

Primary care improvement case study

The Fono 'Happy Skin' project: Skin and soft tissue infections in the Tuvaluan community

Number 3 in a series of 18

The population of Pacific peoples in New Zealand has a much higher rate of skin and soft tissue infections (SSTIs) than the rest of the New Zealand population. Among Pacific peoples, the Tuvaluan community has the highest rate of SSTI, indicating a large equity gap that needs to be addressed. The Fono initiated a quality improvement project that used a community-based public health approach with the aim of reducing the rate of SSTI by 25 percent by November 2018 in the West Auckland Tuvaluan community. Here's what they did.

Project overview



We asked the Tuvaluan community about what they wanted us to do to help and then created solutions based on their needs and feedback. Our public health approach included making presentations at churches in weekends to raise awareness of SSTI, developing a video and song to educate the Tuvaluan community

on skin infections and handwashing, and supplying the community with liquid soap in several different ways. We collected monthly data on the occurrence of SSTI for every 1,000 Tuvaluan patients aged under 25 years who were enrolled at the Fono and compared this with data on other Pacific and non-Pacific patients.

Background and context

Skin and soft tissue infections are infectious diseases caused by *Staphylococcus aureus* and/or *Streptococcus pyogenes* bacteria. We use the term SSTI to include both of these bacteria as they may both be involved in superficial skin infections (Bowen et al 2015).

SSTI bacteria are highly infectious and easily spread among close and extended family members and within educational and daycare centres. Although it is easy to treat SSTI in individuals, focusing on the individual may fail to address the problem of SSTI effectively. This is because the blood-borne infection can spread easily through a community, carrying with it a serious threat to survival with the development of osteomyelitis, septic arthritis, pneumonia and cerebral abscesses. It is this concern that makes it more appropriate to consider SSTI as an infectious disease from a public health perspective, one that reaffirms the presence of health care disparities between the majority of the population and Māori and Pacific peoples. This project sets out evidence that supports SSTI management in the community using quality improvement and community participation methods.

Waitematā District Health Board (DHB) has one of the highest rates of SSTI of any DHB in New Zealand and most of these SSTI occur in West Auckland. The Waitematā data on ambulatory sensitive hospitalisations (that is, acute hospital admissions that could potentially be avoided) identified that, among those aged 0–14 years in 2007/08, the highest number of cellulitis admissions came from Ranui North, a West Auckland suburb that has a high score on the New Zealand Deprivation Index (NZDep, where a high score indicates high levels of socioeconomic deprivation). In addition, the total number of cellulitis admissions in the Waitematā DHB region was second only to the total for the Counties Manukau DHB. Most Tuvaluan families have settled in the Auckland region (80 percent

of Tuvaluans in New Zealand according to the 2006 Census) and the Ranui area is home to many of them.

Anecdotal experience has led health professionals at The Fono health clinic, a major health care provider for this community, to recognise that this socioeconomically deprived suburb is a setting for high rates of SSTI. Tuvaluan community leaders were also concerned about the high rates of skin infections. Informal discussions indicated the community was enthusiastic about reducing the burden of SSTI.

We offered the Tuvaluan community in West Auckland a unique opportunity to participate in our project aimed at reducing the rates of SSTI. It gave them the chance to 'make a difference' and improve the quality of care in their community. The Ministry of Health's (1997) report *Making a Pacific Difference* suggested that to measure the quality of a Pacific service, providers and consumers need to work together to improve the quality of health care. 'Working together' involves:

- respecting and understanding cultural characteristics such as the use of Pacific languages
- using a variety of communication methods to convey information
- recognising and encouraging full family participation where appropriate
- being sensitive to the influence of the church on Pacific health behaviours (Ministry of Health 1997).

