

Primary care improvement case study

Tongan Health Society: Improving medicine access in primary care for Pacific peoples

Number 10 in a series of 18

Project overview

The Tongan Health Society is working on an innovative approach to underpin best practice models for patients with diabetes who are on maximum oral hypoglycaemic medication to start insulin therapy when they are hesitant to do so. Dr Glenn Doherty, CEO and Medical Director for the Tongan Health Society Inc. initially developed the project and related research with assistance from the Ministry of Health Pacific Innovation Fund which ran concurrently with the Whakakotahi initiative.

An initial patient management system data query identified 254 diabetics on maximum oral doses of hypoglycaemic medications who were needing to start insulin. After screening for eligibility and data cleansing, a cohort of 43 people remained. We started by inviting the eligible people to participate in the trial and conducting a screening questionnaire to identify barriers to insulin initiation.

Many of these patients work odd hours, which makes it difficult for them to access health care. Our diabetes nurse reached out to these patients by visiting their workplaces and homes, either very early in the morning or late at night. In this way, we were able to get these patients started on insulin. Additionally, we organised group diabetes self-management education (DSME) sessions with patients and their whānau. Specialists from the district health board were involved in these sessions to raise awareness about diabetes, and patient enablers also took part.¹ Various other methods we included in this project also proved helpful. As of December 2020, the total cohort is now 49 and we have commenced 70 percent of clients on insulin, organised 10 DSME sessions and identified several barriers to starting insulin.

We continue to refine our methods based on learnings and work towards starting more patients with diabetes on insulin when that is needed.

¹ The patient enablers are people who have already started on insulin. At DSME sessions, they share their experiences with those who need to begin insulin, including obstacles and successes they met on their journey to insulin initiation, and they encourage their counterparts who are facing their own barriers to starting insulin.

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Background and context

Established in 1997, the Tongan Health Society is the only privately developed Tongan Integrated Family Health Centre operating outside the Kingdom of Tonga in New Zealand. We use the name Langimalie (meaning 'clear blue sky' in Tongan) for all three of our medical centres in Auckland (in Onehunga, Panmure and Kelston), which together serve a population of over 6,000 registered patients.

The prevalence of Pacific peoples with diabetes in the Auckland region is 21 percent (5,790). Langimalie clinics are dealing with 15 percent of this total cohort. Around 95 percent (3,805) of the patients at the clinics are Tongans. At present we have a total of 254 patients who are on maximum doses of oral hypoglycaemic medication and 'need' to go on insulin.

Little information is available about barriers that hold back Pacific families from starting or intensifying insulin, and particularly barriers for those on maximum oral hypoglycaemic doses where insulin is now needed in their health management approach. Our intention is to document these barriers and design a tool to overcome them, which will ultimately lead to reduced blood glucose levels, as measured by HbA1c values.



Diagnosing the problem

1 Problem statement

A total of 254 of our people with diabetes are on the maximum oral hypoglycaemic dose and need to start insulin but are hesitant to do so. We need to identify the barriers to insulin uptake and help bring down HbA1c values of these patients to improve their quality of life.

2 How you know that this is a problem? What data did you have to describe this problem?

Our initial data found a total of 254 patients were on the maximum dose of oral hypoglycaemics and 'need' to go on insulin. For the purpose of this project, we selected a small subset of this group based on the criteria that the patient:

- was not currently using insulin
- was on at least two oral hypoglycaemic agents (OHAs) at maximum tolerated doses or, in the opinion of the responsible medical practitioner, needed to begin insulin
- had stable doses of OHAs for at least three months before enrolling in the programme
- had HbA1c of more than 7.5 percent in the last six months and was on maximum OHAs
- was willing to monitor their glucose levels at least twice daily
- was aged 18 years or over.

Based on these criteria and after data cleansing as well, we were left with a group of 43 patients.

Little information is available about barriers that hold back Pacific families from starting or intensifying insulin initiation, and particularly barriers for those on maximum oral hypoglycaemics who need insulin now as part of their health management approach. Anecdotal evidence suggests that the main reasons why many Tongan and other Pacific clients are hesitant to begin insulin relate to:

- confidence
- family misconceptions
- cost
- storage
- compliance
- shift work
- needle aversions
- social issues and priorities competing with health management.

Complications of diabetes can exacerbate these issues, having a detrimental and severe impact on the entire family, especially if the person with diabetes is a primary provider or key enabler for the family. In a wider context, barriers that prevent people from starting insulin have negative impacts in terms of reducing the health of the workforce, particularly in primary and secondary industries, limiting the potential for economic development, making it more difficult to apply community development principles and having intergenerational outcomes.

3 What was the baseline data?

The total of 254 patients who are on maximum OHAs and need to go on insulin are spread across both the Auckland District Health Board and the Counties Manukau District Health Board catchment areas. Of this total:

- 60 percent live in South Auckland
- 30 percent live in Auckland
- 8 percent live in North Shore
- 2 percent live elsewhere (eg, outside of Auckland).

