The Evaluation of Podiatry Services for Māori by Māori in Aotearoa

Belinda Ihaka

(Te Aupōuri)

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LIST OF ABBREVIATIONS

DM:	Diabetes mellitus
DHB:	District Health Board
EPUAP:	European Pressure Ulcer Advisory Panel
MOH:	Ministry of Health
MSD:	Ministry of Social Development
NICE:	National Institute for Health and Clinical Excellence
NZSSD:	New Zealand Society for the Study of Diabetes
NZWCS:	New Zealand Wound Care Society
OT:	Occupational therapist
PBNZ:	Podiatrist Board of New Zealand
PHO:	Primary Health Organisation
PwC:	Pricewaterhouse Coopers
UT:	University of Texas

GLOSSARY

Māori Words	*English Translation (loosely translated)*
Aotearoa	Aotearoa translated means “land of the long white cloud”. Discovered by Kupe, a chief of Hawaiki prior to 1300AD. Aotearoa was then renamed “New Zealand” in 1769 by Captain James Cook. Māori are the tangata whenua (Indigenous people of the land) and account for almost 15% of the population in Aotearoa (Tatauranga Aotearoa, 2013).
Aroha	Love
Atua	Deity
Au	Me, myself
Awa	River
Awhi	Help
Haapori	Community
Hākari	Lifting of tapu, celebration, feast
Hāpu	Sub-tribe
Hauora	Wellbeing / wellness of life
He aha	Why
He iti mohio mo te reo Māori	I speak some Māori (language)
Hui	Meeting / gathering
Huka	Sugar
Iwi	Tribe
Kai	Food
Kaimahi	Staff
Kanohi-te-kanohi	Face-to-face
Karakia	Prayer, blessing
Kāranga	Invitation, shout out

Kaupapa	Set of protocols, ways of doing
Kawa	Protocol
Kawakawa	Piper excelsum (plant)
Kawa whakaruruhau	Cultural competence
Kaumātua	Older man
Kete	Basket
Ko au	Me
Koha	Reciprocity
Kōkōwai	Red ochre
Korero	Talk, conversation, discussion
Kotahitanga	Unity
Kūaka	Bar-Tailed Godwit
Kuia	Older woman
Mana	Power (in/of)
Mana whakahaere	Governance, authority
Mana whenua	Māori connected historically / territorially to that land
Manu	Bird
Marae	Place of significant importance
Mātauranga	Knowledge prior to non-Māori contact
Mate	Death
Mauri	Life force
Mihi	Speech
Mirimiri	Massage
Mo te	For the
Moana	Sea
Mokopuna	Grandchild

Motu	Island
Ngā	Many
Pākeha	White New Zealander
Patai	Question
Pono	True / truth
Pou	Pole, stake
Rangatiratanga	Self-determination
Rōngoa	Medicine
Tangata	People
Tangata tautoko	Support people
Tangata Tiriti	non-Māori who support te Tiriti o Waitangi as the rightful document
Taonga	Treasure
Tapu	Sacred
Tautoko	To be supportive, advocate
Te ao Māori	Māori worldview
Te oo mai reia	Traditional healing including blessings
Te Puni Kokiri	Government principal policy advisor on Māori wellbeing and development
Te reo	The language
Te whare tapa wha	Four walled house
Tiaki	Mentorship
Tika	Right
Tikanga	Method / Protocol / Custom
Tino rangatiratanga	Self-determination, autonomy, sovereignty
Tohu	Sign
Tūpākihi	Coriaria (plant)
Tupuna	Ancestors

Turangawaewae	Standing place / turf
Uri	Descendant
Wahine	Woman
Wānanga	Traditional learning / sharing using tikanga / lore
Whakaaro	Thinking, thoughts
Whakairo	Carvings
Whakapapa	Descendant, genealogy
Whakatau	Less formal welcome
Whakataukī	Proverb
Whakawhānaungatanga (v)	Engagement
Whānaungatanga (n)	Inherent identity from ancestors
Whānau Ora	Framework for improving Māori Health and Wellbeing (proper noun). Whānau ora is a traditional Māori concept and value
Whānau	Family
Whāngai	Adoption
Whenua	Land

ATTESTATION OF AUTHORSHIP

“I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning”.

Date: 25th January 2023

Signed:

AWARDS, PUBLICATIONS & CONFERENCES

Ihaka, B., Carroll, M., Came, H., Rome, K. Cultural safety for Aotearoa New Zealand podiatrists: An Indigenous perspective. *School of Clinical Sciences (SoCS) Summer Research Awards for Māori & Pasifika students 2022/2023, $7,500.*

Ihaka, B., Rome, K., Came, H. Diabetes podiatry services for Māori in Aotearoa: a step in the right direction? *Journal of Foot & Ankle Research*, 15(59). https://jfootankleres.biomedcentral.com/articles/10.1186/s13047-022-00564-1

Ihaka, B. Charles, J., Biles, B. Indigenous Panel Discussion. Australian Podiatry Conference, 3-17th July 2021. https://podiatry.eventsair.com/cmspreview/apodconf21/indigenous

Ihaka, B., Rome, K. Came, H. (2021) Indigenous Perspectives in Podiatry: Aotearoa. Australian Podiatry Conference, 3-17th July 2021. https://podiatry.eventsair.com/cmspreview/apodconf21/indigenous

Ihaka, B., Rome, K., Came, H (2019) Evaluating podiatry services for indigenous people with diabetes in New Zealand. 8th International Symposium on the Diabetic Foot conference 22-25th May 2019, World Forum, the Hague, Netherlands.

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Finally, my whānau. I know you have been patient with me during our Friday night conversations and you support me and encourage me to be the best version of myself. When I need help with something, you are there – I am truly blessed, aroha nui.

Ethics Approval

This study was approved by the AUT University Ethics Committee (AUTEC) on the 20th of May 2022 (Appendix A). Further applications to AUTEC and the National Hauora Committee are woven through this thesis and appear in the appendices.

Abstract

This work aimed to determine the effectiveness of Māori diabetes podiatry services in reducing lower limb amputation in Aotearoa by Māori for Māori. The first objective of this study was to evaluate the current evidence regarding the effectiveness of diabetes podiatry services in Aotearoa. The second objective was to explore the views and perceptions through a Māori lens of (i) Māori podiatrists with an Annual Practicing Certificate in Aotearoa who provide diabetes podiatry services (ii) Māori stakeholders who provide services utilising te ao Māori concepts; and (ii) Māori with diabetic foot problems relating to the effectives of podiatric services in Aotearoa. The third objective was to ensure the research benefits Māori and aligns with tikanga values.

In reviewing the literature, we considered effectiveness to include reduced length of hospital stay; reduced hospital admission; return to primary care; improved patient self-management; reduction in ulceration/re-ulceration; reduction in amputation; and limb salvage. Only international studies met these criteria. The three studies (Craig et al., 2013; Perrin et al., 2012a; Searle, 2008) clearly demonstrated triaging people based on their foot risk category either in the community or secondary setting is an appropriate way of determining acute from chronic foot pathology. However, there was no clear consensus on how to effectively manage moderate-to-high foot risk categories. A limitation of the literature review was the lack of evidence for diabetes podiatry services in Aotearoa.

A kaupapa Māori evaluation approach was used to identify the effectiveness of diabetes podiatry services by Māori for Māori. This approach ensured the process of, and results from the work aligned with tikanga Māori. A collaborative approach between the researcher, the National Hauora Coalition, and a research whānau determined the evaluation processes. A mixed methods approach using semi-structured interviews, electronic surveys and quantitative service data was collected to inform this work. Key themes from the evaluation concluded that current diabetes podiatry services are effective when Māori feel engaged with the practitioner and Māori podiatrists embed mātauranga and tikanga in their approach to Māori with diabetes. The participants in this study suggested mutual learning within culturally safe environments. Furthermore, culturally responsive learning opportunities need to be embedded in undergraduate studies and continuing professional development for

registered podiatrists and those wishing to practice in Aotearoa. Finally, funding bodies need to invest in Māori development and capability if they are truly committed to the Pae Ora (Healthy Futures) Bill (2022). It is essential that provisions for the inclusion of non-clinical measures of wellbeing are incorporated into diabetes podiatry practice and reporting. These are necessary to ensure these services are meeting the aspirations of Māori. In conclusion, there is a significant opportunity to embed effective Māori-driven diabetes podiatry service to reduce lower limb amputation among Māori in Aotearoa through authentic and collaborative approaches.

PREAMBLE

This work is part of a 22-year journey to improve diabetes podiatry services by and for Māori, to acknowledge those who have provided me with the skills and knowledge to thrive and use this for the benefit of tāngata whenua. It is our right as Māori to have quality services that meet our needs. It is not the end of the journey; however, it is my commitment to share this knowledge and transform current practice. I share with you my story and my journey.

Nā Wai Au

Ko Māmari rāua ko Kurahaupo ngā waka
Ko Ruānui a Tāne raua ko Pōhurihanga ngā Ariki o runga
Ko Tāwhitirahi te maunga
Ko Te Awapoka te awa
Ko Pārengarenga te moana
Ko Rongopatutaonga te whare hakari
Ko Waimirirangi te whare tūpuna
Ko Pōtahi te marae
Ko Te Aupōuri te iwi
Ko oku tupuna i te taha o oku matua ko Reewe Te Haumutunga rāua ko Matire Ihaka
Ko oku koroua i te taha o oku whaea ko Joseph rāua ko Dorothy
Ko Hakaraia rāua ko Eileen oku matua
Ko James Eru Ihaka-Barbarich taku tama
Ko Ayden taku mokopuna

Whakapapa

The migration of the descendants of the people of Te Aupōuri, has been passed down through documented stories of elders (Hoeft nee Kereama, 2019). Te Aupōuri was renamed after years of unrest between tribes. Two chiefs Whērū and Te Ikanui lived in Hauturu on the west coast between Whangapē and the Hokianga harbours. The brothers had two sisters and their tribe was Ngāti Ruānui. One night, a Ngāpuhi warrior Te Painga crept into the settlement and murdered one of the chiefs' sisters to irk the chiefs into war. Te Ikanui was able to confront Te Painga and revenge his sister's death. Following this was never ending feuds between the tribes and fearing for the safety of their people, Whērū and Te Ikanui planned to leave their pā and ordered their tribe to burn it down while escaping along the Whangapē river.

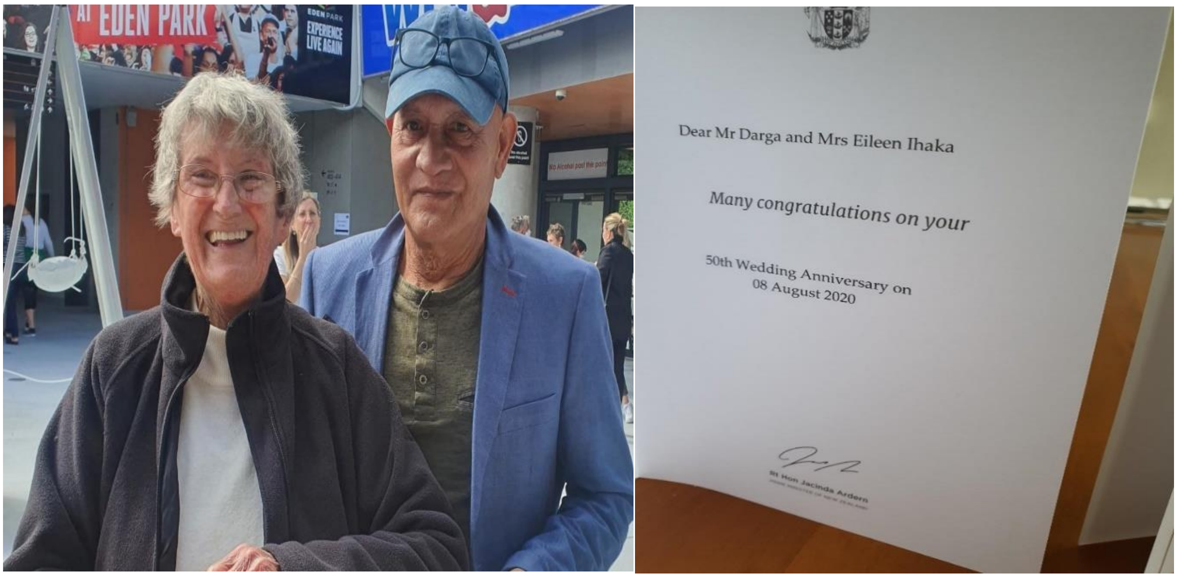
> We who are known as Ngāti Ruānui shall from today be called Te Aupōuri because of the 'au' of that river being dark (pōuri) with the combined smoke and ash of our pā and our dead (Hoeft nee Kereama, 2019, p.8)

The people of Te Aupōuri would find themselves spread throughout the far north seeking peace. Although Te Aupōuri is one of the smallest tribes in Aotearoa, it is the last place where people go to depart this world. Spirits Bay forms the tail of the Fish of Māui, Te Ika a Māui. The departing spirit must pass through Te Aupōuri before taking the final leap off the cliff make their journey to Hawaiki (p.ix). Our iwi flourished in the new homeland, and as time passed, there was recognition of the importance of the relationship with Pākeha, establishing a high school to learn all the skills from the Pākeha. I am the youngest of three daughters and we are the direct descendants of Eru Timoko Ihaka, the chief of Te Aupōuri.

