au I na fakamatalaga ma te mafuaga o tenei Iloiloga.

Kua malie katoa toku loto ki na tali ma te fakamainaga mai o tenei Iloiloga ki ni popolega ma ni fakafehiligia nae ia te au, e tuha ai ma toku kaufakatahi ki tenei galuega.

E lahi foki he taimi na kaumai ke fai ai haku tonu, ma e malamalama au, ko toku kaufakatahi e ia te au lava ma toku loto malie. E koiloa foki e mafai au ke fakamuta toku kaufakatahi I ho taimi.

1. I understand that I have an obligation to respect the privacy of the other members of the group by not disclosing any personal information that they share during our discussion.

Ko au e malamalama e iei toku tiute ke puipuia ma na he fakailoa ni fakamatalaga totino e patino ki ni hui o tenei vaega. Ke amanakia te aia tatau a te tagata.

2. I understand that all the information I provide will be kept confidential to the extent permitted by law, and the names of all people in the Review will be kept confidential by the researcher.

E nofo maina au ko taku fakahoa ma aku fakamatalaga uma lele e puipuia ma malu I lalo o te tulafono, ve na igoa uma lele o na hui kaufakatahi I tenei Iloiloga.

Note: There are limits on confidentiality as there are no formal sanctions on other group participants from disclosing your involvement, identity or what you say to others in the focus group. There are risks in taking part in focus group research and taking part assumes that you are willing to assume those risks

(E tatau o na nofo maina e mafai e ni ietahi tino I loto o na talanoaga faka-vaega oi fakailoa au tala nae fai ma to hao I loto o na talanoaga aua e he iei ni puipuiga aloakia e taofi ai te mea tena)

3. I agree to participate in the group discussion under the conditions set out in the Information Sheet attached as [Appendix C].

Ko au e malie ke kaufakatahi I tenei talanoaga faka-vaega I lalo o na tulaga kua fakatatia I te pepa fakamatalaga, [Appendix C].

Declaration by Participant:

Folafolaga mai te Hui Kaufakatahi:

I _____ [print full name]_____ hereby consent to take part in this study.

Signature: _____ Date: _____

F: Equipment List Summary

The following list was provided in February 2019.

Item	Nukunonu Good, Fair, Bad, condition	Atafu Good, Fair, Bad condition	Fakaofo Good, Fair, Bad condition
Emergency Room			
ECG machine Cardiac Monitor	ECG Machine (x1) Cardiac Monitor (x1)	ECG Machine (x1) Need cardiac monitor	OPD (x1) Need cardiac monitor
AED (Defibrillators)	X2	(x1) Needs fixing Lifepak not fully functioning (leads missing)	MISSING Lifepak batteries missing, leads missing, parts broken
Infusion pump	X1	Nil	Need 1
O_2 cylinder	In use (x1), spare (x1)	(x2); need valve and key	OPD x1
O_2 concentrator	ER (x1); Ward (x1)	(x1)	OPDx1
Suction machine	ER (x1)	(x1); (x1)	OPDx1
Anaesthetic machine	ER (x1)	Nil	Nil
Incubator/Infant	Need one	Need 1	Need 1l
CTG Machine	Need one	Nil	Nil
Outpatients			
Glucometre	Caresens (x2)	(x2)	(x1)
Nebulizer	(x1)	(x1)	(x1)
Glucose, uric, choles	Benechek (x1)	Need 1	Need 1
Fridge for lab agents and other meds	Dressing Rm fridge (x1) faulty and over freeze at times	(x1)	(x1)
MCH/ANC			
Vaccine fridge	MCH/ANC (x1)	(x1)	Need 1
Foetal doppler	MCH/ANC (x2)	Need 1	Store x1
Infantometer	Need 1	Need 1	Need 1
Baby cot	Need 1	Need 1	Store x1
Vaccine carrier	Need x3 for other atoll campaign	(x1)	Need 1
Laboratory			
QBC machine (FBC)	Lab (x1)	Need 1	Need 1
Centrifuge	Lab (x1)	(x1) instore!	(x1) instore!
Arkray (Biochem)	Lab (x1)	Need 1	Need 1
I-Chroma Tumour Marker	Lab (x1)	Need 1	Need 1
I-chamber	Lab (x1)	Need 1	Need 1
Urinalysis	Lab (x1)	Need 1	Need 1
Portable Aicon	Lab (x1)	Need 1	Need 1
Operating Theatre			