Most participants live in the most deprived areas (quintile 5 on the New Zealand Index of Deprivation) of Auckland.

4 What is the significance of this problem in your specific locality and/or practice?

Patient stories such as the following helped us to understand the barriers to insulin initiation and come up with change ideas.

- A 43-year-old male with type 2 diabetes is a truck driver working six days per week from 4 am to 6 pm. His ability to access

health care is diminished due to his busy schedule and he cannot take time off work. He has no practical knowledge of an insulin regimen apart from what he's seen other people doing. He is not happy with his current health status but doesn't know how to fix the situation, so continues with his routine.

- A 51-year-old female has type 2 diabetes. She has been ignoring her diabetes due to a previous unsatisfactory experience with insulin. She has been on different insulin regimens in New Zealand and Tonga in the past. When injecting insulin previously, she hurt herself due to different needle lengths and techniques. She is scared of injecting herself again. She was initially very reluctant to discuss her diabetes status because she had the misconception that clinicians treat diabetic patients badly – that is, she believed that clinicians blame the patients for their poor health status. She has 12 children and had gestational diabetes for many of these pregnancies.

The aim

This project aimed to reduce the average HbA1c (104.5 mmol/L) of the 43 enrolled diabetic patients on maximum oral doses of hypoglycaemic medications by 15 percent (88.5 mmol/L) by April 2020.

The measures:

Outcome measures:

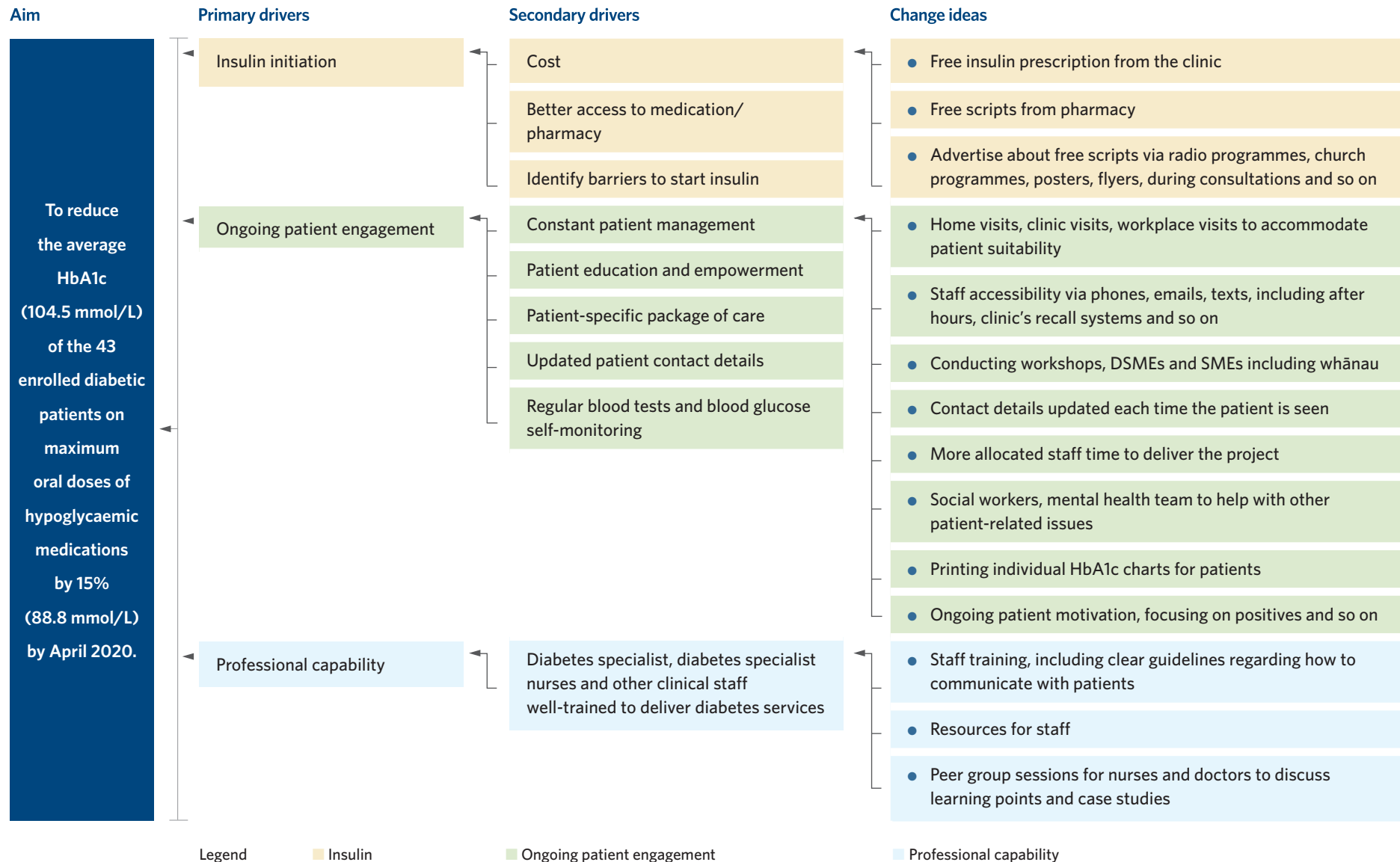
- Average HbA1c
- The number of patients on insulin out of the cohort (43)

Process measures:

- Number of group session conducted
- Attendance at DSME sessions
- Level of understanding gained during DSME sessions

Drivers of change

Driver diagram



What did we do?