In treating SSTI, health care providers must be community based and culturally sensitive and it is clear that any intervention requires specific advice from Pacific communities (Robinson et al 2006; Tamasese et al 2005). It also needs to take into account particular characteristics of the Tuvaluan community: for example, many in the community

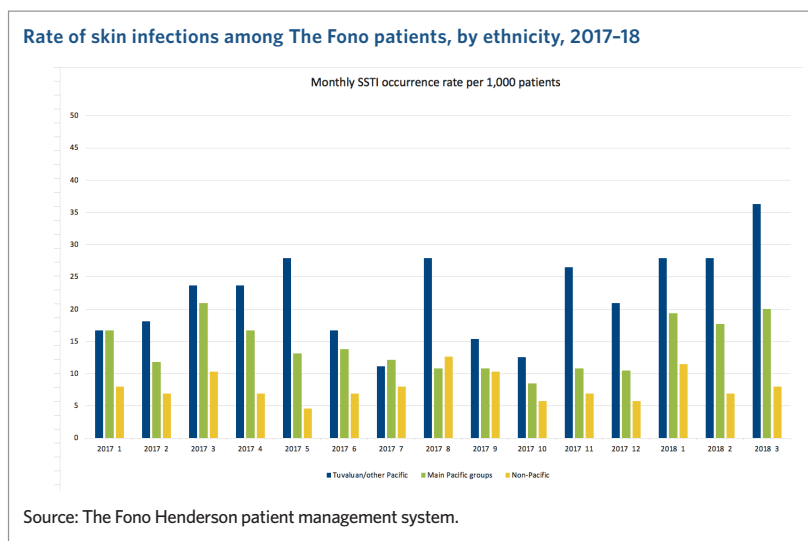
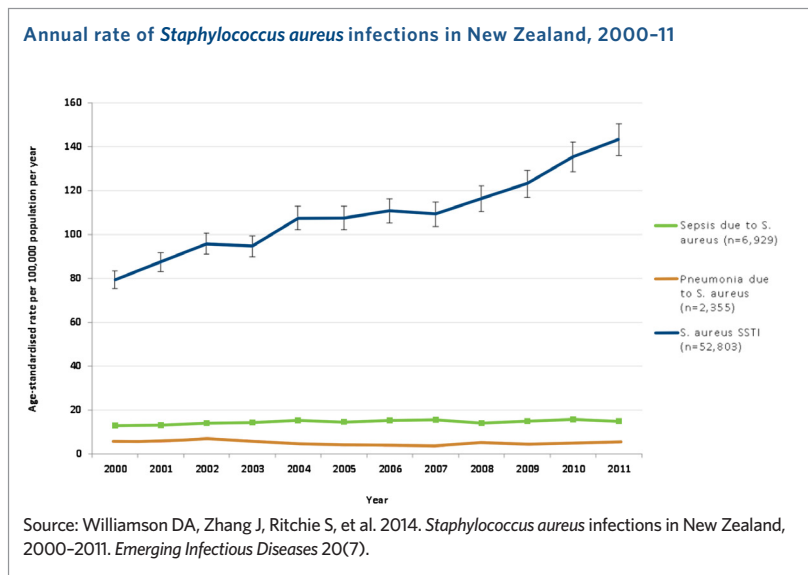
are fluent in the Tuvaluan language; children under 15 years are a high proportion of the population; a high percentage live with family members, often including extended family; and a high percentage have religious affiliations.

From 1990 to 2007, before this project began, the incidence of serious skin infections was rising in children aged 0–14 years in New Zealand. Over this period, the incidence rose from 546 to 866 per 100,000 Māori children and from 885 to 1,351 per 100,000 Pacific children. The highest rates were in preschool children living in deprived neighbourhoods (O'Sullivan et al 2011).

Diagnosing the problem

In an Auckland study of hospital admissions of all children aged under 15 years between 2007 and 2010, the incidence of hospitalisation for *Staphylococcus aureus* was 522 per 100,000 children, one of the highest rates reported among developed countries. Beyond that, the incidence of SSTI in Māori and Pacific children was the highest in any developed country: 1,488 per 100,000 Māori and 1,215 per 100,000 Pacific children.

The data from The Fono's patient management system likewise showed a continuing trend of increasing infection rates and a widening gap between the Tuvaluan population and other populations in 2017 and 2018, as the next chart illustrates. The table that follows compares the SSTI prevalence rates for these same ethnic groups for 12 months. It shows clear differences between the groups: only non-Pacific peoples were lower than and Tuvaluan were considerably higher than the overall rate of 12 percent.



