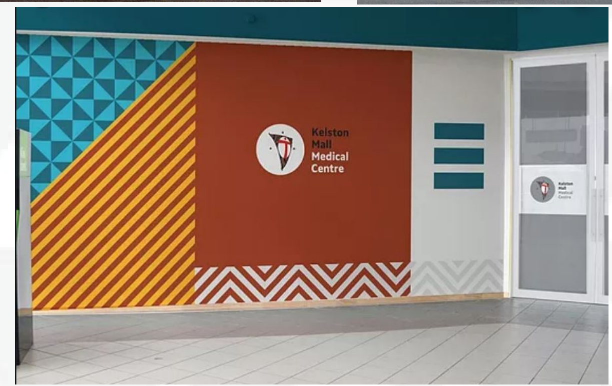
Diabetics on Maximum Oral Doses hesitant to Insulin Initiation needing to commence Insulin uptake

Mele Vaka

Deepika Sonia



Langimalie
Medical
Centres

Executive Summary

The Tongan Health Society is working on an innovative approach to enable hesitant Diabetic patients to start Insulin. We have a cohort of 254 Diabetics on max. oral doses needing to start Insulin. We started by inviting the eligible Diabetics to participate in the trial and did a screening questionnaire initially to identify barriers to Insulin initiation.

Majority of these patients work odd hours which makes it difficult for them to access healthcare. Our Diabetes nurse reached out to these patients by visiting their work places, homes, calling very early in the morning or late at night. This way, we were able to get these patients started on Insulin. Additionally we organised group sessions (DSMEs) with patients and whanau. These sessions were attended by specialists from the DHB to raise awareness about Diabetes as well as patient enablers. We incorporated various other methods detailed in the following slides that proved to be helpful. Till date, we have started 17 patients on Insulin, organised 6 DSMEs and identified a number of barriers to start Insulin.

We continue to refine our methods based on learnings and work towards starting more Diabetic patients on Insulin.

Improvement Facilitators

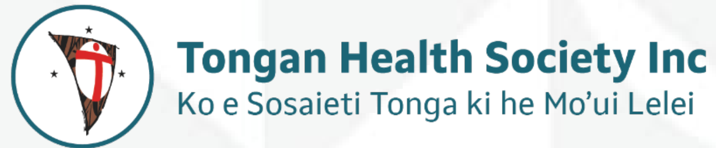
- Mele Vaka – Clinical Services Manager
- Deepika Sonia – Special Projects Analyst

Project Background

- Established in 1997, the Tongan Health Society (THS) is the only privately developed Tongan Integrated Family Health Centre operating outside the Kingdom of Tonga in New Zealand. Our medical centres are called Langimalie (meaning 'clear blue sky' in Tongan).
- We have 3 medical centres in Auckland (Onehunga, Panmure and Kelston), serving a population of over 6000 registered patients.
- Prevalence of Pacific People with Diabetes in the Auckland region is 21% (5,790). Langimalie Clinics are dealing with 15% of this total cohort. Around 95% of the patients at the clinic are Tongans (3805).
- At present we have a total of 254 patients who are on maximum orals 'needing' to go on Insulin.
- There is little information available about Pacific family barriers to Insulin initiation and intensification particularly for those on maximum oral hypoglycaemics where Insulin is now needed in their management.
- We intend to document these barriers and design a tool to overcome them, which will ultimately lead to reduced HbA1c values.

Improvement Team

- Dr Glenn Doherty (CEO Medical Director & 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)