My father Hakaraia (or Darga, Zachariah, Jack) like his ancestors before him a follower of the Church of England (on his father's side). His father Reewe, looked after the family farm, and gave sermons at the church in Te Kao even though he wasn't a Minister. He was a respected kaumātua and only spoke te reo Māori in which he taught all 16 children. My mother was born and raised in Melbourne, Victoria in Australia, and her parents were from strong Irish-Catholic backgrounds. I acknowledge my mother's homeland in my whakapapa, but do not know enough to extend on this comfortably. My mother met my father when she came to Aotearoa for work. My father was sent to trade school in Domett Avenue, Epson to become a builder alongside his brother David. He was given the opportunity to become a Minister or even a political figure but declined both offers. My mother was a dressmaker, she made most of our clothes and we were envied by our cousins. She was also head cake-maker and decorator, always receiving top honours at our primary school galas and whānau gatherings. My parents look forward to Friday night's because they are reserved for family. I have two older siblings, one in Australia who is a registered nurse and mother of four; and my oldest sister who lives locally and is a primary school teacher with an interest in children with learning difficulties – Friday nights give us the opportunity to spend time with our parents. They celebrated their 50th wedding anniversary in August 2020 during the lockdown.

Figure 1

50th Wedding Celebrations, Eileen & Darga Ihaka and Card from Current Prime Minister, Jacinda Ardern



Dear Mr Darga and Mrs Eileen Ihaka

Many congratulations on your

50th Wedding Anniversary on
08 August 2020

Rt Hon Jacinda Ardern

They still reside in the house where we were raised, and I have two different perspectives based on my parents' backgrounds - Pākehā and Māori. My son is in his early twenties living in Otautahi and his son Ayden has Cook Island Māori heritage (Penrhyn). I believe there is only 2 degrees of separation in Aotearoa, whakapapa is a way in which we connect as Māori. We were very fortunate, we lived next door to family members of a very prominent Catholic Priest Pā Henare Tate (his Order protected the body of Bishop Jean Baptiste François Pompallier in the Hokianga) who would visit for extended periods over summer. We would play cricket against each other until sundown. Later on, in my professional career, I learnt that Pā Tate developed a framework for Social Service providers titled the "dynamics of whānaungatanga" informed by kaumatua and kuia from the Hokianga and still embedded in Māori Health Organisations today. The concepts and values of whānaungatanga are inherent in traditional Māori society to determine roles and relationships within and between whānau, hapu and iwi. The significance of these values lies within this work.

Loss of Connection

I remember half-way through my first year of my undergraduate degree, we had a Pākehā lady come into our class and talk about the Treaty of Waitangi (English version). I was extremely excited, this was the first ‘Māori’ discussion we had had, and I finally felt some connection to the topic and a sense of celebration. Unfortunately, as this woman continued to paint Māori in deficit statistics citing quotes such as ‘they can’t get out of this rut because they don’t want to so the education providers have to let them in’; I found myself burning up inside and sliding down my chair embarrassed about how my peers would perceive my place in the degree (and this world). I wondered; how could our worlds be so far apart? Why the disconnection - an ‘us’ and a ‘them’? I deserved to be included, I had previously graduated from Waikato University and Polytechnic with good grades, and my whānau were incredibly supportive of my learning and career aspects. I was physically shaken, as were a couple of my Māori classmates who were blushing with beads of sweat trickling down their foreheads too.

Afterwards, I left the classroom to speak to our Head of School, a woman with soft eyes who had recently taken the position and emigrated from the United Kingdom. I wanted to find out if I was one of those ‘Māori’ that they ‘just have to let in.’ Holding back the tears and feeling my throat swell, I knocked on her door and entered her dimly lit room. She smiled at me and asked if I was all right. Without any ability to rehearse what I would say, I bellowed out “am I only in this degree because I am Māori!” I remember a pause, and my Head of School taking her glasses off and leaning forward to look at me. She simply replied animated, “are you Māori, you’re the first Māori I’ve met.” The longest silence followed up with the events that led me to her office. She was not impressed by my story, and I felt vindicated for my abrupt intrusion. The world suddenly looked like it was cut in half; and I was on the rotton half of it. I would learn later that this was a form of socially assigned ethnicity (Gillon et al. 2019); or/and institutionalised racism. I was *seen* as more Pākehā which would create challenges in my professional career, particularly this current work where the epistemological stance is kaupapa Māori.

I graduated with a Degree in Health Science (Podiatry) 1999, and I had always had a strong interest in the diabetic foot syndrome. I had my son a year earlier during my study and wanted to move closer to Auckland, closer to whānau. I was given an opportunity in Hamilton East – Podiatry 547, a business that was in partnership with a large Pharmacy. Fortunately, the director of this pharmacy was very involved in the community, and he introduced me to many networking opportunities including the Waikato Local Diabetes Team and Waikato District Health Board Māori working party. I had always wanted to focus on diabetes specifically to benefit Māori and discovered very early that there was no clear understanding of who could access podiatry services through the hospital and what the barriers were to receiving diabetes podiatry services in the community. These fundamental elements required serious consideration.

This led me to a meeting with the CEO of Raukura Hauora o Tainui, the largest Māori health provider in the district. I was so nervous; I was going to meet someone from outside of my iwi. I had it in my Westernised head that it was going to be a business meeting. How could I possibly ignore tikanga! It was a bittersweet meeting. I was reminded (without needing to be reminded) of acknowledging my whakapapa regardless of the circumstances of the meeting. I was caught out exercising Pākeha customs, assuming this was acceptable for a formal meeting. He tino akoranga pai – a great deal of learning came from this.

I did not make this mistake again; our connection created a partnership to provide services and outreach clinics for rural and urban Māori. I worked very hard to try and promote ‘screening’ and ‘treatment’ at that time. In hindsight, probably not the most attractive words to use for Māori who have experienced stigma associated with this condition. I spent a lot of time trying to contact the people who should have attended their appointments. In later years, I would find out that it wasn’t the lack of interest by the people, but moreso a lack of trust and familiarity of the service, particularly, its aims. Podiatry was foreign to people in the community, ‘podiatry’ was for people who needed their legs cut off [sic]. There was a genuine fear of entering this service. An opportunity was provided at Kirikiriroa marae, yet another challenge – I’m female speaking on a Tainui marae! What an honour, the previous lessons of my last hui prepared me (whakapapa, mihi, song). I wasn’t too long into my mihi, and I was interrupted by questions and stories of past experiences. These experiences were from the coming from kuia, and our kaumatua and kuia uphold our traditions. My te ao Māori world teachings – these are tohu I am being gifted to action. The kuia shared my own frustrations with the services (secondary and primary), and I was the first podiatrist they had met kanohi-te-kanohi, not a name on an appointment sheet. I was now *their* podiatrist. Connections – whakawhānaungatanga. I was now responsible and accountable for that knowledge.

This empowered a continued effort to highlight the disparities between primary (community) and secondary (hospital) services to the Waikato Local Diabetes Team. There were many issues including timing of referrals, information required for referral, the skillset to manage complications, and inter-professional communication. I just wanted to understand, to learn more and help the community, I was after all, a recent graduate. The secondary service did not want to engage, stating that their service was doing just fine (although, I had asked for a measure of 'fine', I was never given one). I found it challenging to have to articulate something that I thought was 'common sense' from my worldview, but perhaps not so common from a Westernised perspective. There was a period where I found myself quite alone – that lone Māori voice in a monocultural system. As time progressed, part-funding through the connections of the Pharmacy to provide diabetes community podiatry to members of a former Independent Practitioners Association was established and this was a positive step, albeit not necessarily towards the community I felt needed it more.

Perhaps kāranga about my frustrations in the Waikato were heard, as 3 years later I received a phone call from the Head of School from the Department of Podiatry at AUT to tell me 'it's about time you gave something back'. This role was unique. It was an exciting prospect to be asked to initiate and implement a specialist diabetes podiatry service and formulate relationships with various Māori Primary Health Organisations (PHO) including Te Puna Hauora PHO; Waiora PHO; and Turuki Health PHO. This was an opportunity to advance forward and represent those voices from Waikato. This role allowed time to focus on a standardised approach to podiatry assessment and screening for the undergraduate degree, and foster relationships with the communities I felt more connected to. AUT was the ideal driver to achieve this goal with the undergraduate students involved in idealising best practice. The aim of the service was to screen people at high risk of diabetic foot ulceration and reduce outpatient visits and hospital admission through effective management strategies and referral processes. Our practice was informed by international guidelines from various sources for screening, however the management was less structured so 'effective' was measured by absence of ulceration. This sounds promising; however, international guidelines do not consider Indigenous values and beliefs.

Over a period of four to five years of data collection from each PHO, the results showed a marked reduction of lower extremity amputations in the district, and funding towards community-based podiatry services were established. Based on the merit of this service, the screening and assessment tool was used as part of a large Health Research Council project (HRC:05/286), investigating podiatry interventions for Māori at risk of developing diabetes-related lower limb pathology (Browne & Garrett, 2010). The study validated the assessment, foot risk category and formalised referral processes for this population in the Waitemata district. The Podiatry Specialist Interest Group (Podiatrist group who are members of the New Zealand Society for the Study of Diabetes) adapted this assessment as a guideline for nationwide assessment and management of lower limb pathology in Aotearoa, allowing podiatrists from all around the motu have the chance to receive district wide funding. It was later simplified and aligned to Scottish guidelines. It is worth noting that the intervention (i.e., off-loading devices such as diabetes specific socks, moisturising creams and secondary referrals were provided or prioritised) was the *ideal*, and not what is or was a reality in practice at that time.

Research informs practice and teaching and so a level 6 paper in the Podiatry undergraduate degree "Te mate huka: podiatric management of diabetes in Aotearoa" was created. There are two significant issues here. Firstly, the research that informed the paper was kaupapa Māori based, but the paper content, assessment and design was not framed using the same principals. Secondly, the qualitative findings from the HRC study were essential in informing best practice when providing diabetes care for Māori. The reality was that there were no resources to support students to work with and in Māori communities, watering down the veracity of the content and purpose of the paper. My role had changed from clinical educator to lecturer at this point and there were no resourcing to continue with the PHO clinical placements. Another issue is the misappropriation of the paper title, which indirectly labels Māori as 'being the problem' or considers that diabetes only affects Māori enhancing internalised and social stigma. The title could also be misunderstood by Māori themselves, as 'huka' is a modern noun as like 'reka' for 'sweet'. It wasn't until I went on this journey that I truly reflected on my loss of connection.

The AUT University requires annual student experience of paper offerings and uses anonymous questionnaires as a measure of performance review. PODY605 was criticised by students for the first few years citing the inability to link the theory into practicums, and content heavily laden on health statistics. If the paper does not meet specific criteria in terms of satisfaction (regardless of the numbers of students that feedback), then the programme must complete a separate review of that paper. In the podiatry department, this can be achieved by focus groups utilising the student representatives. It is often (more often) difficult to receive criticism about something you have been passionate about, however it is necessary to guide future decisions in regard to resources and curriculum and competency development. Feedback from a Pākehā student representative suggested that PODY605 was strongly skewed toward Māori health and not strictly a diabetes paper. The student did enjoy this aspect of the paper, but he felt that a separate Māori Health paper would be of benefit. The moderator pointed out that Māori Health, Development and Environment (MAOH501) is an option in semester 1 year and the student suggested that MAOH501 should be compulsory for all students. Unfortunately, this remains the case today.

For the reader, there is some attempts to reference Māori health models; however, PODY605 did not intend to be a Māori health paper but was deliberate in its attempt to discuss social injustice, privilege, and inequities. The student feedback suggests an agnotologic view perpetuated by attempts to misguide students from knowing this option. The feedback also suggests that any reference to Māori health should stand on its own; separated from the general population. This kind of hegemony is unacceptable. In addition, the other paper, PODY606, focuses on rheumatology. A specific condition that falls within PODY606 and is extensively researched by the AUT podiatry department is gout. Gout affects 8% of Māori compared to up to 4% of Pākeha (Dalbeth et al, 2018), and South Auckland is anecdotally considered the gout capital of the world. However, the content, aims and objectives of both papers do not align in reference to social injustice, privilege, or inequities. To bridge this, a postgraduate paper PODY801 was offered for the first time in 2020, with the first module dedicated to Māori health gain. Within this paper, students are asked to reflect on their whakapapa and their clinical approach to Māori. Every effort is made to highlight challenges faced by Māori in accessing culturally safe services.