Prevalence of SSTI, by ethnicity, September 2017–August 2018

Ethnic group	SSTI patient #	Total patient #	SSTI prevalence
Tuvaluan	125	717	17%
Other Pacific peoples	349	3,053	11%
Non-Pacific peoples	61	874	7%
Total	535	4,644	12%

Source: The Fono Henderson patient management system.

Problem statement

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Staphylococcus aureus was 522 per 100,000 children, higher than rates reported for other developed countries. Beyond that, the incidence in Māori and Pacific children was the highest reported in any developed country: 1,488 per 100,000 Māori and 1,215 per 100,000 Pacific children.

The aim

This project aimed to reduce the rate of SSTIs (*Staphylococcus aureus* and *Streptococcus pyogenes*) in the West Auckland Tuvaluan population (enrolled Fono patients aged under 25 years) by 25 percent by November 2018.

The measures

Outcome measure: Rate of SSTIs

Process measures:

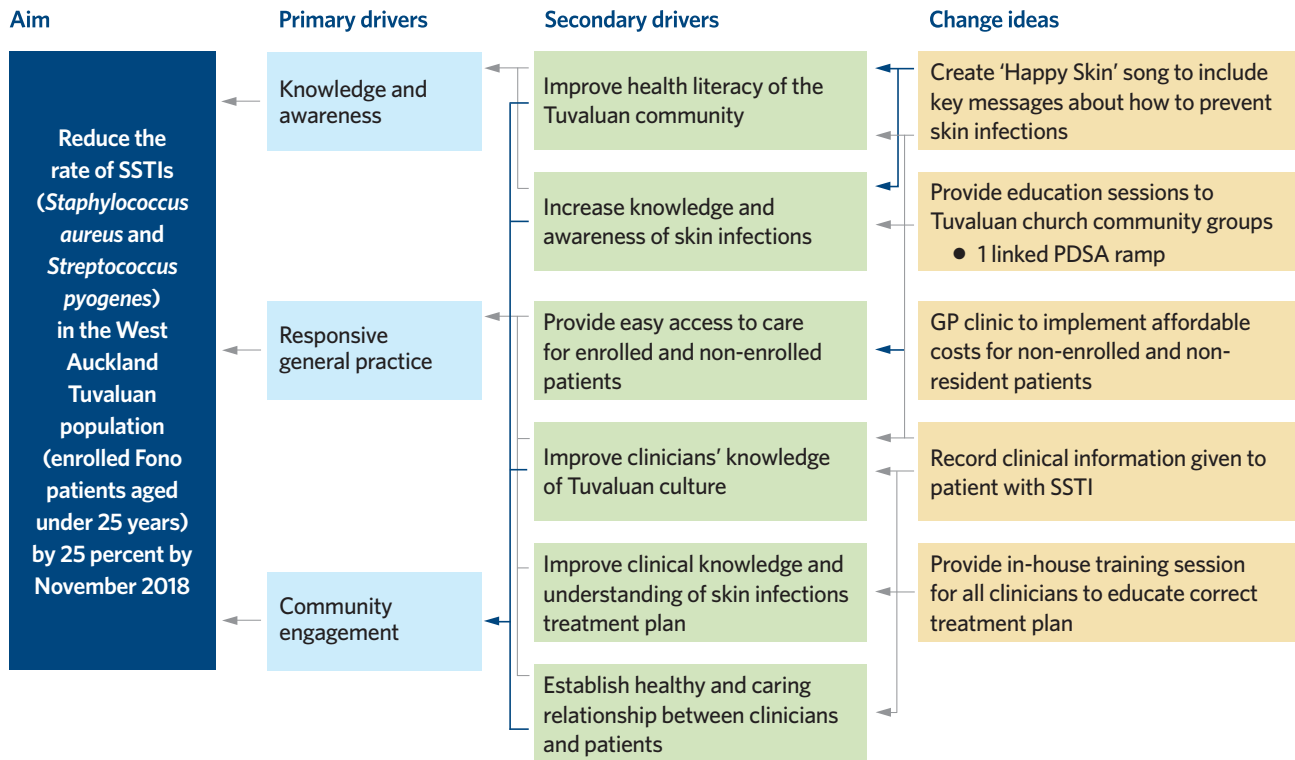
- Church registrations
- Church visit questionnaire results – the percentage of church visit participants who were able to correctly answer questions about skin infections and handwashing
- Soap distribution
- Qualitative feedback

Balancing measures:

- Voluntary staff hours at church
- Work sick leave

Drivers of change

Driver diagram



What we did

We used a community-based approach for this project.