Problem Statement

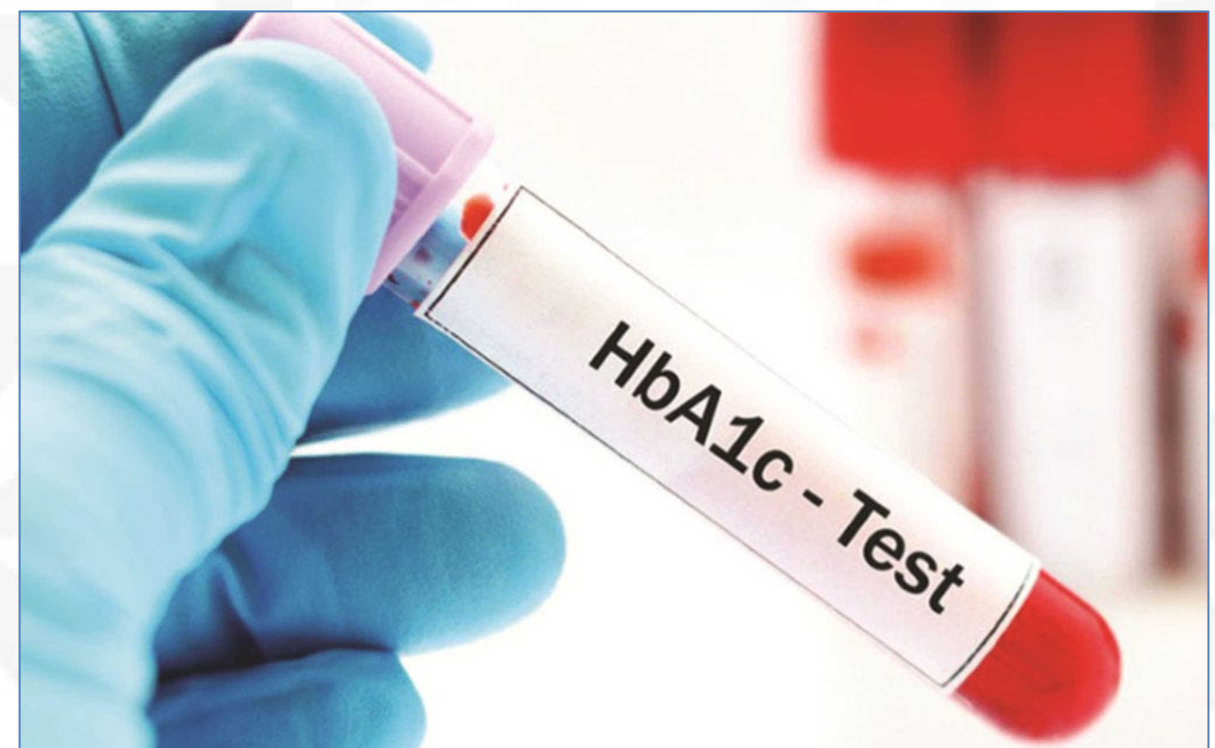
254 of our people with Diabetes on the maximum oral dose need to start Insulin but are hesitant. We need to identify the barriers to uptake Insulin and help bring down HbA1c values of these patients for better quality of life.

Patient/Whanau Stories

- 43 year old male patient is a truck driver working 6 days per week from 4 am to 6 pm. His ability to access healthcare is diminished due to his busy schedule and he cannot take time off work. No practical knowledge of 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 continued with his routine.
- 51 year old female is Type 2 Diabetic. Been ignoring her diabetes due to previous unsatisfactory experience with Insulin. She has been on different Insulin regimen/s in NZ & Tonga in the past. She was hurting herself previously when injecting Insulin due to different needle lengths and techniques. She is scared of injecting herself again. She was initially very reluctant to discuss her Diabetes status due to misconception of ill treatment by clinicians of Diabetic patients i.e. getting blamed for poor health status. Has 12 children with gestational Diabetes for many of these.

Aim Statement

To reduce the average HbA1c (74.2 mmol/mol) of the 254 enrolled Diabetic patients on maximum oral doses of hypoglycaemic medications by 15% (63.1 mmol/mol) by April 2020.



Driver Diagram

To reduce the average HbA1c (74.2) of the 254 enrolled Diabetic patients on maximum oral doses of hypoglycaemic medications by 15% (63.1) by April 2020.

Primary drivers:
- Treatment Adherence
- Culturally Appropriate Patient Engagement
- Professional Capability

Secondary drivers:
- Barriers to starting Insulin
- Cost
- Increased Insulin / Medication / Pharmacy Access
- Patient Management
- Patient education & empowerment
- Patient Specific Package of Care
- Accurate patient contact details
- Regular Blood Tests and Blood Glucose Self monitoring (1 linked measure)
- Diabetes Specialist, Diabetes Specialist Nurses and other clinical staff well trained to deliver Diabetes services

Change ideas:
- Free Insulin Rx from the clinic (1 linked PDSA ramp)
- Free scripts from pharmacy
- Advertise about free scripts via radio programs, church programs, posters, flyers, during consults etc.
- Home visits, clinic visits, workplace visits to accommodate patient suitability
- Diabetes Nurse available via phone from 8 am to 9 pm everyday
- Conducting workshops, DSMEs and SMEs including whanau
- Contact details checked each time the patient is seen
- More allocated staff time to deliver the project
- Social workers, Mental Health team to help with other patient-related issues
- Printing individual HbA1c charts for patients
- Patient motivation, focusing on positive etc.
- Staff training, incl. clear guidelines regarding how to communicate with patients
- Resources for staff
- Peer group sessions for nurses & doctors to discuss learning points and case studies