However, this section wasn’t about my students, or attempts to be purposely teach from a monocultural perspective. I have lost connection to te reo. Through this journey, I have reflected on how much I don't know and am trying to scratch, claw, reclaim my roots and my connection to te ao Māori. You will see this as you read through this work, and I make no apologies. I'm on my te reo Māori journey, and my eyes are wide open. I used a pinch of te reo Māori throughout, with some offer of explanation, but at most a glossary. Colonisation took away lessons from past generations, that were meant to be passed down through my father to his daughters and mokopuna. Universities embed strict processes that further distance me such as having to justify where Māori knowledge came from or abiding by timelines that don't allow for appropriate or authentic engagement. So, through this mahi, I'm trying to navigate between two worldviews without compromising any more of my Māori worldview. For example, you will notice in future chapters I refer to "non-Māori" as the term used to depict people who are not descendants of tāngata whenua of Aotearoa. In this section, I use the term "Pākeha".

The reader is reminded of historical events that lead to the demise of land, language, lives, and cultural practices and hence the mistrust to 'document' who said what on which day and year. Yet the calibre and wisdom of proverbs are carried on today in speeches as poetic gestures to guide our people. Therefore, as part of my journey to reclaim and legitimise my understanding, learning journey and thinking, I will alternate between whakatauākī and whakataukī. Unlike Pākeha proverbs, these will not be referenced.

Privilege

I have understood what privilege means since my undergraduate years. The title in this preamble is intended to provide no more than an insight into academic writing's struggles for this qualification; and to create and present this in a way that is meaningful to the group of people without whom this work would not be possible.

Kaupapa Māori research embodies work by Māori that is intended to benefit Māori. Of course, a wider audience would be appreciated, however if the work is to be of any benefit for Māori it needs to be accessible and judged accordingly (through the actions of the work). The reader of this work may find themselves frustrated with the 'broken' Māori. This is to demonstrate my frustration of not being fluent in te reo Māori; and attempts of te reo throughout, my best attempts to hold on (and keep up with my te reo journey). It is my way of showing Pākeha the difficulty of academic writing by *this* Māori.

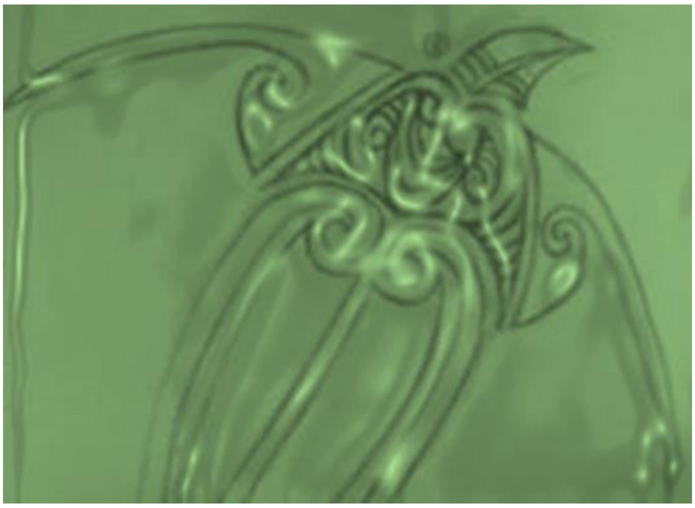
In recent years, it has been a privilege collaborating with various experts in the field of diabetes, public health, and policy makers. During this time there have been several reports emphasising the need for change and highlighting the unequal share of power that contributed significantly to the poor health outcomes for Māori. The release of the Health and Disability System Review's final report Pūrongo Whakamutunga (New Zealand Health & Disability, 2020) otherwise known as the "Simpson Report" was commissioned parallel to the WAI 2575 Waitangi Tribunal recommendations (Came et al, 2021). The report supported the Wai 2575 recommendations acknowledging failure of the health system to uphold te Tiriti o Waitangi. With continued pressure on the Government to act on the changes in the Simpson report, the Minister of Health Andrew Little announced on 21st April 2021 plans to create a Māori Health Authority to oversee Māori health policy and health services. In September 2021, Te Aka Whai Ora – the Māori Health Authority was established and became an autonomous legal entity July 1st, 2022. I have been blessed in my journey to personally know the people that were brave to challenge Government decisions around health and disability services. Podiatry is a small cog in the broader picture of health services, but this work can mimic other allied health professions striving to create services that meet the aspirations of Māori.

Te ao Māori and Te ao Marama: Reflexivity

Te ao Mārama is a traditional Māori worldview of how we are connected to the natural world including animals, celestial bodies, plants, water, and trees. It originated from the Māori Gods, Paptūānuku and Ranginui; where the separation of the earth mother and sky father by their children created a world of light, allowing life to flourish. To understand these connections shows wisdom and knowledge; and te ao Māori acknowledges this interconnectedness to living and non-living things. Figure 2 represents lessons from my past, my transition forward to focus on issues relevant and specific to Māori, it was drawn on my first day of embarking on this journey after receiving a blank book to record my reflections from my paper leader Liz Smythe. I simply titled the picture ko au, me – myself as I start to expand my wings to take flight. The manu bears significance in traditional Māori custom and mythology. He manu were not only a source of kai, but their feathers were, and are still used today to adorn the body. There are many stories of birds having the ability to see into the future, and hence possess the same status as chiefs. The Kūaka (Bar-Tailed Godwit) are small manu that make their annual voyage from Alaska to Parengarenga Harbour in September each year. Te Aupōuri consider Kūaka as a symbol of strength and striving to achieve.

Figure 2

Ko Au



Note. First day of class

My education has been from a Pākeha, colonised perspective, and I acknowledge this as critical and colonial. My experience in previous research has provided an opportunity to give voice to those who are silenced. However, I am aware of these colonised influences impinging unconsciously in previous work. Te ao Māori embraces oral stories, and I am conscious now that some of those voices were represented as examples of deficit theorising. This experience has created deeper and more critical views on how my research should and shouldn't be conducted and I am brave enough to express and challenge a willingness to participate in future collaborations with others who do not uphold the mana of Māori.

From the researcher's perspective, it is important to be transparent about how the completion of the work will contribute to a higher degree (Doctor of Health Science). This tohu is not how Māori would naturally rank themselves in terms of 'scholarship', however it is a tohu to advance the researcher and have a wider impact on tāngata whenua. It is well documented that women are especially under-represented in senior levels of scholarship, affording this advantage to white males (Savigny, 2014). Māori are also few and far between at the senior academic level (McAllister et al, 2019); and are therefore, in demand for their specialised research skills involving Māori. Kidman & Chu (2015) note, women are not only disadvantaged by gender, but Māori woman face another challenge of institutional hierarchy placing Māori men above woman. This disrupts the balance of harmony and connection. A higher degree supports the researchers' capability to mentor future Māori students in kaupapa Māori research.

I am conscious of he iti mohio mo te reo Māori and potential criticism that comes with this dis/ability particularly when applying kaupapa Māori theory. Research conducted by Māori for Māori is unique and sets out ways to separate it from Westernised approaches. Socially constructed ideologies of elitism or level of Māori-ness (if you cannot speak te reo Māori, then you should not be conducting research with Māori) are discourses that sit within academia, not the marae which holds more value. I am not sure what level on the scale of Māori-ness I am, but I am holding this space by reflecting on Māori whānau, podiatrist, and stakeholder experiences. Therefore, in terms of authenticity, there is a strong connection to these communities through whakawhānaungatanga.

During my DHSc, I was elected a member of the Podiatrist Board of New Zealand in 2019. In 2021 I was then elected as Deputy Chair. You will find that throughout this work I refer to the functions of the New Zealand Podiatry Board to emphasise the transformative practice as a result of this journey. I do not accept that being a member and deputy chair is a privilege from the Māori worldview. Some of my Pākeha colleagues have claimed this, citing this as a position of power. From my perspective, it is a position to advance Māori and I am mindful that I am still a minority within this space. I am fully aware of future challenges, particularly cultural competency for undergraduate and practicing podiatrists and ensuring the Board is te Tiriti compliant. I reiterate that my eyes are wide open. I am also conscious of the past and the impact of the recent pandemic.

Kia Atawhai: COVID-19 Impact

March 2020 sparked a national awareness campaign to remind us about being 'kind' to each other. This was an eye-opener; I did not think this was a message that needed to be delivered publicly. People were saying hello to each other, checking up on family or neighbours and exercising more. This speaks clearly about how our lifestyles were before Covid-19 and indeed, our behaviour and attitudes towards what we value. Time is an interesting variable, one which can either motivate or demotivate us. Covid restrictions with research interrupted the progression of this work three times. Whilst there is a timeline provided to identify work that was able to be conducted (Appendix B), the reader is reminded of the vulnerability of the participants, and the response of the health workforce to contain the virus. The timeline ends at the first phase of data collection. However, there were further level 4 lockdowns under the traffic light system, and these led to considerable delay and the inability to conduct kanohi-te-kanohi focus groups as per the initial timeline proposed. Both the researcher and the research whānau were supportive of ensuring the safety for all parties and the best and appropriate approach to take in the likelihood of ongoing uncertainty and impending deadlines. Fortunately, as lessons have been learned regarding public safety with recommended guidelines updated regularly, it was decided that the kanohi-te-kanohi focus groups could not take place following a Covid-19 risk assessment without adding further burden to the National Hauora Coalition who have been the first responders for their community. The alternative to completing this work within the timeframe was to abandon the focus groups, utilising the online survey and quantitative data from the National Hauora Coalition to answer the question. The delay in progress and having to plan alternative options has raised patai considering the presence and ongoing threat of Covid-19 in the community; particularly how research with vulnerable Māori can be conducted safely to ensure their voices are represented (and tikanga is practiced); and what the long-term effect on morbidity and mortality for Māori will be due to limited or no access to diabetes podiatry services.

With respect to the former patai, the easing of restrictions enabled the creativity of other researchers, where focus groups or interviews were conducted online or telephone. In the current work, it was not appropriate for the focus groups to be conducted over electronic platforms, as access to devices and connectivity were a concern raised by the research whānau, adding this as a disadvantage and not the kaupapa of the organisation. However, you will read in the methods section, that due to the uncertainty of restrictions these concerns were mitigated by adapting to the Covid-19 conditions.

The research whānau involved in this work were instrumental in the Covid-19 response to Māori health and wellbeing. They became the essential workers during all three lockdowns. The first alert level 4 lockdown was challenging in my lecturer role to navigate, as the Ministry of Health, Ministry of Education and AUT had to decide how to best deliver education packages to students and maintain engagement. This was the ‘unknown’ phase of working from home under ‘extraordinary’ circumstances. For the first time, everybody had to abide by the same rules as tāngata whenua. Upon reflection, I think of Tāne Mahuta (God of the forest) pushing his parents away from each other, trying to get out of the darkness to step into the light. After the announcement of alert level 2 and then level 1, ‘we’ felt it was over as a nation and didn’t give our freedom much more thought.

August 2020 reminded us that we weren’t invincible and perhaps a little naive thinking that we had erased this pandemic from our shores. We headed back to alert level 4, and we just had to suck it up for a couple of weeks because ‘we can do this together’. Galileo Galilei was the first to talk about the law of inertia (later expanded by Descartes) whereby an object will maintain its state of motion unless acted upon by an external force (Newton’s 1st law). I found it very difficult to progress with the current work which sat without any movement for some time. With the heels of my supervisors firmly on my spine, I felt the fierceness of Tāwhirimātea (God of weather) and six months later reached out to my research whānau to reconnect.

> Kei te kāranga ahau ki te kaimahi o te National Hauora Coalition. He whakahirahira ki a ratou I nga mahi, me nga mahi kotahitanga. A pera, he korero mo tenei mahi me te karanga o te kaimahi ki tetahi mahi.
>
> Im calling out to the staff of the National Hauora Coalition. It’s important that we unite in this work. And so, I want to give a description of what the study is about to get them involved.

This work started during a lockdown with korero regarding specific requirements for research and participation under these restrictions. Members of the National Hauora Coalition had moved into different roles and some time passed before new connections were established. Then, when it felt like all was safe….the Delta variant of Covid-19 arrives on our shores and August 2021 is the third alert level 4 lockdown. The Covid-19 pandemic destroyed millions of lives, livelihoods, and crippled economies. The opposite and dual effect was the restoration of our whenua, moana and awa as recreational activities were abandoned. It was a time for us to reflect on our freedoms, or what we thought was freedom.