'We went out to the Tuvalu community and we asked them what **they** wanted us to do to help them solve this problem of skin infections.'

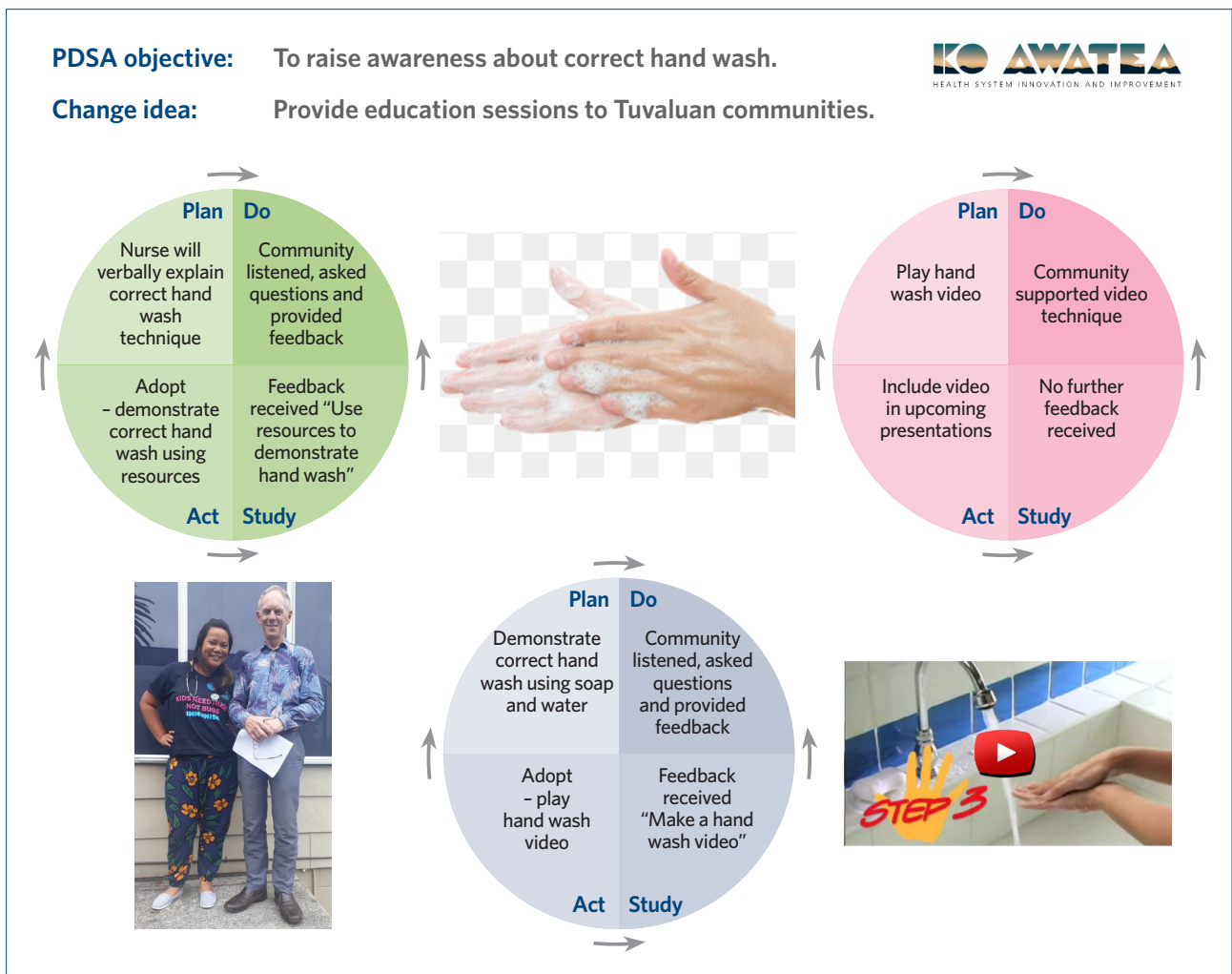
'We then created a solution based on **their** needs and feedback provided.'