1 Were there any ethical considerations to be aware of?

The project was part of a much larger study that was registered with the **Australian New Zealand Clinical Trials Registry ACTN12619000840189**. No ethical considerations were involved as this was an innovation around accessing already existing best practice for insulin initiation and intensification.

2 How did you involve consumers in co-design?

Staff implicitly involved our clients when our clients shared some of the reasons why they would not start insulin. We then advocated for funding to address these barriers on behalf of the clients.

We also used surveys and questionnaires to canvass our patients and feedback collected from the DSME sessions.

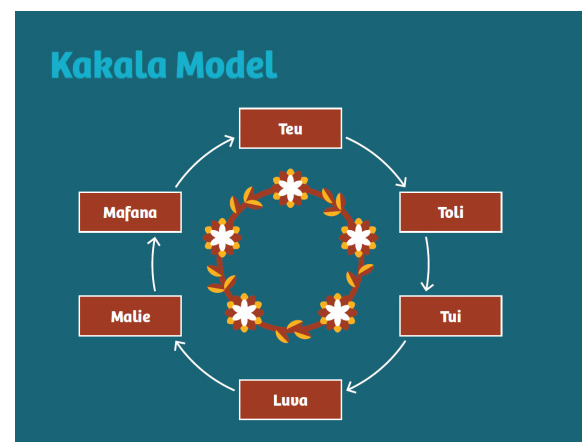
The surveys helped us to identify the barriers to insulin initiation and modify our approach accordingly.

3 What processes did you use?

We used the kakala model^{2,3} – a framework for understanding and connecting with Pacific clients – in conjunction with quality improvement methods. This was an important aspect of the project's approach.

Kakala is a garland of flowers, fruit and leaves worn on special occasions or presented as a sign of love and respect. The three phases of garland-making are used as metaphors and guidance for the research.

- 1 The first phase is selecting and picking the most appropriate flora, which is associated with recruitment and data collection.
- 2 Kau tui kakala is weaving and putting the garland together, which represents the skill, knowledge and insight necessary for data input, analysis and reporting.
- 3 Luva e kakala is the presentation or gifting of the garland. This equates to the important aspects of returning the research results to the participants or community so that it can be useful.



2 Fua SUJ. 2014. *Kakala Research Framework: A garland in celebration of a decade of rethinking education*. Suva: USP Press.

3 Malungahu M, 'Ofanoa S, Huggard P, et al. 2017. Lalanga: weaving the kakala with constructionist grounded theory. *International Journal of Health Sciences* 5(4): 48-52.

What did we do? Continued

The 'Kakala Research Framework' was chosen to guide the research as it provides an infrastructure that is critical to the methodological research process that underpinned this dissertation. It is vital that foreign concepts and research frameworks and structures accommodate Tongan and other Pacific or non-Western research. Tupuola (1993) claimed that the Western world of academia needs to change their way of thinking to provide room for Pacific research (Tupuola, 1993). Perese (2009) also argued that "if research is to make a meaningful contribution to Pacific societies, then its primary purpose is to reclaim Pacific knowledge and values for Pacific peoples. This view strongly supported by a number of authors (Tamasese, 2005; Thaman, 2002; Gegeo, 2001) with a purpose "to privilege indigenous knowledge, voice, experiences, reflections, and analyses of their social, material, and spiritual conditions" (Perese, 2009:105). The Health Research Council of New Zealand (2005) claims that the survival of specific Pacific research methodologies and guidelines are rooted on Pacific cultural values, principles, practices and epistemological underpinnings. Johansson-Fua (2014) noted that the original 'Kakala' framework of 'toli', 'tui', and 'luva' was created by Professor Konai-Helu Thaman "as an articulation of her conceptualisation of teaching and learning" (Johansson-Fua, 2014:50). It provided an opportunity for Pacific students to recognise Pacific worldviews in their thinking and to articulate theories from their perspectives during their research.

This framework provides a significant gateway for academics to conceptualise and value Pacific philosophies, customs and values. Johansson-Fua claimed that the 'Kakala model' led the way for other frameworks including the 'Tivaevae' framework from the Cook Islands. The original framework began with three components of 'toli', 'tui', and 'luva'. Today, three other new components - 'teu', 'malie', and 'mafana' have been added. 'Teu' became the first stage whereas 'malie' and 'mafana' became the last two stages to complete the 6-stage process of the "Kakala Research Framework" (Johnson-Fua, 2014).