In December 2021, the Covid-19 Public Health Response (Vaccinations) Order was implemented and was subject to change with the introduction of the Omicron variant and the addition of booster vaccinations. Whilst there is an opportunity to hold an exemption to practice, there were health care workers who refused to be vaccinated and could not practice under the Order. This may be the reality of the podiatry workforce, and at a time where the prevalence of diabetes is increasing, a shrinking workforce under pressure can impair the quality of service widening the gap between Māori and non-Māori health outcomes. The last day for registration for an annual practicing certificate for podiatrists was March 31st, 2022, and was a good indication of the current podiatry workforce numbers. Yet, these issues were not specific to podiatry, they were across all of the regulated health professions. With the numbers of health workers exposed to the virus, number of health workers refusing vaccination, and people with multimorbidity unable to access appointments; podiatrists may in the future have an extended scope of practice to mitigate these factors.

> Mā pango, mā whero ka oti ai te mahi (Te Ao Hou, 1954). This quote refers to a tradition of chiefs smearing red ochre and shark oil (kōkōwai) who united in labour alongside other members as an appeal to volunteer to complete a task. “By black and red together it is done”. Thus, signalling the virtues of a co-operative effort as idle people who do not contribute were seen as lazy or frowned upon.

Moving forward, the initial timeline for the completion of this work remained in place.

CHAPTER ONE: INTRODUCTION

"Kaua e hoki i te waewae tūtuki, ā, āpā anō hei te tūpoko pakaru"

Don't turn back because of small obstacles but press ahead to the desired goal.

1.1 Introduction to Chapter

This chapter overviews existing evidence of the role of podiatrists have in the prevention of lower limb amputations in Aotearoa, and the cultural significance of lower limb amputations in Māori. This chapter also provides an opportunity to consider cultural safety of podiatrists and introduce whānau ora as a strengths-based approach to improving Māori health and wellbeing.

1.2 Diabetes and the Lower Limb

Podiatrists are considered the gatekeepers of diabetic foot management in the prevention of lower limb amputations (Fryberg, 1997). Lower limb amputation is normally preceded by diabetic foot ulceration which is the net effect of clinical and social variables (Alexiadou & Doupis, 2012). Yet, the effectiveness of podiatrists in reducing amputation rates in Indigenous populations remains unclear (Chuter et al., 2019; West et al., 2017). The podiatrist's role is to detect limb threatening consequences such as peripheral neuropathy and vascular disease which leads to changes in the function and structure of the lower limb. This assessment allows the podiatrist to triage the threat of risk of ulceration and manage these consequences through means such as off-loading devices, self-management for health promotion and education in partnership with the person, or referral for multidisciplinary teams for ulcer management or surgical review. In Aotearoa, there is funding available to podiatrists to reduce lower limb amputation rates within community settings, which includes podiatrists who practice privately. However, since funded diabetes podiatry services have been available, Māori pose a 65% greater risk of amputation compared to non-Māori, despite Māori ethnicity being a key priority for inclusion into the podiatry service (Gurney et al., 2018a).

An evaluation of health services in Aotearoa is necessary to determine if diabetes podiatry services are doing what is intended, and asks if this is the best way of doing things? Māori have higher rates of diabetes-related complications which has broader consequences for the individual, the whānau, and the wider community (Gurney et al., 2018a; Robinson et al., 2016).

In 2015, the Ministry of Health [MOH] proposed to reduce the rate of amputations per 1,000 Māori with diabetes mellitus to 30% by 2019 (MOH, 2015a). International studies have reported that effective diabetes foot prevention programs have reduced amputation rates, ulceration and re-ulceration rates, hospital admission and hospital days by 49% (Anichini et al., 2007; Lavery et al., 2005; Patout et al., 2000). However, these reports do not reveal ethnicity of their participants and assume that what works for the majority will also benefit the minority. Patout et al. (2000) attempted to compare African Americans who have high amputation rates to non-African Americans. However, the total population data was missing, questioning the validity of diabetes podiatry services for Indigenous populations. Moreover, the resourcing and risk category for the diabetes podiatry services outlined in these studies differ to the Aotearoa context including access to podiatric surgeons; 24-hour access to the foot care team; peak force pressure monitoring and review times. Some features that are in line with Aotearoa, include education, footwear, and offloading devices; as well as basic wound care practices (MOH, 2013a).

In Aotearoa, active diabetic foot pathology should be managed at the secondary level (MOH, 2013a) with an urgent referral for admission or vascular review pending severity of infection and/or critical limb ischaemia (New Zealand Society for the Study of Diabetes [NZSSD], 2017). Secondary podiatry services are usually situated in outpatient departments in hospitals, and referrals from the community diabetes podiatry services are managed within a one-week period (NZSSD, 2017). In Aotearoa, the mean for podiatry services within the secondary sector is 0.3 fulltime equivalent/100,000 population (Manning, et al., 2009) which is less than comparable to the resourcing provided in international studies (Albright et al., 2020; Ignatyeva et al., 2014; Patout et al., 2000).

1.3 Diabetes Podiatry Services in Aotearoa

Diabetes New Zealand (2008) forecast the cost of diabetes mellitus to almost triple by 2021/22. In 2006/7 these costs measured $600 million and within five years rose to $920 million in 2011/12 (MOH, 2007). Chan et al, (2020) determined that the absolute number of Māori with diabetes mellitus in the Counties and Auckland district was 7,594 in 2019, but also note a 4,485 increase in the total population since 2018. Te Whatu Ora, Health New Zealand virtual diabetes register web tool estimates the total Māori population at 70.1 per

1,000 Māori population (95% CI: 69.5, 70.7) with a diagnosis of diabetes for the 2021 period (Te Whatu Ora, 2021). However, as a consequence of the Covid-19 pandemic, it is likely that these figures will rise as a result of the environment, genes, lifestyle, and societal policies. Unfortunately, Māori experience a higher burden of diabetes-related complications as well as the largest inequities in access to care (Beaton et al., 2019).

The economic burden of this condition was predicted to almost double to $1,770 million (MOH, 2007), placing significant strain on the health service and the person (Cheng et al., 2017). A more recent report identifies the total current annual cost of type 2 diabetes alone in Aotearoa to be at $2.1 billion dollars, representing 0.67% of the total Gross Domestic Product (Pricewaterhouse Cooper [PwC], 2020). Even more troubling is the prevalence data indicating the projected prevalence for Māori from 2018-2040 to increase to up to 1.5-2.3% (PwC, 2020).

Scott and Scott (1994) and Solomon et al. (1994) estimate the cost for lower limb amputations to range between NZ$17,000 to $30,000 per person (based on calculations of inflation at 58% in 2017). In other countries, these costs have been estimated to be between AU$26,000 and US$63,000 (Apelqvist et al., 1995). It is difficult to estimate the total cost of a lower limb amputation in Aotearoa, as there are multiple factors to consider including length of hospital stay, level of patient care, and the complexity of the treatment (Rutherford, 2007). PwC (2021) highlight the urgent need to review provisions for preventative diabetes foot care. If the status quo remains in place, the gap between poor health outcomes for Māori will increase.

Lower limb amputations require complex after-care to maintain adequate quality of life and involve multiple specialities including (but not limited to) specialty trained wound care nurses; orthotics/prosthetics; podiatry; orthopaedics; physical therapy / physiotherapy; occupational therapy; counselling; social workers and general practitioners (Meier & Heckman, 2013). Similarly, these are the same services required to prevent amputation. Eligibility criteria includes people who have had a diabetic foot ulcer or amputation; neuropathy with/without musculoskeletal deformity; absent pedal pulses and/or signs of peripheral arterial disease; nail infection, with peripheral arterial disease or/and peripheral neuropathy; or end-stage renal failure (MOH, 2013a). Non-specialist primary health podiatry treatment in the community is not included in this specification (MOH). Non-specialist infers to a podiatrist without higher qualification in the subject field of podiatry.

Until 2020, there were no specialist podiatry postgraduate papers or endorsements specific to the lower limb and diabetes in Aotearoa, so those providing specialist podiatry services for people with active risk complications (i.e., diabetic foot ulceration, Charcot Neuroarthropathy, critical limb ischaemia, spreading infection) have relied on other means of education to support their clinical management. The MOH (2013a) describes current practice of diabetes podiatrists to prevent lower limb amputations in Aotearoa to include:

1. Screening for identification of risk (of a diabetic foot ulcer) category
2. Assessment of foot health status
3. Palliative podiatry services to help maintain the health of individuals' lower limbs and feet
4. Provision of specialist podiatry care surgical and/ or non-surgical treatment for eligible individuals
5. Clinical advice and support to primary health care providers to ensure they have the knowledge and skills to identify foot problems early and understand the pathway for their management
6. Effective communication with the individual, their general practitioner, and referrers
7. Assistance for individuals to attend their podiatry appointments
8. And, where appropriate, follow protocols for referral to other health specialty services).

People with diabetes who do not meet the criteria for this service are those categorised as 'low risk' of developing diabetes foot related complications. These people are referred to be managed by their general practitioner. In Aotearoa, community funding for podiatrists is available through Primary Health Organisations (PHOs) who indicate that their community would benefit from diabetes podiatry services. Those people categorised as moderate to high risk of an ulceration may also be managed by diabetes podiatry services within the community (NZSSD, 2017). Podiatrists use a foot risk stratification tool which was adapted from an international tool to triage for risk of diabetic foot pathology (Scottish Diabetes Group – Foot Action Group, 2016, NZSSD, 2017). Garrett and Ihaka (2013) reported an increase in lower limb amputation in Māori in the Waitemata district between 2010 and 2012, resulting in increased referrals for podiatry. Non-attendance rates were particularly high for Māori, potentially indicating structural and cultural issues with the service that warranted further review. Unhelpful structural processes include the structure of health care services, a lack of Māori practitioners, funding sustainability, and lack of service coordination (Browne & Garrett, 2010). In reaction to this issue, Aotearoa is the only country to have ethnicity as an independent risk factor for risk stratification. ‘Māori’ (as an inclusion criteria) was included to recognise barriers that Māori face in terms of access to services; navigation through the health system and medical professionals acknowledging the need to refer Māori for these services (Baxter, 2002; Cormack et al., 2005; Browne & Garrett, 2010). From an organisational view of access to services, this also includes cultural appropriateness of the service for people with disability (Hale, 2018). There are reports to demonstrate differential access between Māori and non-Māori to health-related services (Harris, et al., 2012; MOH, 2013b; Reid et al., 2016). By including ethnicity as a criterion for a moderate risk category, the vision was to ensure that Māori will be reviewed at least twice per year by the diabetes podiatry service. This has led to slight changes in amputation rates in Māori after adjusting for social deprivation (Gurney et al., 2018a; Robinson et al., 2016).

1.4 Responsive Podiatry Diabetes Services for Māori

Given the projections identifying Māori at the highest risk of lower limb amputation; structuring diabetes podiatry services specific to Māori would serve a better purpose to off-set future costs (economic and human). Prior to an amputation, the social implications for Māori living with a long-term condition include loss of income due to inability to secure employment, which impacts on housing and living conditions and ability to access appropriate nutrition (Welfare Expert Advisory Group, 2019). These social and economic determinants impact significantly on the persons overall health and wellbeing (Harris et al, 2017), with Māori negatively reflected in statistics. Māori view health holistically whereby there is no separation from the physical, social, emotional or spirituality of an individual or to their whānau (Durie, 1994). When all these domains are in harmony, and Māori have full cultural autonomy, Māori health and wellbeing outcomes flourish.

Browne & Garret (2010) describe how diabetes podiatry services could enable better health outcomes for Māori. This large study utilised a Māori theoretical approach to compare standard podiatry services to a structured podiatry service (foot risk stratification, referral processes, education kanohi-te-kanohi or group-based education) where the intervention was delivered within a Māori-led PHO. Māori highlighted that health care practices that are relevant and responsive to Māori aspirations include: creating personal plans involving their general practitioner and whānau; having focussed education and information programmes through general practitioner partnership; and involving Māori in the redesign of culturally appropriate foot care services. This is likened to findings by Treharne et al. (2018) who explored the education preferences of people with gout in Aotearoa and identified that Māori preferred education specific to natural remedies; education which is easy to understand; and more television advertising.

Within the current community diabetes podiatry service, part of the management plan addresses specific foot educational points. These points are generic e.g., encourage self-management (NZSSD, 2017) which does not consider the importance of whānau or refer to tikanga or rōngoa Māori. If podiatry is to be of value to Māori, it should seek to include the whānau, community and consider educational preferences that are co-designed by the community and therefore culturally appropriate for that community. The findings from this research were shared prior to the promotion of diabetes podiatry funded services to inform podiatrists and other stakeholders what Māori identify as enablers and barriers to quality foot care (Bayley et al., 2008; Brown & Garrett, 2010). Barriers to quality diabetes podiatry services were 'disrespectful' interactions with health care professionals which left Māori feeling judged negatively:

> "…they treat us as children. We've been around a long time and worked under more stress than any of these people will ever know. They talk to us like babies. I think we need to be talked to like adults…" (Browne & Garrett, 2010, pp.33).