Diagnose the problem – Data

We have a total of 254 patients who are on maximum orals needing to go on Insulin, who are spread across both the Auckland District Health Board (ADHB) and the Counties Manukau District Health Board (CMDHB) catchment areas. Most participants are Q5 and live in the most deprived areas of Auckland. ADHB and CMDHB recorded over 75% of the Pacific populations living in deprived areas of Auckland.

Prevalence of Pacific People with Diabetes in the Auckland region is 21% (5,790). Langimalie Clinic are dealing with 15% of this total cohort. Around 95% of patients at the clinic are Tongans (3805).

At present we have a total of 254 patients who are on maximum orals 'needing' to go on Insulin.

There is little information available about Pacific family barriers to Insulin initiation and intensification particularly for those on maximum oral hypoglycaemics where Insulin is now needed in their management. We intend to document these barriers and design a tool to overcome them, which will ultimately lead to reduced HbA1c values.

Tools used to Diagnose the problem: Ishikawa Diagram

PROCEDURES
- COLLECTION OF INSULIN FROM PHARMACY
- COMPLEXITY
- NEED TRAINING TO BE ABLE TO USE INSULIN
- IMPACT ON DRIVING
- UNDERSTANDING REGIMEN

EQUIPMENT
- INSULIN PEN
- FRIDGE
- FINGER PRICK

PEOPLE - CLIENTS
- COST
- WORK COMMITMENTS
- NOT PRIORITISING SELF-CARE
- TIME MANAGEMENT
- SCARED OF NEEDLE
- LACK OF AWARENESS
- LACK OF EDUCATION
- FEAR / NERVOUS / NOT CONFIDENT
- DON'T WANT TO TEST / UNMOTIVATED

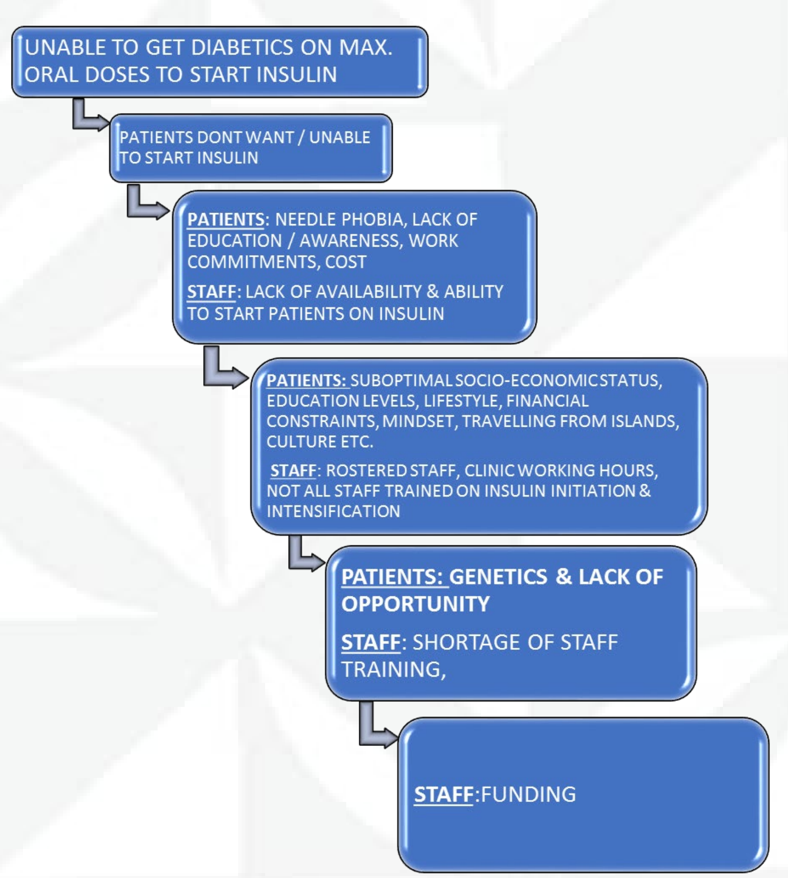
UNABLE TO GET DIABETICS ON MAX. ORAL DOSES TO START INSULIN

MEASUREMENTS
- GOING TO THE LAB FOR BLOOD TESTS

MATERIALS
- MONEY
- NEEDLES
- RUNNING OUT OF TESTING STRIPS

PEOPLE - STAFF
- STAFF AVAILABILITY TO SUPPORT
- STAFF ABILITY TO EDUCATE AND PROVIDE INFORMTION
- GP APPOINTMENT DURATION