'Kakala' is a Tongan-originated framework for educational development and provides the blueprint and design for research, recruitment, input, fieldwork and the analysis process. Thaman (2003:10) noted "the totalizing framework of western scientific and reductionist thinking that continues to dominate our work in higher education institutions" (Thaman, 2003:10). 'Kakala' research framework was created as a critique of Western educational constructs that reflect Western values, aims and methods which replaced the Tongan worldview, values and processes. 'Kakala' is based on certain Tongan values and principles such as 'ofa' or reciprocity, 'vahevahe' or sharing, and 'faka'apa'apa' or respect and these values work hand in hand to signify the metaphor of kakala (Thaman, 2003). Thaman (1992:61) explained her metaphor in this way: "...Kakala simply means fragrant flowers. But kakala also has an interesting origin. For Tongans kakala does not mean just fragrant flowers, but also fragrant fruits, leaves and wood which have mythical or legendary origins...When kakala are strong or woven together into garlands, the end products are ranked. The different ways of stringing kakala and the patterns used have been standardised and have remained almost unchanged over the years. There exists a full and sophisticated vocabulary as well as an elaborate etiquette associated with kakala".

The flowers and leaves of the 'kakala' are woven together in special ways according to the need of the occasion and it is worn around the neck as a 'kahoa' [necklace] or the waist as the 'sisi' (Helu-Thaman, 1992 as cited in Vaoleti, 2006). 'Kakala' is 'lei' in Hawaiian, 'hei' in the Cook Islands and 'salusalu' in Fiji and there is a special mythology and etiquette associated with 'kakala' in most Pacific cultures.

What did we do? Continued

Kakala Model

'Teu' stage

'Teu' literally means to prepare. This is the preparatory stage before the work begins by skilful women gathered together to weave the 'kakala' as a 'kahoa' or 'sisi'. In research, it is the significant time of the work where their knowledge integration for conceptualising, planning, and designing for the work ahead takes place. It is a stage with all sorts of questions such as how many 'kahoa' are they going to weave, and why and who is going to be the wearer as there are types of 'kakala' only for the royalty and others for 'folau'eve'eva' or visitors which are called 'kaka'folau'. For the 'Kakala research framework', this is the first point of the research - the thinking about the design of the dissertation, the source of conceptualisation, and who is going to be benefit from this research and why.

'Toli' stage

'Toli' means "to pick a flower, or choose an object" (Johansson-Fua, 2014:53). The previous stage involved selecting the design. Thus, this stage is about picking flowers for a garland purposely depending on the design selected. For example, in the Tongan context, there are flowers to be worn by the king and his family and arranged according to their cultural importance. The garland is made depending on the occasion. For the 'Kakala research framework', this stage is critical in the research process as it is the data collection stage. As a traditional research approach, this is the point where a problem is recognised and the research is decided on. At this stage of the 'toli', the Tongan research tool of 'talanoa' or talk occurs to be able to collect more data for this dissertation.

'Tui' stage

Johansson-Fua, (2014) argued that 'tui' has several meanings in the Tongan language: "belief", "knee" and to "string a garland". It is the next process of making and weaving the 'kakala'. The people who are weaving the 'kakala' are known as the 'kau tui' and they hold special knowledge in the making process with traditional methods. The 'kau tui' are focused on providing comment on correctness, presentation and symbolic meanings. Moreover, there is a process of negotiation and correction amongst the 'kau tui' which is similar to the research analysis process of passing information, negotiation and readjusting initial plans depending on decisions made by someone such as a research supervisor. 'Tui' always follows a particular set pattern as there are a variety of patterns to weave a garland which must be followed. In this dissertation, the similarities and variations of data with new emerging patterns are woven together. Tui is the vital stage of the research as it emphasises the importance of continuing the journey of the ancestors and where the stories, spirits and emotions from the ancestors are integrated and synthesised into the weaving of knowledge. Interestingly, people hold that these skills handed down by the ancestors enables the 'Kakala' approach to be put into practice in a culturally safe and sensitive way that will lead to a more effective understanding of Pacific people affected by gambling or an affected person or family with any related issues. Cultural and technical skills are important at this stage, as incompetent selection and mixture of the rich information from scholars, community networks, government agencies, family and friends can easily lead to invalid findings.

'Luva' stage

'Luva' literally means a gift from the heart. Usually, it is the handing over or giving away of the 'kakala' with heartfelt sincerity, humility, and honour to the wearer, who may be a dancer, special guest, or someone leaving on a long trip (Johansson-Fua, 2014). This stage acknowledges the hard work and sacrifice that was taken to create the gift being given. For the 'Kakala' research framework, the main purpose of the 'luva' stage is to honour those people who had given their knowledge and helped with the research. Although this research does not associate with participants, the giving away of this research benefits the community and future researchers. Johansson-Fua (2014:54) argued that "the reporting process must give voice to Pacific people, and the report is done with care, with respect and always to protect Pacific knowledge systems, ensuring that it serves the needs of Pacific people" (Johansson-Fua, 2014:54). Moreover, Pacific peoples have their own ways of doing things and more significantly, their unique epistemologies.