These lived experiences of Māori internalise the stigma that affects a person's spiritual wellbeing (Browne & Garrett, 2010; Durie, 2001). Other barriers reported included a lack of cultural and age-appropriate information and unhelpful structural processes (Browne & Garrett, 2010). Structural processes identified by Māori in this study included lack of Māori health providers, funding sustainability, costs of foot care services and lack of service coordination. The latter, as suggested by the participants, could be improved by integrating culture into the clinical context, recognising ongoing cultural training for a culturally responsive workforce.

Garret (2016) proposed the Pa tu tahi model to represent dual perspectives using the foot as a metaphor connecting the past to the present and beyond. Non-Māori and Māori describe how each part of the foot, and its function is related to space and time and how the knowledge of the past creates a path for moving forward (figure 3).

Figure 3

Pa Tu Tahi Model – Rethinking the Foot. Reprinted with Permission from Garrett, M (2016)

Pa tu tahi captures the living and the non-living, representing the connections to the earth (Papatūānuku), environment and socio-political perspectives. This model can be demonstrated when evaluating diabetes podiatry services for Māori. For example, the past (hindfoot) is represented by the length of time the diabetes podiatry services have been funded. During walking gait, the hindfoot is the first part of the foot to connect with Papatūanuku and the effectiveness could be verified through collating these clinical outcomes over that time. The spiritual/cultural dimension can be demonstrated by autonomy of ones' management which may include of rōngoa Māori, karakia, and mirimiri, considered in management plans shared by the podiatrist and other members of the health and wellbeing of the individual. The physical and functional dimension represents access to services which have enabled a functioning foot, incorporating appropriate and relevant information surrounding footwear or referral to other services essential for maintaining physical function for overall health. The present (forefoot) is the purpose of the current study (what do we know from the past 10 years of providing diabetes podiatry services); we can draw upon the findings specific to the lower-limb and Māori during this time (Browne & Garrett, 2010; Garrett, 2016; Gurney et al, 2018a,b) to create future diabetes podiatry services for Māori. The other social political factors are included in our present.

There is no available data reporting the value of podiatry services for Māori, Māori responsiveness or relevance of the service for Māori. This is a poor reflection of the commitment to the Māori Health Strategy – He Korowai Oranga (2002) which aimed to support healthcare services that are responsive to Māori cultural values and tikanga (MOH, 2017a). Rather, if amputation is the outcome measure to determine effectiveness of diabetes podiatry services, then podiatry services has led to worse outcomes for Māori and the current service specification requires urgent review. Evaluation of podiatry services is necessary to monitor comparisons of health and wellbeing of Māori. Consideration of further funding for diabetes podiatry services nationally must include support for increasing the capacity of Māori podiatrists and researchers. Wikaire (2015) demonstrated that Māori enrolled in tertiary health programmes experience barriers to academic success. The rate of Māori student podiatrists has remained static without growth (Carroll et al, 2020). Consequently, it is unknown how many Māori podiatrists currently provide diabetes podiatry in Aotearoa. The total number of Māori podiatrists with active registration in Aotearoa is 28/474 (6%) (Podiatrist Board of New Zealand [PBNZ], 2020). Whist 66% of the podiatry profession identify diabetes podiatry as their main employment setting, only 8% of podiatrists are employed in district health boards (PBNZ, 2018). These data do not distinguish Māori from non-Māori, so it is difficult without speculating to determine how many Māori podiatrists work within the secondary sector. However, Ihaka et al. (2021) suggested that due to the nature of the work, these positions are likely to be represented by Māori.

1.5 Cultural Safety in Practice

Te Tiriti o Waitangi (Māori text) was negotiated by Māori and British Crown in 1840 and outlines the terms of British settlement, affirming Māori tino rangatiratanga (unfettered authority) whilst allowing the Crown limited governorship over their (non-Māori) people (Ihaka et al, 2022). However, colonial dominance led to the marginalisation of the Māori text to favouring the English version. This has been compounded by subsequent breaches of te Tiriti that have had disastrous inter-generational effects on Māori health (Reid et al, 2007). There have been several examples of systemic inequities within the health sector that have led to an independent inquiry and recommendations for restructuring the current health system (Came et. al., 2018; Came et al., 2020a; Waitangi Tribunal, 2019; Health & Disability System Review, 2020). A major theme of these reports is institutional racism and prejudice which are modifiable determinants of Māori health and wellbeing. Health care practitioners, including podiatrists are responsible for confronting and acting upon these issues (Health Quality & Safety Commission New Zealand, 2019).

The Podiatrist Board of New Zealand is a responsible authority operating under the Health Practitioners Competency Assurance Act [HPCAA 2003] (NZ). The HPCAA 2003 (NZ) was passed as law on 18 September 2003 as the government's retort to a series of adverse medical events and growing public concern of the inability and lack of compliance of health professionals to protect consumers from incompetent practices and unfit practitioners (Rogers, 2004). The HPCAA 2003 (NZ) is the main driver for ensuring culturally competent and safe practices of podiatrists (Part 6, b(iv)). Betancourt et al. (2002) described cultural competency as "the ability of systems to provide care to patients with diverse values, beliefs and behaviours, including tailoring delivery to meet patients' social, cultural, and linguistic needs" (p. v). In 2019, the Act was updated to include revisions (Practitioners Competence Assurance Amendment Bill (the Bill) (2019). One of the functions of the responsible authority is to "set standards of clinical competence, cultural competence (including competencies that will enable effective and respectful interaction with Māori), and ethical conduct to be observed by health practitioners of the profession" (MOH, 2020a) in line with section 118(i) of the Act (2019). In relation to the Podiatrist Board of New Zealand, the Board was subject to a performance review. Specific to section 118(i), the performance review recognised the Board's commitment to these amendments with a suggested timeline to weave into the Board's Principles and Standards and Ethical Codes and Standards of Conduct (PBNZ, 2022a, p. 3). This work is currently underway (PBNZ, 2022b, p. 7).

It is important to outline the difference between cultural competency and cultural safety. The Nursing and Midwifery Councils were the first in Aotearoa to adopt cultural safety standards to protect the public in 1977 (Papps & Ramsden, 1996). Most noteworthy, were the criticisms that students may be sacrificing traditional content in lieu of time dedicated to cultural safety.

The term and definition of cultural safety has evolved over many years in Aotearoa, and in 1992 kawa whakaruruhau was developed to ensure that 'culture' be used in a broader sense so that relationships between nurses, midwives and health consumers are acknowledged (Nursing Council of New Zealand, 1992). Whereas early work by Polaschek (1998) defines cultural safety as a recognition of the position of certain groups within society, beyond the knowledge or behaviours of health care professionals to focus on attitudes that underpin the behaviours including the social and historical causes. Durie (2001) identifies cultural safety centres on the experiences of the patient, or client, while cultural competence focuses on the capacity of the health worker to improve health status by integrating culture into the clinical context. More consideration of defining cultural safety to achieve health equity suggests a broader definition of cultural safety for healthcare organisations with a shift in approach to include six core principles including: health equity, critical consciousness, application in systemic and organisational contexts, acknowledging and confronting bias, dispel power relations and alignment to formal training and practice environment including policy (Curtis et al., 2019).

To maintain a current practicing certificate, podiatrists must demonstrate different aspects of competence (cultural, clinical, and ethical standards) (Section 118, (i), 2019 No 11) by engaging in a continuing professional development recertification program (PBNZ, 2017). There are four core requirements (compulsory activities, professional communication; professional learning and basic life support). The compulsory activities include infection control, wound management, and cultural safety. The Podiatrist Board of New Zealand cultural safety activities include a reflective log or evidence of course attended / completed (PBNZ, 2017). However, an online search of cultural safety courses in Aotearoa conducted September 2018, using search terms "cultural safety" and "cultural competency" revealed only three training opportunities, specific to cultural competency with two concerned with Māori health (MOH, 2015b; Medical Council of New Zealand & Mauri Ora Associates, 2008); and the third to culturally and linguistically diverse migrant groups (CALD, 2016). Durie (2001) questioned how lectures and experiences translate into practice, which was supported by others (Duke et al., 2009; Kumagai & Lypson, 2009). Consideration of the terms used within compulsory activities i.e., cultural competence and cultural safety; require further attention if opportunities to ensure practitioners are culturally safe for continued professional registration in Aotearoa. Whilst the Podiatrist Board of New Zealand are attempting to address the shift beyond cultural competency to cultural safety, Robson (2007) states that it is not a lack of cultural awareness that drives inequities in health; it is the unequal power relations, unequal distribution of social determinants of health, marginalisation, biases, privilege, and institutional racism.

Robson (2007) argued that educational facilities and health institutions / organisations require a broader and systemic reform. Work by Came and Tudor (2020b) challenge the need for educational facilities in Aotearoa to consider health promotion practices and values which allow opportunities for social injustice, human rights, equity, and inclusion to be included in the curricula. The authors found that none of the eight Western Universities in Aotearoa currently meet the requirements of health promotion as indicated by the World Health Organisation's health promoting universities programme (Tsouros et al, 1998). The mandate to ensure culturally competent practitioners must also be supported within clinical training facilities prior to registration.

AUT is the only educational provider for undergraduate and postgraduate podiatry qualifications positioned in Auckland, Aotearoa (PBNZ, 2022a). In 2012, Te Mate Huka: Podiatric management of diabetes in Aotearoa was introduced to the undergraduate podiatry curriculum in recognition of the health workforce demands for specialised skills and knowledge of diabetes-related foot morbidity (Health Workforce New Zealand [HWNZ], 2011). The paper provided an opportunity for discussion around Māori health and inequities, as at the time, there were limited opportunities elsewhere in the curriculum (AUT, 2022). As indicated in the prologue, it was met with criticism due to the overrepresentation of 'Māori' in the content and students were challenged to think critically about their privilege and bias which was confronting and not well received. Expanding on Garrett's (2016) Pa tu tahi model, as Māori, we often talk about walking backwards before moving forward. In education, we understand where we have been, but where are we are walking to requires addressing. In terms of transforming the podiatry undergraduate curriculum in Aotearoa, as educators we first need to individually assess our own cultural knowledge and teaching assumptions (Hood, 2018). In 2021 the AUT School of Podiatry staff walked toward idealising a discursive curriculum and building stronger inter and intrapersonal relationships. The following timeline and activities occurred:

- 2021 Mihi Whakatau – Podiatry Staff whakawhānaungatanga / induction to Turuki Health Centre. An introduction for staff to engage with a Māori Health care provider which would later be used as a principal site for providing diabetes podiatry services to the community. Students will attend the mihi whakatau at the beginning of their third-year enrolment and be exposed to Māori and other minority groups, exposing them to cultural norms and social engagement.

- 2022 Cultural Intelligence – Podiatry staff hui for courageous conversation around implicit bias, privilege, and anti-racism.
- 2022 Mana te Tiriti – All faculty in the School of Clinical Sciences were involved in a series of workshops in an effort to prepare students and staff for te Tiriti o Waitangi undergraduate curriculum. A Tiriti Ora Framework was developed to set out graduate attributes, with specific learning outcomes, assessments and experiences designed to meet these which were informed by anti-racism, decolonisation, cultural safety, equity, inclusion, kawa whakaruruhau and indigenisation informing this framework.

However, who determines what culturally safe practice is within the undergraduate curriculum, the supportive strategies that allow students to think about their own conscious and unconscious biases and the impact it has on podiatrist to patient relationships. These will require time to evaluate in the future. What is most important, is whether the future graduates of podiatry and current practicing podiatrists are culturally safe and responsive to Māori wellbeing. In this study, Māori determine what is culturally safe.

1.6 By Māori for Māori

Whānau Ora is a framework to ensure effective co-ordination between health and social sectors and considers Māori models of health such as Te whare tapa whā (Durie, 1994); Te Pae Māhutoanga (Durie, 1999); and Te wheke: Rose Pere (MOH, 2017b). The Whānau Ora framework focusses on strengths-based approaches to promote Māori health and aspirations and is driven by Māori and defined by Māori (Health Quality & Safety Commission, 2019). The concepts of Whānau Ora include prioritising the collective wellbeing of the whānau across the lifespan which recognises the value and validity of Māori concepts and values in practice (Te Puni Kōkiri, 2016). The overall theme is interconnectedness of whānau, which is essential to wellbeing. There is an opportunity for Māori podiatrists to work alongside Whānau Ora providers and ensure the collective wellbeing of their respective communities is centred within mātauranga Māori and tikanga Māori, promoting Māori worldviews. There are currently no studies which demonstrate to what extent a Māori podiatrist has on Māori health and wellbeing guided by these principles.