'Having a **community-driven** approach is our biggest point of difference and that is the main reason why we have a successful project.'

Quality improvement tools

Quality improvement tools we used were:

- a driver diagram that helped us to focus on key activities to increase knowledge and awareness of skin infections
- plan-do-study-act (PDSA) cycle, which we used to improve the way we delivered our church visits and education sessions
- fishbone cause and effect diagram presenting a cause and effect analysis, which we used to understand system issues contributing to the high rate of SSTI in the Tuvaluan community (see [Appendix 1](#)).

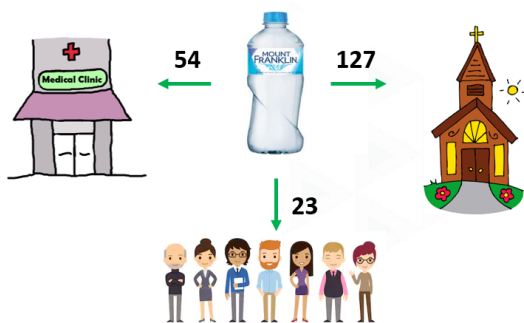


Changes we tested

We tested the following changes.

- **Community-led approach:** In this approach, 'we asked them what they wanted us to do to help them solve this problem of skin infections'.
- **Soap distribution:** We used three methods of distributing the liquid soap: through church visits, the medical clinic and community staff. This approach involved:
 - a high demand for refills: 'Some patients come into the clinic just for the soap and not for a medical appointment'
 - limited resources to meet the demand.
 Dr Kennelly bought the barrel of soap and the team collected empty bottles to pour the soap into.

Change Package – Soap Distribution

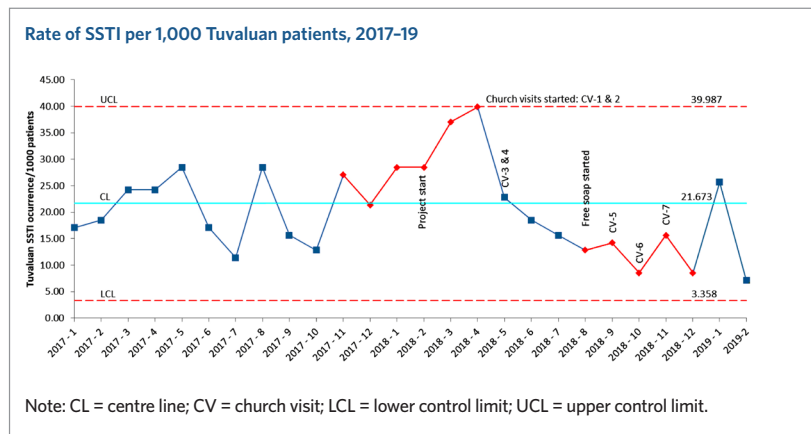


- **Education through church visits – see [Appendix 3 for the final church visit run sheet](#)**
General practitioner Dr John Kennelly and nurse Temasi Kitara led these sessions. At these sessions, we:
 - explained each slide in English and Tuvaluan
 - encouraged questions and feedback throughout the presentation
 - discussed types of skin infections – cellulitis, boils, school sores, scabies and eczema
 - used images as our people are visual learners
 - presented data that shows how alarming the issue is. Tuvalu is a very small island country with a small population yet Tuvaluans in New Zealand have the highest rate of skin infections within New Zealand's Pacific population.
- Consider other education sessions and nurse education in clinic.
- Supply creams and medication.
- Develop and show handwashing video that features the 'Happy Skin' song.
 - Lyrics repeat: 'Hello family, 20 seconds hand wash is the key to happy skin'.