Tools used to Diagnose the problem: 5 Whys



FINDINGS

- **PATIENTS:** NEED TO BUILD A WORKING MODEL AROUND THE PATIENT FACTORS IDENTIFIED, TEST IDEAS & IDENTIFY MORE REASONS FOR PATIENTS' HESITANCY TO START INSULIN
- **STAFF:** DESIGNATE MORE STAFF TRAINING TIME

What surprised you about what you discovered?

- Need to build a working model according to patient factors identified, test ideas and identify more reasons for patients' hesitancy to start Insulin
- Need to allocate additional hours for staff
- More staff members need to be trained on Insulin Initiation and Intensification

Capturing the Patient Experience

- Surveys
- Questionnaires

Data Usage

- These surveys help us identify the barriers to Insulin Initiation and modify our approach accordingly.

Voice of the Customer

6 DSME Sessions – (50% Attendance Rate)

Patients left with better knowledge of Diabetes and importance of starting Insulin. Left happy and motivated to start Insulin and look after their health.

PRE: "I was really worried about being on Insulini as my dad was dead when it was stopped, he died. My whole Family was affected"

"Didn't wanna do it"

POST: "Had some aches and pains to my legs when first started Insulini 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"

What is critical to quality for the patients? – Good understanding of patients' situations; providing education about Diabetes and Insulin; hearing from the patient enabler; speaking the patients' language, expression of genuine care about patient health and well-being

Stakeholders Analysis – 26/04/2019

Stakeholder	No commitment	Let it happen	Help it happen	Make it happen
SPECIAL PROJECTS ANALYST				X X
	Action/s planned to move stakeholder			
CLINICAL SERVICES MANAGER				X X
	Action/s planned to move stakeholder			
DIABETES NURSE SPECIALIST / NURSE PRESCRIBER			X	X
DIABETES NURSE SPECIALIST	X			X
CEO MEDICAL DIRECTOR				X X
PHARMACIST			X	X
PROJECT PARTICIPANTS	X			X
DIABETES SPECIALIST	X			X

Mark the current state for your Stakeholders the desired state and how you plan to keep or move them to the desired state

X = Current State

X = Desired State

Stakeholder communication plan

Stakeholder	Motivation/values	Action/message	Strategy	Responsibility	Reflection
Diabetes Nurse Specialist / Nurse Prescriber	Passionate about Diabetes and well driven	NA (Already motivated)	More hours to deliver the project	CEO Medical Director & Clinical Services Manager	Additional hours allocation working
Diabetes Nurse Specialist	Helping people	People need your help and expertise	Working together with the other Diabetes Nurse and conducting workshops	Clinical Services Manager	Working with the other Diabetes nurse helping to stay motivated
Project Participants	Variable	Variable	Customized for individual patient	Diabetes Nurses, Clinical Services Manager, Diabetes Specialist, Pharmacist	Response variable
Diabetes Specialist	Motivated to help people	People need your help and expertise	Involvements in decision making for treatment of Diabetic patients	Clinical Services Manager	Diabetes Specialist available to help

Dashboard of Measurements

Measurement Type	Measurement Name	Measurement definition	Data Collection How and Who	Comments
Outcome 1	Average HbA1c (Pre & Post)	HbA1c refers to glycated haemoglobin (A1c), which identifies average plasma glucose concentration. As an Outcome, we will measure and compare the average values of HbA1c pre & post.	• Quarterly Blood tests for HbA1c values • Nurses • Monthly average HbA1c reports for patients captured in the month	Average Pre HbA1c of 17 patients: 104.5 (mmol/mol) Average Post HbA1c of 16 patients: 92.5 (mmol/mol) (12% Decrease)
Outcome 2	Patients on Insulin out of the Cohort	Total number of Diabetics on max. oral doses on Insulin	• Monthly total numbers of Diabetics on max. oral doses on Insulin • Nurses	17 patients started on Insulin
Process 1	Number of Group Sessions Conducted	Count of the number of DSMEs conducted during the project and number of attendees	• Monthly reports • Count of numbers invited • Count of numbers attended • Nurses	6 DSMEs conducted 50% Attendance Rate
Process 2	Patient Learnings	Evaluation of the level of understanding gained by the patients during DSMEs	• Patients to fill-in surveys about their level of knowledge on topics such as Diabetes, Insulin and Blood Sugar levels before and after the DSME • Nurses	Definite improvement in patient knowledge pre & post DSME
Balance	Hypoglycemia	Blood sugars fall below the normal levels i.e. below 4mmol/L	• Interviews • Monthly reporting • Nurses	