However, Came et al (2018) found that in Government contracted funding processes for Māori public health providers, institutional racism exists through elements of patterns of behaviour, differential treatment, and disadvantage. There were clear differences between the duration of contract funding; and the frequency of auditing between Māori-led providers and other providers. For Māori to advance in health, Māori aspirations, knowledge and worldviews should be aligned across all sectors and integrated within health policies. The New Zealand Public Health and Disability Act 2000 (NZ) did not recognize te Tiriti o Waitangi [Māori version] (1840), thus making it clear that economic, social, and political forces are at play. It is the intention of the Pae Ora (Health Futures) Bill (2022) to repeal and replace this Act, and within this establish the Māori Health Authority (MOH, 2022a).

1.7 Research Aims and Objectives

The current study is about the effect Māori podiatrists have on improving the lower limb outcomes of Māori living with diabetes mellitus in Aotearoa. It is a strengths-based study utilising kaupapa Māori and evaluation methods, to showcase mātauranga Māori in a profession which is dominated by Western ideas and practices. This study highlights how Māori podiatrists offer best practice when the environment supports kaupapa Māori; and Māori experience in accessing and/or or providing support to Māori in need of diabetes podiatry services. The first objective of this study was to evaluate the current evidence regarding the effectiveness of diabetes podiatry services in Aotearoa. The second objective was to explore the views and perceptions through a Māori lens of (i) Māori podiatrists with an Annual Practicing Certificate in Aotearoa who provide diabetes podiatry services (ii) Māori stakeholders who provide services utilising te ao Māori concepts; and (ii) Māori with diabetic foot problems relating to the effectives of podiatric services in Aotearoa. The third objective was to ensure the research benefits Māori and aligns with tikanga values.

1.8 Thesis Structure

Chapter One introduced the significance of lower limb amputations in Māori, and the role of diabetes podiatry services in Aotearoa. This chapter also considered cultural safety of health care practitioners and introduced Whānau ora as a strengths-based approach to improve the health and wellbeing for Māori. Finally, the aim and objectives of the study are presented.

Chapter Two provided literature focussed on effectiveness of podiatry on reducing amputations and identified gaps supporting effective diabetes podiatry services for Indigenous populations.

Chapter Three considered the ontological and epistemological views of kaupapa Māori research and explored kaupapa Māori theory as a methodology, particularly its fluidity and diversity, drawing on critical and constructivist perspectives. Of particular importance to kaupapa Māori research, are key principles outlined and discussed with reference to the research aims. This chapter also described the methods used within the research including how the research whānau was created as well as the co-design of the evaluation plan for the research. A description relating to the value of data and protection of Indigenous data was included in this chapter.

Chapter Four explored the ethical considerations of research by and for Māori and considerations for future researchers.

Chapter Five The focus group, podiatrist group and stakeholder themes are presented in this chapter with the main findings.

Chapter Six explores the generated themes and how these themes relate to the aim of this study – a strengths-based approach to the effectiveness of diabetes podiatry services by Māori for Māori. Further discussion of how effectiveness is defined through a Māori lens is presented here alongside Indigenous best practice and future directions.

Chapter Seven celebrates kaupapa Māori research by outlining the dissemination strategy that was a collaborative effort between the researcher, research whānau and whakawhānaungatanga with the National Hauora Coalition. This chapter provides concluding remarks of the current research and future directions.

CHAPTER TWO: LITERATURE REVIEW

"Whāia te mātauranga hei oranga mō koutou"

Seek after learning for the sake of your wellbeing

2.1 Introduction to Chapter

Evaluation of diabetes podiatry services is necessary to determine the effectiveness of these services in reducing amputation rates for Māori. Despite support for diabetes podiatry in preventing lower limb amputations internationally (Anichini et al., 2007; Lavery et al., 2005; Patout et al., 2000); there is limited information in Aotearoa that support successful health outcomes for Māori despite advocating access to these services (Gurney et al., 2018; NZSSD, 2017). The first aim of this chapter was to assess current evidence on the effectiveness of diabetes podiatry services in preventing amputations. This chapter also highlights that defining effectiveness using Western means cannot be compared to Indigenous values.

2.2 International Diabetes Podiatry Services

There is evidence to suggest that podiatrists leading multidisciplinary teams are effective in preventing amputations (Armstrong et al., 2012; Carls et al., 2011; Cavanagh et al., 2012; Patout et al., 2000). Patout et al. (2000) exclusively targeted low-income African American individuals, providing comprehensive triaging and a staged management approach to care. This resulted in a reduction in amputation rates after only a year of enrolment. This study was modelled on the success of an earlier longitudinal amputation prevention programme specific to and for Chippewa Indians (Rith-Najarian et al., 1998). Despite this success, the resourcing for these programmes have been questioned, particularly regarding the cost versus benefit.

Ignatyeva et al. (2014) carried out a cost-effectiveness analysis comparing a multidisciplinary team to a high-risk foot service who provided footwear to their participants. The authors found that although both interventions were costly, the cost of a multidisciplinary team was higher than for an amputation. Recently, Albright et al. (2020) reports that multidisciplinary teams have achieved 39-56% reduction in amputation. These findings have received endorsement by various professional bodies including the American Podiatric Medical Association and the Society for Vascular Surgery (Sumpio et al., 2010). It is unfortunate, that only 10% of studies included in the Albright et al (2020) review, published ethnicity/race data (Meltzer et al., 2002;

Schraer et al., 2004). Schraer et al. (2004) included Alaska natives who after two years of enrolment in an amputation prevention programme demonstrated significant (p <0.001) reductions in amputation risk. Meltzer (2002) had 2% Hispanic enrolment with the majority of participants of white race. Although the amputation risk was significantly reduced, Indigenous people were not represented. McLeod et al. (2014) argued that even though equity is a major priority for Aotearoa, cost-effectiveness analysis studies that consider equity are rarely applied. Some of the reasons for this could be explained through how Indigenous people view health and wellbeing. Reid et al (2022) reported that this could lead to unfair and preventable inequalities.

It is important to note the difference between the two social constructs of race and ethnicity. Borrell et al (2021) stated that both terms are dynamic and are defined by geographical location, cultural and socio-political forces. Given that huge disparities exist in the United States between native American Indian peoples in terms of lower limb amputations (Kandi & Tan, 2021); the systematic review conducted by Albright et al. (2020) highlights a global need to consider better representation of Indigenous people in health research. Also, reporting by identifying ethnicity can have limited utility, without appropriate definition. In Aotearoa, ethnicity is the preferred term used in health care, medical practice, education, and research and has been described historically as a person’s cultural identity inclusive of language, customs, and religion (Stamper, 2019).

2.3 Indigenous Health Values

In this thesis, Indigenous is used in reference to people who identify as Indigenous peoples (United Nations Declaration on the Rights of Indigenous Peoples, 2007). It is well documented that Indigenous people are marginalized in all aspects of wellbeing, constituting the protection of rights of Indigenous people to regain and reclaim an equal playing field. Māori philosophy around health is holistic and there are various Māori models of health that capture this including Te whare tapa whā (Durie, 1994); Te Pae Māhutoanga (Durie, 1999); and Te wheke: Rose Pere (MOH, 2017). These health models (particularly Te whare tapa whā) have been to some extent integrated in health policy (Came et al, 2018; Came et al, 2019); and the frameworks are often intrinsic to the structure and organisation of Māori health care organisations and assessment (Pitama et al., 2007). In spite of this, approaches to the measurement of Māori wellbeing rely on Western attitudes, widening the gap in public health contracting (Came et al., 2018). For Māori, “data encapsulates stories, karanga, whakairo, waiata and the knowledge shared in wānanga" (p. 7) and hence, measuring Māori wellbeing needs to be considered through a Māori lens (Independent Māori Statutory Board, 2019). These constructs are essential to te ao Māori and are incorporated within the short to long-term outcomes of the Whānau ora framework (Te Puni Kokiri, 2016). These are represented by seven pou (supportive structures) of achievement when whānau are:

- self-managing
- living healthy lifestyles
- participating fully in society
- confidently participating in te ao Māori
- economically secure and successfully involved in wealth creation
- cohesive, resilient, and nurturing
- responsible stewards of their natural and living environments

Statistics New Zealand (2018) provided provisional post-censual information in Te Kupenga, which suggested cultural wellbeing indicators for Māori included: wairuatanga (spirituality), tikanga (custom and practices), te reo Māori (language) and kaitiakitanga (guardianship of the natural world). The merit of this work stems from leaders in Indigenous spaces calling on and rectifying policy for the alignment of practices to Indigenous approaches (Boulton et al., 2018; Came et al., 2020a,b; Cargo et al, 2019). The final report was updated October 2021 with key findings indicating Māori felt the health of the natural world was very important; that a very high percentage of Māori engaged with and were connected to tikanga / te ao Māori. Furthermore, Māori expressed te reo Māori is important, but more Māori could understand it then speak in their native tongue. Finally, just over half of the Māori population providing data stated their health was good or excellent. This information included Māori who may be seeking health care from non-Māori led organisations and is a promising start to capturing future wellbeing measures but could go further to sperate Māori accessing Māori health providers from mainstream services. More consideration to the measures of 'good' and 'excellent' are also required. The next steps would be to reveal how funds and resources are allocated to iwi, hapu and communities (health and other services) as a result of this information.

2.4 Defining Effectiveness

To establish effectiveness of a diabetes podiatry service in reducing amputations, any of the following outcomes could be considered in the literature: reduced length of hospital stay, reduced hospital admission, return to primary care, improved patient self-management, reduction in ulceration/re-ulceration, reduction in amputation; and limb salvage (Anichini et al., 2007; Lavery et al., Patout et al., 2000). To the authors knowledge, there is no current evidence regarding the effectiveness of diabetes podiatry services in Aotearoa. This literature review will therefore consider studies based in the United Kingdom (UK), Aotearoa and Australia. These countries have similar resourcing and undergraduate training opportunities to Aotearoa, with the exception of the UK and Australian podiatrists having the ability to prescribe antimicrobials for diabetic foot infections. Aotearoa is closer to having prescribing rights added as a scope of practice and pharmacology is situated within the undergraduate curriculum (AUT, 2022, p.492). Until such time, podiatrists working in multidisciplinary teams may have standing orders to prescribe in these circumstances. Studies from the United States of America (USA) have been excluded in this review, as their medical training includes the ability to perform revascularisation, orthopaedic surgery, intra-operative incision, and debridement as requirement for optimal diabetic foot care (Sumpio et al., 2010).

2.5 Search Strategy

The literature search was conducted in April 2018 and updated in October 2020 using the following electronic databases: CINAHL complete / Medline; and Scopus. For CINAHL, subject terms “podiatry” OR “podiatrist*” AND “diabetic foot” were used. For Scopus, the searches were within keywords “podiatry OR podiatrist” “diabetic AND foot”. These search terms were generic due to the exclusion criteria. Citations from retrieved publications were reviewed to obtain further references; records were then screened and assessed for eligibility. Studies with outcome measures concerned with the effectiveness of podiatry services in adult participants (19 years or older) were included.

Inclusion criteria

Studies were selected if they included people with a diagnosis of diabetes mellitus [DM] (type 1 or type 2 DM), and reported outcomes related to diabetes foot ulcer risk status (NZSSD, 2017). To establish effectiveness of the diabetes podiatry service, any of the following outcomes were considered: reduced length of hospital stay; reduced hospital admission; return to primary care; improved patient self-management; reduction in ulceration/re-ulceration; reduction in amputation; limb salvage (Anichini et al., 2007; Lavery et al., Patout et al., 2000). All aspects of the podiatry service were clearly detailed in the studies. The context of the delivery of the intervention did not discriminate between primary, secondary or private practice. Only full text articles and articles written in English were included in this review.

Exclusion criteria

Studies involving people who are pre-DM or where age and DM information is withheld were excluded as well as single case-studies, pilot studies and clinical guidelines. Articles originating from the Americas (North & South) and European countries were also excluded (due to educational, health structure variations, cultural and registration differences between Aotearoa and other Latin, central and USA registered podiatrists). Limitations were set to include articles written in the last 10 years (2008-2018); which was then reviewed and updated in October 2020. Studies prior to this time were not considered as most of the risk stratification tools have taken some time to validate and implement. A ten-year time frame has been set to allow time to show effect of the stratification tools to triage people and manage their risk status according to the podiatry service resources.