The results

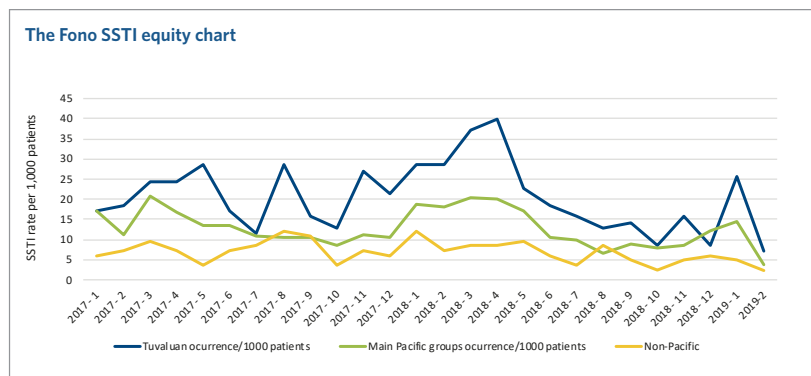
1. What outcome measures improved?

This chart shows that when the project began in 2018, the SSTI rate continued to increase at first. After we started the church visits and we educated the community about skin infections, what they look like, and the importance of treatment and hand hygiene for prevention and reducing spread, the rate shifted below the centre line.



2. What equity measures improved?

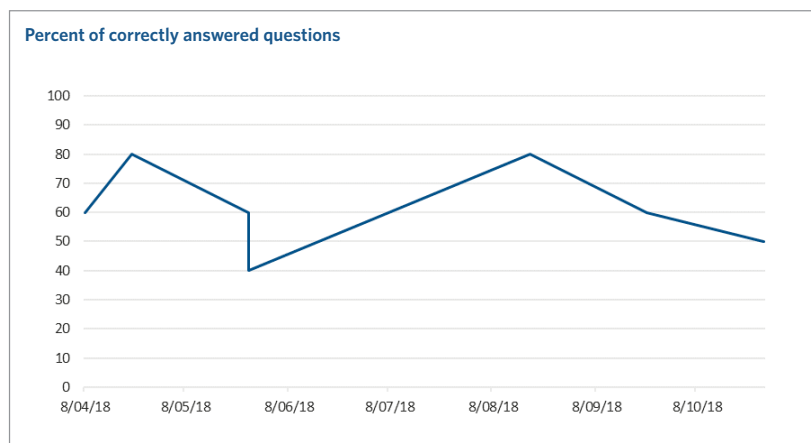
The chart shows the equity gap in the SSTI rates between the Tuvaluan community and other population groups - namely, other Pacific peoples and non-Pacific peoples. Although a gap remains, it has been narrowing since the project began.



3. What process measures improved?

(See [Appendix 2](#) for the questionnaire.)

The chart shows the average percentage of correctly answered questions in the questionnaire people completed on our first visit to each church.



Qualitative feedback

We received feedback on the following aspects of the project.

Presentation

- 'The presenters need to speak louder because I can't hear them.'
- 'I would like to see more pictures because I can't understand English.'
- 'Can a Tuvaluan translate every slide instead of waiting to provide a summary at the end?'

Workshop

- 'So what happens now?'
- 'The stats are alarming! We are a very small island yet we have the highest rate of SSTI. How can we raise awareness to our wider Tuvaluan communities?'
- 'We want to see you more. Can you run practical workshops with us about how to wash hands and apply cream correctly?'

Resources

- 'Can we have some pamphlets that include all key messages about skin infections? It would be good to remind us and to also give to our family members who couldn't be here for the presentation.'
- 'Can we have pamphlets in Tuvaluan and English?'

What did the balancing measures show?

Voluntary staff hours at church

- Two hours per church visit
- Seven church visits
- Seven project team members

This equals 98 voluntary staff hours attached to the church visits from April to November 2018.

Work sick leave

Sick leave (the number of sick days taken by project staff each month) recorded in Life QI from April 2017 to November 2018 shows normal distribution.

Post-project implementation and sustainability

1 Have the successful changes been embedded into day-to-day practice? How have you managed this?

The changes tested in the community population are now part of normal practice. We now regularly see our Tuvaluan people in the clinic when they need to be seen for SSTI and they understand and practise good hand hygiene regularly.

On the basis of this project, we have been able to submit evidence-based funding applications to apply this model to other Pacific peoples. We are waiting on the outcome of these funding applications.