Generate Change Ideas to Test

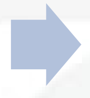
- Change ideas currently being tested

Advertise free scripts from Pharmacy
Free Insulin Rx from clinic
Advertise about the project and free scripts via Radio programmes
Conducting workshops DSMEs for patients
Printing individual HbA1c charts for patients
Staff training
Diabetes Nurse available via phone from 8 am to 9 pm everyday
More allocated staff time to deliver the project
Home visits, clinic visits, workplace visits to accommodate patient suitability

- What is the rationale for testing these changes?

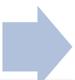
Frontline experience, Consumer experience, Innovation

- How/where do these ideas link to your driver diagram?



Reduced Costs & Increased Access, Patient Management, Education & Empowerment, Staff Training, Patient Specific Package of Care, Regular Blood Tests & Glucose Self-Monitoring (SECONDARY DRIVERS)

Treatment Adherence, Culturally appropriate patient engagement, Professional Capability (PRIMARY DRIVERS)



To reduce the average HbA1c (74.2) of the 254 enrolled Diabetic patients on maximum oral doses of hypoglycaemic medications by 15% (63.1) by April 2020.

PDSA Sample

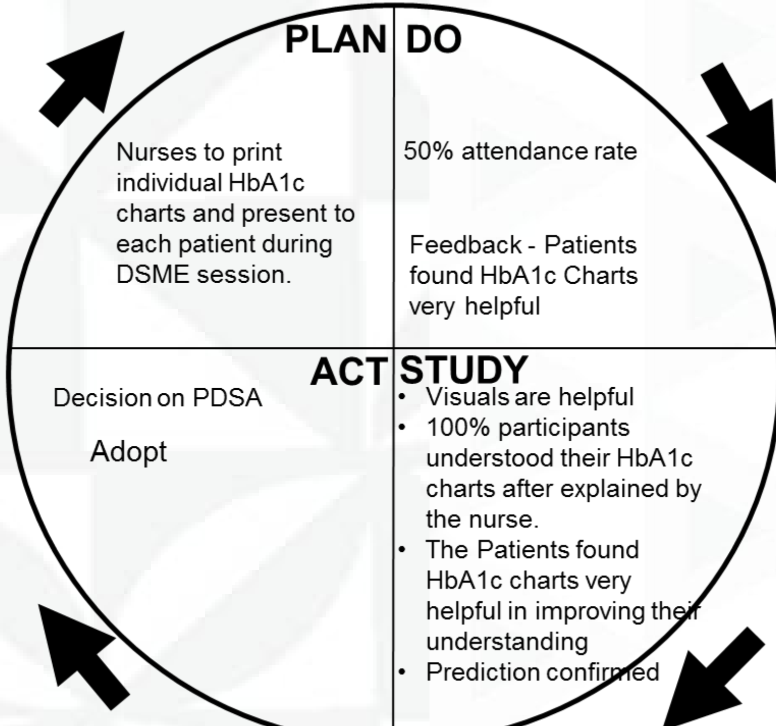
PDSA# 1 | **PDSA Title: Printing Individual HbA1c Charts** | **PDSA Date: July-19** | **Owner : Mele Vaka**

Objective of this PDSA: To raise awareness of HbA1c values amongst individual patients

Change Idea: Print individual HbA1c Charts per patient

Questions:

1. **How many people will understand these HbA1c charts?**
2. **Will HbA1c charts improve patients' understanding of blood sugar levels?**