'Malie' stage

Johansson-Fua (2014:54) proposed that 'malie' "is said when an audience appreciates a performance" and it is an expression of 'bravo' or 'well done'. In the Tongan culture and protocol, the audience is mostly saying 'malie' to show that they not only understand their performance but also appreciate the inter-play between the music, the costumes, the dance, and the performers. It is a way the audience responds and comments about the performance to show their appreciation which also provides encouragement and support to performers. If one does not respond, it is said it was not 'malie' or the performance was too complicated to understand or was not done well enough. It means there was no shared understanding between the performers and the audience. In terms of the 'Kakala' research framework, the evaluation part is taking place for the whole research process as to whether it was useful and worthwhile, who was it useful for, who benefitted from the research process, did it make sense and did it serve the needs of the communities.

'Mafana' stage

'Mafana' is defined as warmth in Tongan and it is something that is emotional and heartfelt. In the context of a Tongan performance, especially a 'tau'olunga' or dance, one of the audience joins the performers or the dancer, either dancing with them or putting money or tapa cloth around or beside the performers to show appreciation and 'mafana' of the performance. This is the point where 'mafana' creates 'ofa', or love, when members of the audience present more valuables with the hope that others will read it as generosity and 'ofa'. Whatever the audience presented and gave, such as money and tapa cloth, they are called 'me'a'ofa'. Addo (2013) claims that 'me'a'ofa' literally means a thing of love that shows joy and love by the performers and is enhanced by the dancing movements (Addo, 2013). 'Mafana' is also described as a willingness to be part of something exciting. This stage is now seen as the final evaluation process of the Research framework of 'Kakala'. Johansson-Fua claims that it is a stage "where we seek whether transformation, and application and sustainability of the transformation, has taken place" (Johansson-Fua, 2014:55). As for researchers and the knowledge givers, they have created a new solution to an existing problem. This transformation phase becomes an empowerment to people's ability to resolve their own problems. People are seen to be 'mafana' to step forward and be part of the solution or the movement towards transforming and empowering to make real changes.

What did we do? Continued

4 Ten DSME sessions

Part of the process was to run 10 DSME sessions for patients participating in the project. The attendance rate was 50 percent.

Specialists from the district health board attended these sessions to raise awareness about diabetes. Patient enablers also took part as people who have already started on insulin. Their role was to share their experiences with those who need to begin insulin, including obstacles and successes they met on their journey to insulin initiation, and to encourage their counterparts who are facing their own barriers to starting insulin.

Patients left the sessions with better knowledge of diabetes and the importance of starting insulin. They were happy and motivated to start insulin and look after their health, as the following comments from before and after the sessions indicate.

Before:

'I was really worried about being on insulin as my dad was dead when it was stopped, he died. My whole family was affected.'

'Didn't wanna do it.'

After:

'Had some aches and pains to my legs when first started insulin but this has now subsided. Feeling a lot happier now as I know the benefits of the insulin helping my body.'

'It unbelievable I didn't know I got this result after using insulin.'