2 How did you communicate progress and results?

- We communicated about the project by email to all staff.
- We made presentations to:
 - senior management team meetings
 - the Fono Trust Board
 - members of Parliament
 - the Primary Health Organisation Quality Improvement Network
 - the 2019 conference of the Royal New Zealand College of General Practitioners.
- The project featured in the 2020 Primary Health Care Awards as the winner of the Ministry of Health Equity Award.
- The Health Quality & Safety Commission website contains information on the project.

Summary and discussion

Lessons learnt

Challenges

- The project relied on voluntary staff hours.
- We had demand for resources but no funding to provide them.
- The project was under time constraints.
- We lacked funding for IT or data functions. Filtering patient records to capture target audience was a tedious process.

Successes

- The outcome measure shows a decrease in SSTI rates during the period when the project was raising awareness.
- We presented the project work to Ministers and various conferences (including the conference of the Royal New Zealand College of General Practitioners 2019).
- Consumers gave positive and appreciative feedback.
- We are continuing to visit churches.
- Demand for support and learning sessions has increased.
- We have developed our knowledge of improvement tools.

Future steps or ongoing work

In future, we intend to:

- capture data
- follow up church visits
- refill soap bottles
- provide learning sessions
- look at different target audience.

The team



Photo (left to right):

Temasi Kitara - enrolled nurse, Laine Lekasa-Steven - health coach, Janet Masoe-Hundal - executive assistant quality improvement facilitator, Dr John Kennelly - clinical director and general practitioner, Elena Tauliani - health promoter, Tauliani Monise - community support worker.



Photo (left to right):

Tevita Funaki - chief executive, Sally Dalhousie - chief operating officer, Janet Masoe-Hundal.



Helen Yulong Gu
- data analyst.



Mileta Esela
- community support worker.

References

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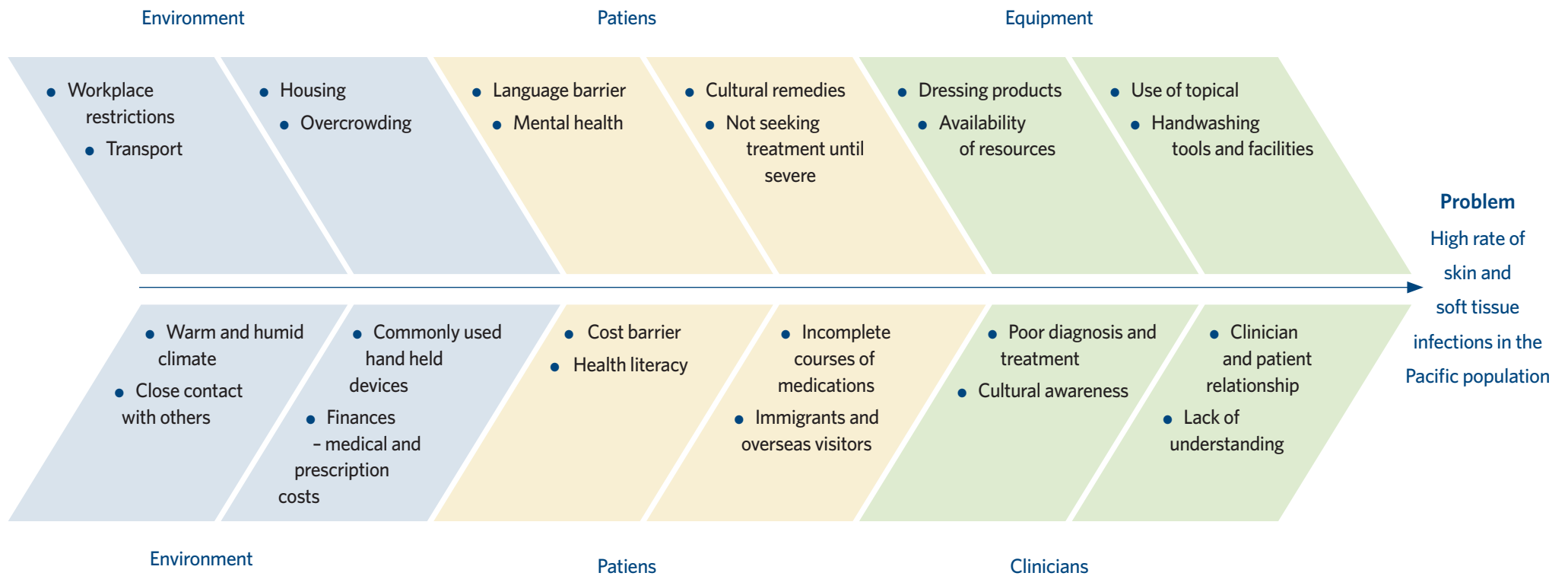
Acknowledgements