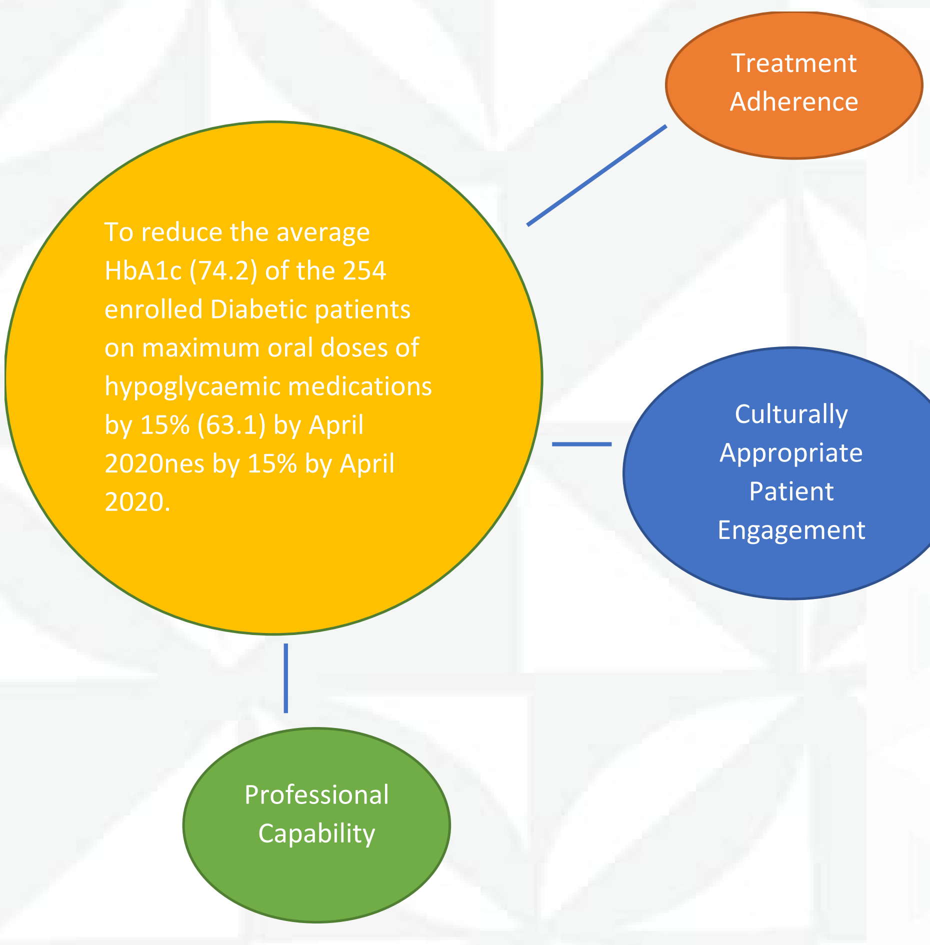


Predictions:

1. 50% of people will understand HbA1c charts
2. HbA1c charts will have considerable impact on patients' understanding of blood sugar levels

Measurements: Nurses to ask the patients after explaining the individual HbA1c charts

The Change package



- Free Insulin Rx from the clinic
- Free scripts from pharmacy

- Home visits, clinic visits, workplace visits to accommodate patient suitability
- Diabetes Nurse available via phone from 8 am to 9 pm everyday
- Conducting workshops, DSMEs and SMEs including whanau
- More allocated staff time to deliver the project
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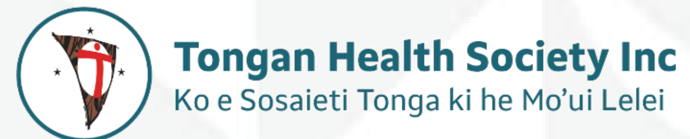
- Staff training, incl. clear guidelines regarding how to communicate with patients



What are you currently testing?