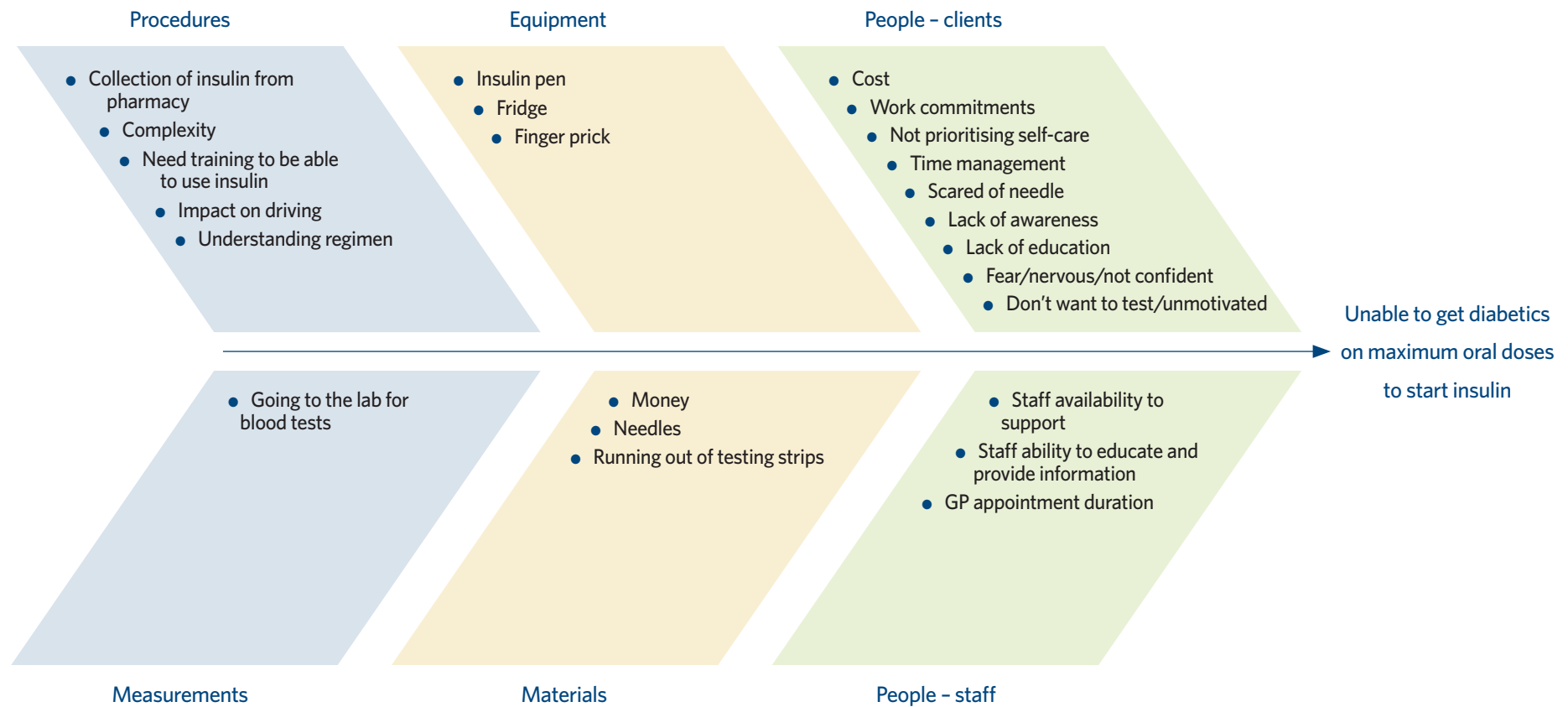
Critical factors in providing high-quality sessions for the patients were: having a good understanding of patients' situations; providing education about diabetes and insulin; hearing from the patient enabler; speaking the patients' first language; and expressing genuine care about patient health and wellbeing.



What QI tools did you use, that you would recommend?

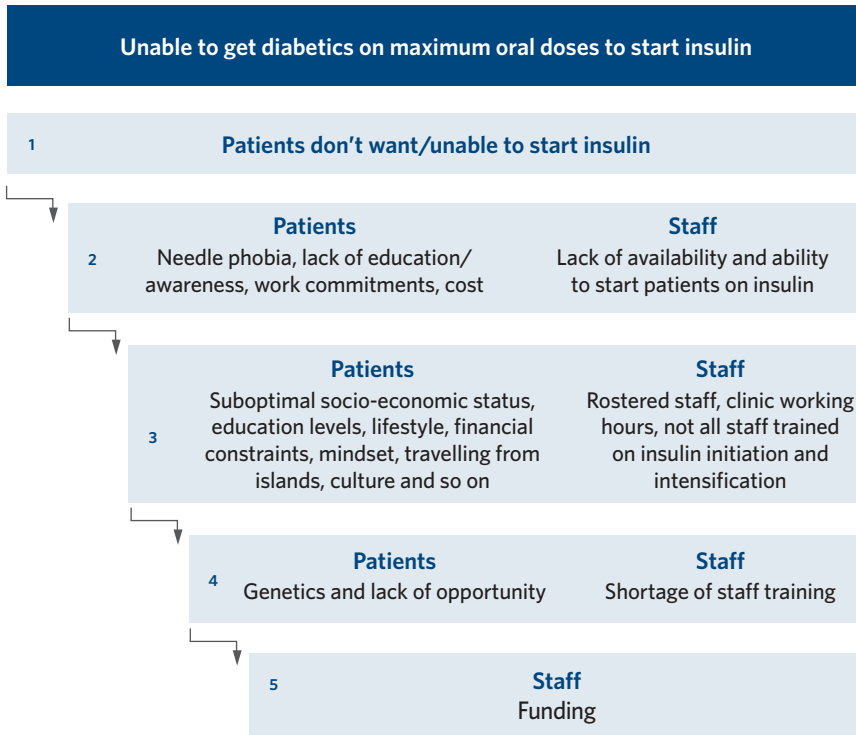
Fishbone cause and effect diagram

The fishbone diagram provided an opportunity for the clinical team to brainstorm possible reasons why clients are hesitant to start insulin, sort those ideas into useful categories and gain a visual understanding of the issues.