Autoclave	OT CSSD (x1))	(x1)	(x3)
Power Saver	(x1)	(Need 1)	Need 1
Compressor	(x1)	(x1)	Store x1 and bad
OT table	(x1	(x1)	(x1) unusable
Wall mounted AC	(x1)	Need 1	Need 1
Dental			
Amalgamator	(x1)	(x1)	Nil
Autoclave	(x1)	(x1)	Nil
Dental chair	(x2)	(x1)	(x1)
Dental Unit	(x3)	(x1) Drill malfunction	Nil

F: Health Corridors

The Pacific reset provides a framework and strategic context for New Zealand to work in Polynesia. Building on strong relationships with our partners in the Cook Islands, Niue, Samoa, Tokelau, Tonga and Tuvalu, our collective aim is for people, services, and knowledge to move more freely across the countries.

The overall vision for Health Corridors is to strengthen health systems and improve the well-being of Polynesian people. Through close collaboration, learnings from each country can be shared to create opportunities to harmonise and improve systems for better health outcomes. As an initiative Health Corridors aims to move health system and investment focus from the acute end of the health spectrum to the preventative, palliative space, to become more people centred rather than activity centred. This will create systems that leverage what works well, and are adaptive and sustainable.

The World Health Organisation health systems framework that includes the six building blocks framework is a common tool that helps to guide health systems to meet the needs of communities. Of the six building blocks, the Polynesian Heads of Health agreed on the following four to form the components of Health Corridors:

1) Service Delivery: delivering effective, safe, quality health interventions to those that need them, when and where needed, with minimum waste of resources.
2) Workforce Development: A workforce that is responsive, equitable and efficient to achieve the best health outcomes possible, given available resources and circumstances
3) Leadership and Governance: ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, regulation, attention to system-design and accountability.
4) Access to Essential Medicine: ensuring equitable access to essential medical products, vaccines and technologies of assured quality safety, efficacy and cost effectiveness.

Health Corridors will work in close alignment with the New Zealand Aid Programmes four year plans and 20 year strategies.

The Health Corridors Alliance

Health Corridors will be governed by an Alliance made up of representatives from the six countries of this activity and New Zealand. The Alliance acts as an interface where agreed and bespoke health activities can be developed to meet the priorities of each country both on a regional and national scale. Health Corridors adopts a strengths-based approach that acknowledges the wealth of expertise and knowledge that sits within Polynesia and New Zealand. Formal and informal health links will be reinforced through the Alliance that draws on the strengths of health stakeholders from public, private and civil society organisations across all seven countries.

H: Tokelau Health Action Committee (HAC) Proposed Terms of Reference

Purpose

The role of the Tokelau Health Action Committee (HAC) is to support health governance by providing independent advice and monitoring to the Taupulega and DoH in relation to Tokelau clinical health services delivery and the TPRS.

Membership

The HAC members will be appointed for a period of 3 years. The committee will include:

1. New Zealand General Practitioners x 2
2. New Zealand senior primary health care nurse
3. New Zealand health information specialist
4. Tokelau Department of Health senior official
5. Taupulega member FF
6. Taupulega AA
7. Taupulega NN

MFAT and the Ongoing Council of the Government of Tokelau (OCOG) will appoint the members external to Tokelau (1-3 above), at least one of which will be of Tokelau ethnicity and be fluent in the Tokelauan language. The Department of Health and the Taupulega members will appoint their respective members (4-7 above). MFAT and OCAG will appoint the Chair from within the committee membership.

Accountability

The Tokelau HAC is accountable to MFAT and OCOG.

Meetings

The Tokelau HAC will meet 3 times per year, two of which will be an online meeting and one will be face-to-face as part of annual on-site visits to Tokelau.

In regard to TPRS audit responsibility (#3), however, only members external to Tokelau will undertake the audit prior to the meeting with the Tokelau members where the findings can be presented and discussed. This is to ensure independence in the audit.

Responsibilities

1. Facilitate collaborative discussion and action amongst key parties in Tokelau health governance and management to improve Tokelau's health outcomes in alignment with Tokelau's national vision and strategy.
2. Provide technical support and advice on implementation of review findings.
3. Monitor and audit TPRS annually.
4. Liaise with the Department of Health and Taupulega.
5. Provide twice yearly reports to the Taupulega.