Theory of change (Secondary Drivers)	Ideas Tested (Provide details of your PDSA's, include your measures questions, predictions)	Evidence of Improvement (Include your data, charts and learning)
Reduced Cost Increased Insulin / Medication / Pharmacy Access	A. Advertise free scripts from Pharmacy B. Free Insulin Rx from clinic C. Advertise about the project and free scripts via Radio programmes	A. People interested in starting Insulin if its more affordable B. People interested in starting Insulin if its more affordable C. Not much response to Radio programmes from the patients
Patient Management Patient Education & Empowerment Patient Specific Package of Care Regular Blood Tests & Glucose Self-Monitoring	A. Conducting workshops DSMEs for patients B. Diabetes Nurse available via phone from 8 am to 9 pm everyday C. More allocated staff time to deliver the project D. Printing individual HbA1c charts for patients E. Home visits, clinic visits, workplace visits to accommodate patient suitability	A. 50% invited patients showed up at DSMEs. Very pleased to attend and gave good feedback. People interested in starting Insulin. B. More patients enabled to start Insulin by extended hours of Diabetes Nurse. C. More allocated staff time enabled more patients to get started on Insulin. D. Patients found the visuals of individual HbA1c very helpful. They were able to recall the times when their blood sugars went up and what their optimal blood sugar levels should look like. E. More patients enabled to start Insulin by visits to workplaces and home visits
Diabetes Specialist, Diabetes Specialist Nurses and other clinical staff well trained to deliver Diabetes services Identify individual patient barriers to start Insulin / maintain treatment compliance	A. Staff training on Insulin titration	A. Session conducted for all nurses by Diabetes nurse specialist.

Data - OUTCOME MEASURE - Run Chart

TOTAL NUMBER OF PATIENTS STARTED ON INSULIN (N=17)

MONTH	PATIENTS STARTED ON INSULIN PER MONTH	Median
May-19	3	1.5
Jun-19	1	
Jul-19	0	
Aug-19	2	
Sep-19	3	
Oct-19	2	
Nov-19	4	
Dec-19	0	
Jan-20	1	
Feb-20	1	1.5

Health Quality & Safety Commission New Zealand

Kupu Taurangi Hauora o Aotearoa

KO AWATEA

HEALTH SYSTEM INNOVATION AND IMPROVEMENT

Data – OUTCOME MEASURE - HbA1c Values

HbA1c VALUES OF STUDY PARTICIPANTS

AVERAGE PRE: 104.5, AVERAGE POST: 92.5

HbA1c MEASUREMENTS (PRE & POST)

PARTICIPANT IDs	Pre HbA1c (mmol/L)	Post HbA1c (mmol/L)
1	142	57
2	112	92
3	87	89
4	103	104
5	76	101
6	97	
7	104	73
8	138	106
9	102	117
10	106	
11	115	116
12	109	133
13	113	
14	118	67
15	62	55
16	92	
17	101	