Study Quality and Appraisal

The studies were reviewed by the current author (BI). Screening included identification by title information, abstract and then the full papers. Studies were appraised using the Critical Appraisal Skills Programme of Economic evaluation (Critical Appraisal Skills Programme, CASP, 2018; Long et al., 2020;). The CASP Economic Evaluation tool is an educational pedagogic tool and does not rely on a scoring system. At the time of this review to the best of the authors' knowledge, there are no appraisal tools concerned explicitly with effectiveness of a service. Therefore, for questions 5-6, 8, 11 'cost' (monetary) was not considered in the review due to the number of confounding variables. However, cost in this review was considered as positive health gain (reduced length of hospital stay; reduced hospital admission; return to primary care; reduction in ulceration/re-ulceration; reduction in amputation; limb salvage).

2.6 Results

Study Characteristics

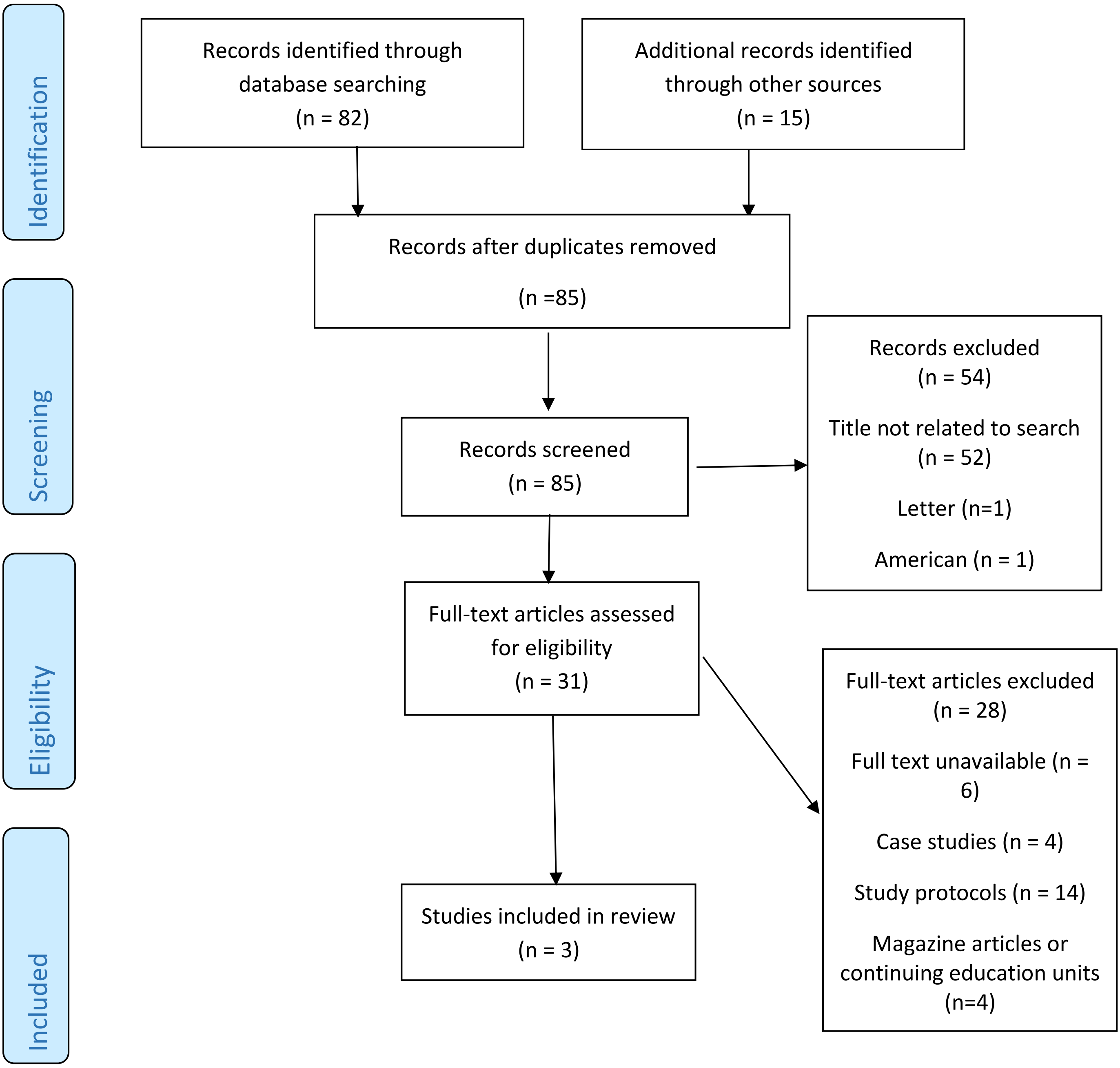
The search found 97 studies were identified through database and citations of the literature (figure 4). After the removal of duplicates and screening the title and abstract information, 31 full-text articles were assessed for eligibility. Final analysis of the articles lead to further exclusion of 28 articles. A total of 3 articles were included in this review for appraisal with 2 studies based in the UK (Craig et al., 2013; Searle et al., 2008). The final study was based in Australia (Perrin et al., 2012a). The sample size ranged from 52 to 576 participants with DM, although Craig et al. (2013) did not state either type 1 or type 2 DM or DM duration. Study participants ranged from 64–77 years old, disease duration ranged from 12 to 20+ years. The majority of participants were males (n = 348, 59%).

Study Design

Of the 3 studies, 2 were cross-sectional design, and both identified foot risk stratification (Craig et al, 2013; Perrin et al., 2012a). The third study used a qualitative approach with a case study design (Searle et al., 2008). Figure 4 demonstrates how the literature was screened for this study.

Figure 4

Flow of Study, adapted from Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009)



Methodological Quality

Table 1 demonstrates the study characteristics and findings. The three studies were well designed with evidence that the podiatry services were effective for reducing length of hospital stay; referral pathways and acknowledging improvements are needed to ensure self-efficacy. All of diabetes podiatry services followed clinical guidelines for the screening and assessment of the participants in each study. These included the European Pressure Ulcer Advisory Panel (EPUAP) category of heel ulcers and the Diabetic Foot Risk Stratification and Triage approach (National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance, 2009); University of Texas (UT) diabetic foot risk classification (Oyibo et al, 2001); and the NICE (2011) guidelines for prevention and management of foot problems which have recently been updated (NICE, 2019). The results of the evaluation identified a new approach to faster ulceration healing times leading to reduction in length of hospital stay; timely referral systems and therefore early detection leading to appropriate allocation of resources; and awareness for support in the current guidelines for both podiatrists and patients in shared-decision planning. These evaluations are likely to be equally effective in the current setting, however only if appropriate training is provided. In the current context, all three studies add value in determining the effectiveness of podiatry services which can be applied in the Aotearoa context.

Table 1

Summary of Effective Diabetes Podiatry Services

Question	Craig et al. 2013	Perrin et al. 2012a	Searle et al. 2008
1. Was a well-defined question posed?	A change in podiatry management in community and secondary setting to prevent ulceration or deterioration	Risk stratification to determine appropriate primary or secondary referral to off-set future costs of diabetic foot related complications	The effect of patient knowledge of diabetic foot ulceration as a result of podiatry management
2. Was a comprehensive description of the competing alternatives given?	Patients were divided in standard versus new management pathways	A description of podiatry model which triages people depending on foot risk status	NA
3. Does the paper provide evidence that the programme would be effective?	The study found reduced length of hospital stay for patients with ulcers and return to community.	There is no comparison to other regional hospitals in Australia, however this audit identified that the need for podiatry triaging was essential to detect diabetic foot complications	Identifies patient self-efficacy for the prevention or to prevent deterioration of an ulcer is a fundamental element of podiatry management
4. Were the effects of the intervention identified, measured, and valued appropriately?	Although this was measured in ‘cost’ it also identified that there were less follow up visits as a result of the change in podiatry management.	The risk stratification was effective in determining further referral for appropriate management	The study identified that there was a deficit in education delivery impeding partnership and shared decision making. This was a qualitative study investigating patient and podiatrist perspectives on diabetic foot ulcers
5. Were all important and relevant resources required and health outcome costs for each alternative identified, measured in appropriate units, and valued credibly?	A comparison between primary and secondary care pathways were identified using standard and intervention methods.	The number of visits and contacts were outlined as well as new incidence of ulceration in study participants	The study acknowledged current guidelines do not meet the patient’s needs in terms of education and self-efficacy
6. Were costs and consequences adjusted for different times at which they occurred?	NA	NA	NA
7. What were the results of the evaluation?	The intervention could be used as a preventative measure for ulceration	The podiatry service used a validated screening and assessment tool and were able to refer and triage patients based on the podiatry model	The results found patients who had not ulcerated did not all receive any standardised education; patients who had ulcerated were not aware of the imminent threat of lower-limb survival and podiatrists were dismissive of their needs; and podiatrists who were interviewed felt they were frustrated and unsupported due to time constraints and lack of training to build partnerships with patients
8. Was an incremental analysis of the consequences and cost of alternative performed?	Compared to standard care.	No	NA

9. Was an adequate sensitivity analysis performed?	Compared to faster healing rates of ulcerations. The findings suggest a much higher cost reduction.	No	NA
10. Is the programme likely to be equally effective in the current context or setting?	Only if appropriate training is provided.	The model provides clear provision of referral pathway	The survey questions would be appropriate in the current context
11. Are the costs translatable to the current settings?	The triage system differs to that of Aotearoa but could be adjusted through negotiation. High risk of ulceration patients may still be under the care of community podiatrists who do not have access to specialist footwear.	The funded podiatry services are available in Aotearoa, but the monetary cost is unknown	Education is part of the management plan for all risk categories
12. Is it worth doing in the current setting?	Length of hospital stay was reduced	The podiatry model offers clear referral pathway for acute admission which would encourage early intervention	Tailored patient education recommended in the current guidelines. Therefore, determining patient knowledge and self-efficacy for the prevention of a diabetic foot complication should be standard practice.

Note. Findings from the studies that met the inclusion criteria.

2.7 Literature Findings

Three studies were retrieved from the literature search, which are worth exploring in the Aotearoa context (Craig et al., 2013; Perrin et al., 2012a; Searle et al., 2008). The three studies in this review employed suitable guidelines which enabled triage for people into appropriate foot risk categories. The lower limb screening and assessment of people with diabetes mellitus seems adequate to determine acute from chronic foot pathology, however management of different risk category based on these triaging systems remains uncertain. Therefore, it is the management of the foot ulcer risk categories that warrant discussion regarding effectiveness of diabetes podiatry services. One study (Craig et al., 2013) was able to show reduced length of hospital stay if changes to current management for inpatients with ulcerations was implemented. In a retrospective audit of New Zealand hospital data, Joret et al. (2016) found the minimum median cost for treating a diabetic foot wound surgically within the department of vascular surgery to be NZD $30,000; advocating for the establishment of a multidisciplinary diabetic foot team to include podiatry. In both the UK and Aotearoa, purchasing costs of resources require economic data to support economic value of such spending (Gooday et al., 2013). This is also the argument for full time equivalent positions in both Aotearoa and the UK. Gooday et al. (2013) found that the loss of specialist podiatrists (those with extensive diagnostic and clinical skills in the management of diabetes complications) within a multidisciplinary environment negatively influenced admission rates and length of hospital stay. Currently, podiatrists who have an interest in the active risk foot which requires a multidisciplinary approach, must be appropriately trained in Aotearoa (MOH, 2003). To date, both Auckland, and Waitemata districts (Aotearoa) are in the process of co-designing a project that involves stakeholders with diabetes and those who provide diabetes services which aims to transform care for high-risk populations including diabetes podiatry services (Auckland and Waitemata District Health Boards Community & Public Health Advisory Committee, 2019). In particular, was a reference to 'lift the standard of foot care' provided withing these districts (p.41). However, no further documentation regarding these services have been available. Accessing documentation regarding the effectiveness of the current diabetes podiatry services is plagued by data confidentiality. Permission to access diabetes podiatry service data requires independent ethical review by each Primary health organisation / district health boards, and separate Health and Disability Ethics Committee approval. In addition, funding for biostatisticians to extract this data at both levels goes well beyond the scope of a research paper. However, this data could offer some indication of the current diabetes podiatry services in meeting the aspirations of Māori; or at least demonstrate if non-clinical measures of Māori wellbeing are being captured.

Perrin et al. (2012a) found that triaging people based on their foot risk category enabled appropriate referral to podiatry services with specific skillsets in management. However, the authors acknowledge some inefficiency in how people with diabetes foot pathology are managed (Perrin et al., 2012b). This study is comparable to that of the Aotearoa context (Ihaka et al., 2012) where a triaging tool was also used to determine risk category and suggest referral options. However, both triaging tools do not overtly plan for long-term management of the individuals after a person has been discharged from other services. A follow-up study (McLean et al, 2019) was excluded from the review as it included participants that may not be at risk of an amputation. However, the authors found that an intervention to reduce diabetes related ulceration healing time in rural areas improved access to services and was comparable to healing times reported in other studies. The authors further describe a competency package with provisions to provide training and assessment of other podiatrists.