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- Dr John Kennelly
- Health Quality & Safety Commission
Whakakotahi programme
- Ko Awatea quality improvement facilitators
programme

Appendix 1: Fishbone cause and effect diagram

Potential causes



Appendix 2: Questionnaire – English

Please complete the following questions. There are no right or wrong answers. This questionnaire will help us understand the problem so that we can better support the Tuvaluan community.

1. **Tell us what you know about skin infections.**
2. **Do you know what types of skin infections there are? If yes, please state or describe.**
3. **What do you usually do to treat skin infections?**
4. **How many people live in your home?**
5. **How many bedrooms are there in the house?**
6. **How many bathrooms in your house? Please state number of shower and toilets.**
7. **When do you wash your hands?**
8. **How long do you wash your hands?**
9. **What do you use to wash and dry your hands? E.g. Soap or liquid foam? Hand towel or hand papers?**
10. **Do you recall in the past 12 months anyone in your household have had problems with skin infections?
If yes, how many people and how many occurrences and/or recurrences?**
11. **Do you have any further comments you would like us know.**

Questionnaire continued – Tuvaluan

1. Sea tou iloai I masaki ote pakili?
2. E isi 'sou iloa i 'vaega masaki kesekeese ote pakili? Kafai e isi, tusi aka ki lalo.
3. Nea au 'faiga e fai ke lei a masaki kite pakili?
4. E tokofia tino e nofo I tou fale?
5. E fia potu itou fale?
6. E fia fale kookou/fale foliki I tou fale?
7. I taimi fea e fulu ei ou lima?
8. E mata e pefea te leva (taimi) e fulu ei ou lima?
9. Sea tau mea e fakaaoga ke fulu io me fakamaloo kiei ou lima? Eg, soopu? Sololila io meko pepa fakamaloo lima?
10. Ite 12 masina ko teka, kai isi se tino/tamaliki I 'tou kaiga ne pokotia ne masaki ote pakili? Kfai e isi, e tokofia? E fakafia foki taimi ne fokifoki ei?
11. E isi ne au fesili io mene faitioga kite mataupu tenei?

Appendix 3: Final church visit run sheet

Skin & Soft Tissue Infections (SSTI) in the Tuvaluan Community

Tuvaluan Christian Church at St Michaels | Sunday 19 August 2018, 3.00pm

1	Introduction - Led by Tauliani.	(5 minutes)
	<ul style="list-style-type: none"> Note: Explain follow-up meeting. Request for people to sit closer to the stage. 	
2	Registration - Led by Tauliani.	
	<ul style="list-style-type: none"> Explain registration. Pass rego forms around room. 	
3	Presentation - Led by John and Mileta.	(5 minutes)
	<ul style="list-style-type: none"> John to present Tuvaluan SSTI stats. Mileta to translate slides. 	
4	Hand wash video - Led by John.	(10 minutes)
	<ul style="list-style-type: none"> John to show video. 	
5	Questionnaire - Led by Mileta.	(15 minutes)
	<ul style="list-style-type: none"> Follow-up questionnaire. 	
6	Soap distribution - Team	(10 minutes)
	<ul style="list-style-type: none"> One bottle per family. Distribution via church visit, clinic and community team. Return for refill. 	
7	Questions/feedback - Led by Tauliani.	
	<ul style="list-style-type: none"> Ask for feedback 	
8	Closing - Led by Tauliani.	(5 minutes)
	<ul style="list-style-type: none"> Acknowledge community for time. 	