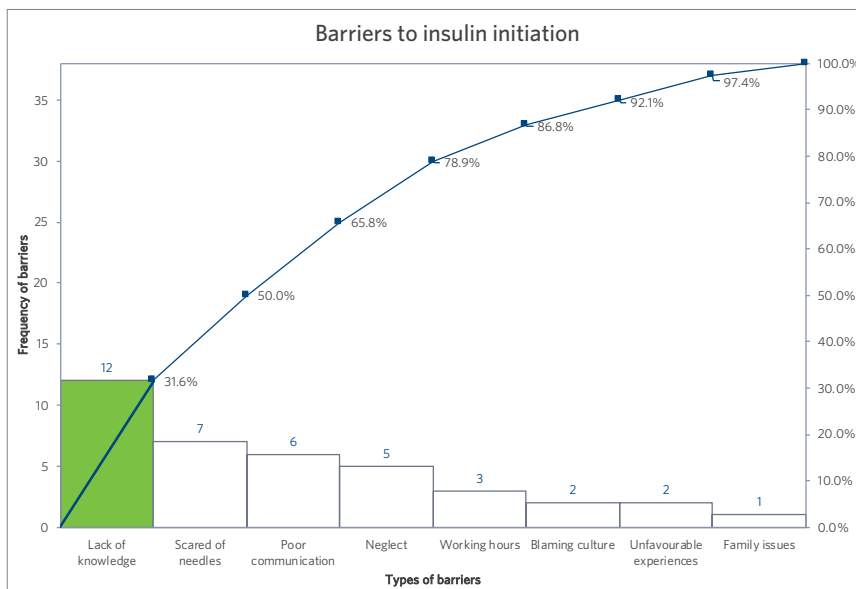


Five whys

The five whys helped us to dig deeper into the underlying causes of what we were observing. After going through this, we decided that we needed to build a working model around the patient factors that were identified to test ideas and identify more reasons for patients' hesitancy to start insulin. From the staff perspective, we needed to allocate additional hours for staff and to train more staff on insulin initiation and intensification.



Pareto chart



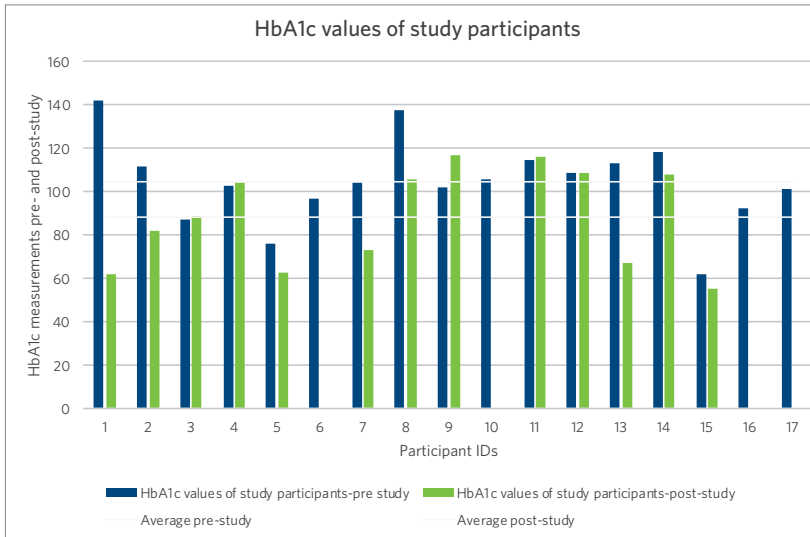
What changes did you test that worked?

- Provide free scripts from the clinic.
- Advertise free scripts from the pharmacy.
- Conduct DSME and SME workshops that include whānau.
- Print individual HbA1c charts for the patients.
- Have a diabetes nurse available on the phone from 8 am to 9 pm every day.
- Offer home visits, clinic visits and workplace visits to accommodate patients at the time and place that they are available.
- Allocate more staff time.
- Train more staff in insulin initiation and intensification.
- Use patient enablers at the DSME sessions. As patients who have already started insulin, they share their journey to insulin initiation, including obstacles and successes, and encourage their counterparts who are facing their own barriers to starting insulin.
- Translate patient handouts into Tongan.

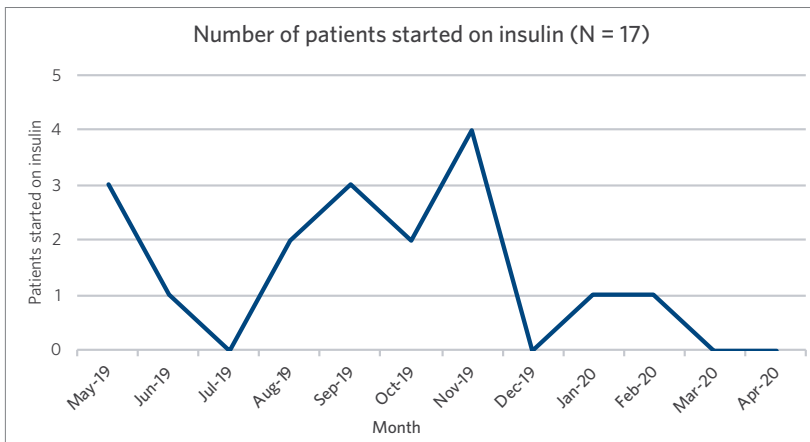
The results

1 What outcome measures improved?

We have reached our initial aim of bringing down average HbA1c levels by 15 percent. Before the study, the average HbA1c was 104.5; afterwards it was 88.5.