Data - DIAGNOSIS - Pareto Chart

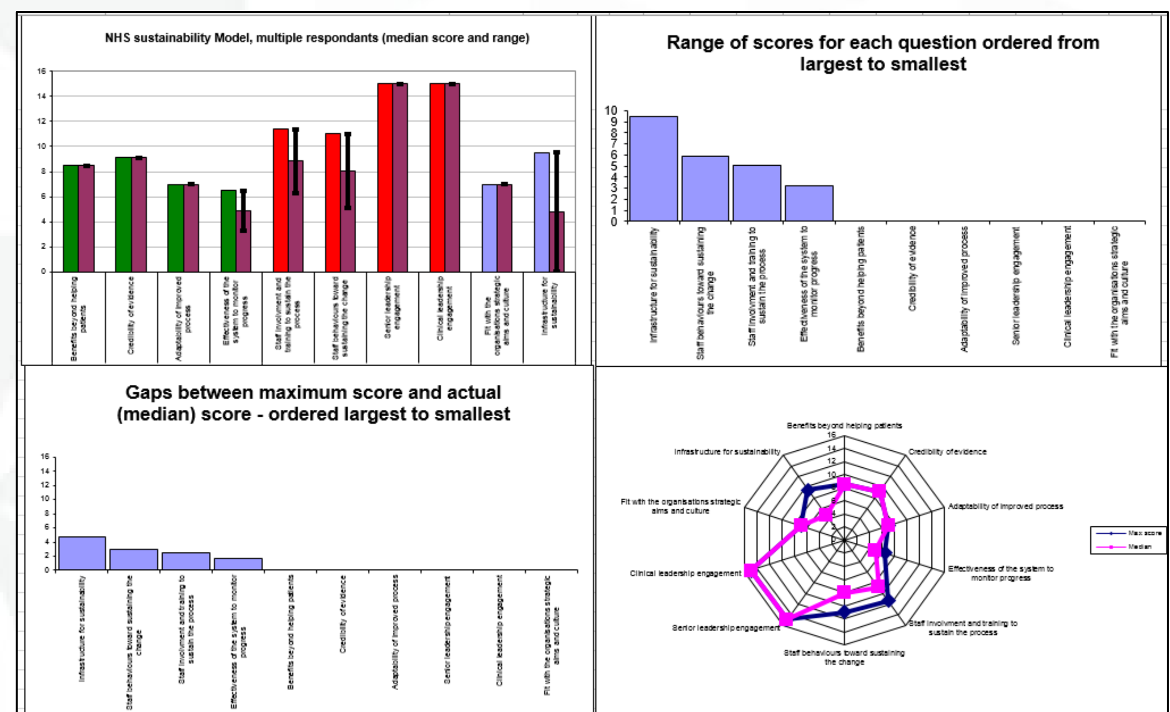
BARRIERS TO INSULIN INITIATION

FREQUENCY OF BARRIERS (0–15) | PERCENTAGE OF BARRIERS (0%–100%)

TYPES OF BARRIERS	FREQUENCY OF BARRIERS
Poor Knowledge	12
Scared of needles	7
Poor Communication	6
Neglect	5
Working Hours	3
Blaming Culture	2
Unfavourable Experiences	2
Family Issues	1

NHS Sustainability

- Report your team scores : 88.15
- What actions you have taken?
- Additional staff training on Insulin initiation & intensification
- Quarterly reporting
- How have they changed?
- More staff trained on Insulin Initiation & Intensification
- Quarterly reports



Change Management – Actions and Plans

- Regular project team meetings on updates
- All Clinical staff training (particularly Nurses) on starting patients on Insulin
- Informing staff in monthly meetings

Implementation Plan

At this point, we're still testing our change ideas. Hence, its too early to have an implementation plan. From our experience so far, we however 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

Sustaining Change

- Training of additional staff members on Insulin Initiation & Intensification
- Regular follow-ups with patients started on Insulin
- Allocation of extra hours for staff to get hold of hard-to-reach patients
- Diabetes nurse availability on phone for extended hours
- Regular DSME sessions

Measuring for Monitoring and Tracking

- Average HbA1c
- Number of patients on Insulin out of the Cohort
- Number of Group Sessions Conducted

Highlights/lowlights

HIGHLIGHTS:

I. 6 DSME sessions – 50% attendance rate. Attended by Renal Specialist from DHB, Dietician, Diabetes Specialist Nurse

II. 8 PDSAs

III. 17 Patients started on Insulin

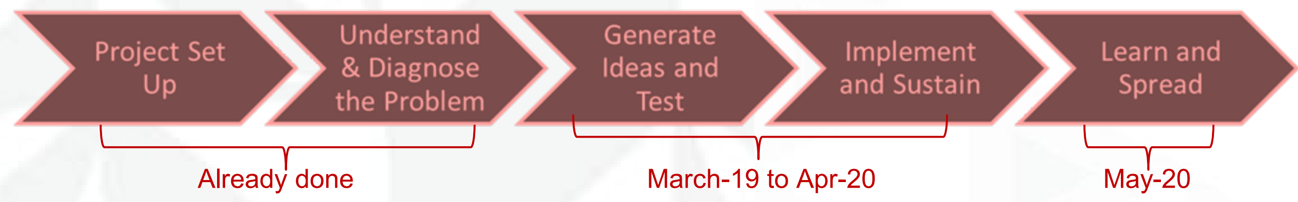
- AVERAGE PRE HbA1c of 11 patients: 104.5 (mmol/mol)
- AVERAGE POST HbA1c of 11 patients: 92.5 (mmol/mol)

IV. 12% Decrease in HbA1c

LOWLIGHTS:

I. Both Diabetes nurses injured and away from work for months

Key Success / Barriers



Keys to Success:

- Team work – organisation, flexibility and cooperation
- Effective Communication (clinician-patient)
- Efficient & Dynamic work plan
- Data Collection, Analysis and Reporting
- Skilled Staff

Barriers:

- Hard-to-get-hold-of-patients
- Lack of communication (clinician-patient)
- Lack of allocated staff hours
- Language Barriers
- Cultural Divide

Lessons Learned

- Quality Improvement Tools
- People can be encouraged to start Insulin if the cost barrier is removed
- Visuals of blood sugar levels are easily understood by patients
- People more likely to consider starting Insulin if spoken to by someone like them (patient enabler)
- Good idea to have all clinical staff trained on Insulin Initiation so that work doesn't stop in absence of Diabetes nurses
- DSME sessions are very helpful in enabling people to start Insulin and increasing knowledge on Insulin & Diabetes