This outcome is for the small cohort of 43 eligible clients enrolled during the one-year Whakakotahi programme. It is a small part of an ongoing study in which the other eligible clients will be enrolled over the larger three-year study, which will continue to measure this outcome measure in the subsequent years. As of March 2020, 17 or 39.5 percent of the cohort of 43 patients are now on insulin.



2 What equity measures improved?

Access and literacy issues were identified as barriers to accessing services and equitable outcomes for this cohort. The model we implemented addressed these issues through group sessions in which non-insulin clients on maximum oral hypoglycaemics engaged with those on insulin, and through nurse specialist outreach services in patients' homes.

3 What process measures improved?

Ten DSME sessions were held with a 50 percent attendance rate.

The group sessions provide information in the Tongan language and were implemented in line with the study hypothesis. Over time, we became aware that, in addition to the group session process, nurse specialist outreach and nurse specialist clinics had an influence on insulin initiation. Again, those who had limited transport and were shift workers benefited from outreach and after-hours clinics led by nurse specialists.

4 Were there any unintended consequences such as unexpected benefits, problems or costs associated with this project?

As discussed above, in addition to the group session process we became aware that nurse specialist outreach and nurse specialist clinics had an influence on insulin initiation. No additional costs or problems were associated with the project.

No incidents of hypoglycaemia were notified.

5 Is there evidence that the knowledge of quality improvement science in the team or in the wider organisation improved?

Yes. We have decided to embark on another project to co-design a risk stratification model for clients with long-term conditions.

Post-project implementation and sustainability

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

We embedded the successful changes into our practice through:

- training additional staff members in insulin initiation and intensification
- conducting regular follow-ups with patients started on insulin
- allocating extra hours for staff to contact hard-to-reach patients
- making a diabetes nurse available on the phone for extended hours
- holding regular DSME sessions.

Measuring for monitoring and tracking covered:

- average HbA1c
- the number of patients on insulin out of the cohort
- the number of group sessions conducted.

2 How did you communicate your progress and results to others?

We communicated progress and results by:

- giving updates at regular project team meetings
- informing staff in monthly meetings.

Summary and discussion

1 What were the lessons learnt?

Keys to success were:

- teamwork – organisation, flexibility and cooperation
- effective communication (clinician–patient)
- an efficient and dynamic work plan
- data collection, analysis and reporting
- skilled staff.

Barriers included:

- hard-to-contact patients
- lack of communication (clinician–patient)
- lack of allocated staff hours
- language barriers
- cultural divide.

2 What would you recommend to a team somewhere else that wants to take on a similar project?

- Use quality improvement tools.
- Removing the cost barrier can encourage people to start insulin.
- Use visuals of blood sugar levels, which patients can understand easily.
- People are more likely to consider starting insulin if someone like them (patient enabler) speaks to them.
- It helps to have all clinical staff trained in insulin initiation so that work doesn't stop if the diabetes nurses are absent.
- DSME sessions are very helpful in enabling people to start insulin and increasing their knowledge of insulin and diabetes.
- Senior leadership sponsorship and support is vital. This project was developed by the CEO over a period of years whilst he sought funding for it. This commitment from the CEO ensured the success of this project.

3 Are there any future steps or ongoing work that you are intending to continue with on this project topic?

At this point, we're still testing our change ideas. For this reason, it is too early to have an implementation plan. From our experience so far, however, we feel that the following resources are required to run the project:

- additional staff training to run the projects
- allocation of extra time to staff for running DSME sessions
- additional working hours for staff to attend to patients outside of normal working hours.

The team

Skill sets on our team include:

- Dr Glenn Doherty - CEO medical director and project sponsor
- Mele Vaka - clinical services manager
- Deepika Sonia - special projects analyst
- Rachel Steed - diabetes nurse specialist/nurse prescriber
- Fifita McCready - diabetes nurse specialist
- Laumanu Moala'eua - recall nurse.



Mele Vaka, clinical services manager and Deepika Sonia, special projects analyst



Dr Glenn Doherty - Project Sponsor and Investigator, CEO - Tongan Health Society Inc

The Tongan Health Society was awarded top storyboard among all the Ko Awatea quality improvement facilitator course participants in 2019. These participants included Whakakotahi and other improvement practitioners from around the country.



Mele and Deepika receiving their graduation certificate and top storyboard award from Karen Orsborn, Director of Health Quality Improvement, Health Quality & Safety Commission

Teamwork lessons

Doing these projects over and above core business is very time-consuming and the backfill compensation does not adequately cover additional time spent on these projects.