The final study included in this review considered patient knowledge of diabetic foot ulceration (prevention of/and with current diabetic foot ulceration) and podiatrist perspectives of providing effective education (Searle et al., 2008). Patient education was incorporated into the guidelines as a part of management. The authors noted that there were some common barriers to providing this information, both for people with and without ulceration and for podiatrists. That is, patients' perceptions of diabetic foot ulceration differed from podiatrist's explanation of diabetic foot ulceration regardless of the presence of a current diabetic foot ulceration or advice surrounding prevention. Podiatrists in this study reported a lack of support from guidelines as to how to empower their patients. This is similar to the qualitative findings by Browne & Garrett (2010) who argued that Māori awareness of 'warning signs' is limited due to a lack of knowledge sharing from health care professionals and described a feeling of invisibility and lack of connection to their respective practitioners. Participants in this study also noted cultural and age inappropriateness of education. Intriguingly, very good health literacy results were found in a recent study aimed to improve health literacy in Indigenous people in Australia, Canada, and Aotearoa (Crengle et al., 2018). This intervention assessed the effect of a customised, structured cardiovascular disease programme to measure knowledge of medication.

Baseline data displayed low-level knowledge (<35%) for four different cardiovascular disease medications, but knowledge increased at post-analysis from 60.1%-76.8% across the four medications. The MOH (2013b) intends to implement patient portals to improve concordance and self-efficacy for health consumers. Māori have been identified as high users of internet access and this could be another area to explore in terms of effective podiatric management (Reti et al., 2011). These findings highlight the importance of collaborating with Māori for effective health outcomes.

The threat of losing any part of a limb due to diabetes is a very real outcome for Māori (Robinson et al., 2016). Survival after major amputation (removal of limb below or above the knee) is not favourable in Māori, particularly 30-90 days postoperatively (Gurney et al., 2018a). International studies show that Indigenous populations are featured highly in amputation statistics (Naqshbandi et al., 2008; Sentell et al., 2015). Naqshbandi et al. (2008) debate the best approach to target prevention and disease management strategies for Indigenous populations, which currently concentrate on biomedical risk factors. The authors caution the broader concepts to wellbeing, which includes social, environmental, and family/community structures. Furthermore, social, and political factors that impinge on wellbeing of Indigenous populations include location of health services, infrastructure, educational and employment disadvantage; and cultural and language difficulties (Schoen & Norman, 2014).

Indigenous populations in Australia and Aotearoa have identified barriers and enablers to podiatry services for people with diabetes to negate the threat of lower limb amputation (Browne & Garrett, 2010; Schoen et al., 2010). Despite these findings, culturally appropriate podiatry services and resources are still inadequate and amputation rates remain high (West et al., 2017). These findings are explored further in Chapter 6. However, Robinson et al. (2016) argued barriers to care and intensive prevention strategies for those considered at high risk of amputation should be a priority. Whilst this statement seems sensible, Aotearoa has many iwi and hapū, with tangata whenua residing in urban and rural districts. Thus, dialectal differences between iwi, traditional versus modern cultural values and beliefs, and the underlying health model frameworks embodied within health organisations are some of the challenges that need to be acknowledged and considered regionally. Failure to address these social and political complexities will continue to drive poor health outcomes for Māori. The way forward is to moot the current health workforce system that acknowledges these disparities (MOH, 2015; MOH, 2018), and challenge educational institutions to ensure equity-focussed solutions for success of future Māori students (Wikaere, 2015).

The three studies identified in the literature search (Craig et al., 2013; Perrin et al., 2012a; Searle, 2008) indicated a lack of guidance as to how to effectively manage a person in moderate-to-high foot risk categories. In the current review, we have considered effectiveness to encompass reduced length of hospital stay; reduced hospital admission; return to primary care; improved patient self-management; reduction in ulceration/re-ulceration; reduction in amputation; limb salvage. These studies show clearly that triaging people based on their foot risk category either in the community or secondary setting is an appropriate way of determining acute from chronic foot pathology. However, it remains unknown what appropriate podiatric intervention is required at the primary level, and the specific resources required to achieve this goal, including specialist training of these podiatrists. The evidence supports secondary podiatry services operating within a multidisciplinary team to manage people who have a current diabetic foot complication. This includes an acute problem which is limb threatening (spreading infection, critical limb ischaemia, gangrene, suspected Charcot Neuroarthropathy) (NZSSD, 2017). Therefore, the care of these patients is shared, with different resourcing structure to that of the community setting. Cheng et al. (2017) found that quality of life can be improved for people at high risk of developing diabetic foot ulcers if optimal care versus usual care is implemented. The authors also found that the cost savings were estimated to AUD 2-7 billion dollars over a 5-year period with the health benefits measured as quality-adjusted life years for these groups. Optimal care in this study is described elsewhere (Pharmaceutical Benefits Advisory Committee, 2013) but also included dual appointments with the general practitioner and podiatrist, specialised dressings and off-loading devices until the ulcer subsides and multidisciplinary management; and then 2 monthly podiatrist visits during the remission phase. Yet, these cost-effectiveness analyses do not consider equity as they are not modelling the intervention specifically by population subgroups (McLeod et al., 2014). McLeod et al. (2014) attest that effectiveness can be influenced by the requirements of the interventions and consideration of the group-specific parameters including disease incidence, mortality, and morbidity. Currently, clinical and patient reported outcomes of diabetes podiatry services are not published or visible to the public in Aotearoa. These data can be requested through the Ministry of Health, Analytics, and Intelligence Workforce Team; but only if all the data is recorded and reported. Therefore, it is unknown if podiatrists receiving funding for these services are providing diabetes podiatry services that meet the needs and aspirations of Māori. The primary aim of this review was to determine the effectiveness of funded diabetes podiatry services in Aotearoa, and it was anticipated that locating relevant studies in Aotearoa would be limited.

2.8 Limitations

Diabetic foot ulcerations usually precede lower limb amputations, and triaging systems are designed to determine this threat. Whilst it was identified any of these triaging systems are effective for this purpose, there is limited information regarding prevention of diabetic foot ulcerations from occurring at the community level prior to referral to the secondary setting. Indigenous focussed journals are seldom included within large database searches and effectiveness studies are usually reserved for randomised controlled trials. It is therefore likely that there may be inaccessible or unpublished research missing within the review, although the inclusion of Indigenous research was not necessarily the primary objective of the review. Furthermore, it would appear that evidence of improved patient reported outcomes, effective health outcomes or service delivery remain unanswered. At the very least, provisions for the inclusion of non-clinical measures of wellbeing are necessary to ensure these services are meeting the aspirations of Māori. These also need to transparent and accessible to the communities that are served by those contracted services. The exclusion of literature from countries outside Australia and the United Kingdom may also have resulted in the exclusion of well-designed and rigorous studies; however, the context of the healthcare system in Aotearoa, including the regulations governing podiatry practice, is unlikely to change.

At the time of this review, the author was not aware of any appraisal tools concerned with effectiveness or evaluation of services. Tufanaru et al (2020) provided processes for evaluating systematic reviews of effectiveness which was published outside the data collection period of this study. Randomised trials provide more robust endpoints of effectiveness, however there were no randomised controlled trials that matched the selection process. Furthermore, Munn et al. (2020) states that randomised controlled trials are pragmatic and do not often represent the views of Indigenous people. Also, critical appraisal tools vary depending on research type (Porritt et al., 2014) so using one tool to critically appraise quantitative and qualitative research may draw criticism.

2.9 Summary

In summary, the review highlights a gap in this area but more specifically an opportunity to determine how effectiveness of diabetes podiatry services could be measured; as there is much that is unknown regarding podiatry’s role in prevention of lower limb amputation in Aotearoa. The effectiveness of diabetes podiatry services for Māori differ to Western standards (Browne & Garrett, 2010) and measures of Māori wellbeing have only recently been included in health reporting. What is known is that Māori still experience worse outcomes in terms of diabetic foot morbidity and mortality in Aotearoa, even though Māori ethnicity is an inclusion criterion to access podiatry services.

The current triaging methods are effective in determining the level or threat of risk of a diabetic foot ulceration, but there is no evidence to suggest one form of management over another for the at-risk or active risk foot category. Most triaging tools are specific to clinical variables – lack of access to medical care, low health literacy, culturally inappropriate services and other social and economic disadvantage could accelerate lower limb morbidity and mortality. Further studies that specifically address how Māori define effective diabetes podiatry services are necessary.

CHAPTER THREE: KAUPAPA MĀORI METHODOLOGY

"Whāia e koe ki te iti kahurangi, kia tāpapa koe, he maunga tiketike"

Follow your treasured aspirations, if you falter, let it be because of insurmountable difficulties

3.1 Introduction to Chapter

He aha te reo Pākehā mo te kupu kaupapa? According to Moorfield (2011. p.65), kaupapa is translated as 'topic, policy, matter for discussion, plan, purpose, scheme, proposal, agenda, subject, programme, theme, issue, initiative'. For Māori, the cultural meaning differs; in those principles and ideas provide a base for action that the collective has agreed upon. In 2018, Hana Burgess offered her an interpretation from a mana wahine perspective although the reader may struggle to find 'evidence' of this (Burgess et al, 2021). Kaupapa is separated into two parts 'kau' to 'emerge', and 'papa' from our Mother Earth – Papatūānuku. Hence, the rise or emergence of our own philosophies from Papatūānuku, our connection to each other and all living and non-living things. When our connection to Papatūānuku is not maintained, we lose our connection, harmony, and relationship to the natural world.

Kaupapa Māori as an approach to research were described by L. Smith (1999, p.183) as 'research for and by Māori'. This is at the highest order ranking of Māori research, and it is deliberate in resisting Western definitions and criteria, to offer a broader methodological approach (Pihama et al, 2002). Kaupapa Māori based research acknowledges the background of the participants, researchers' and how the process of the research is inherent to Māori as a collective. Kaupapa Māori encompasses Māori ways of knowing and seeing the world. The current work explored the question what is the effectiveness of diabetes podiatry services delivered by Māori for Māori?

This chapter will describe the methods used including the connection between the research whānau and the researcher to demonstrate kaupapa Māori principles of best practice (mana whakahaere). The equal sharing and control over the research will be considered by the researcher and the research whānau to consider how the diabetes podiatry services will be evaluated. This collective approach includes decisions regarding the research design, implementation, and dissemination.

3.2 Kaupapa Māori

Kaupapa Māori celebrates being Māori, having a Māori worldview and philosophy. Kaupapa Māori is what Māori would consider ordinary; a way of 'doing' things in terms of custom, beliefs, and values and with its origins spanning over thousands of years. Kaupapa Māori has its own cultural epistemological foundation to conceptualise Māori philosophy and practice (Nepe, 1991, Smith. 1996; 2015). Pihama (2002) notes that Māori and communities are constantly struggling to affirm their position as people of this land. Non-Māori view Māori ways of knowing and thinking inferior to their own (Mahuika, 2008; Moewaka Barnes & McCreanor, 2019). Māori do not need non-Māori permission to be Māori or think Māori.

3.3 Kaupapa Māori Research

Colonisation resulted in suppression of Māori culture, knowledge, and identity (G. Smith, 1998). This enabled non-Māori to justify their authority over Māori, to think and act on behalf of Māori (Rameka & Paul-Burke, 2015). Within the last three decades, Māori have reclaimed their position in research and as researchers. The first landmark publication described Māori ethical principles (Te Awekotuku, 1991), and Māori have since continued to thrive with research by and for Māori, which has created a need to order the value of the research for Māori. Unlike the Western definition of credibility or trustworthiness, the hierarchical order is based on Māori control and participation of the research (Cunningham, 2000). The National Ethics Advisory Committee [NEAC] (2019) provide the following criteria and description of kaupapa Māori research:

> Kaupapa Māori research has been defined as 'research by Māori, for Māori and with Māori'. It is grounded in Māori tradition, legitimises Māori knowledge, is controlled by Māori and is accountable to Māori expectations and quality standards. The very nature of Kaupapa Māori research resists Western definitions or criteria and permits a broad range of research methodologies to fulfil such objectives.

The current work involves non-Māori participation (supervision) towards a higher degree. Acknowledging non-Māori participation warrants the accountabilities of the researcher to safeguard tikanga principles (L. Smith, 1996, 2015). The criteria and definitions provided by NEAC (2012, 2019) would suggest that the research approach aligns with Māori-centred research. However, this current work is developed from a Māori worldview. Graham Smith (1997) identifies elements of non-Māori participation including tiaki (mentorship), whāngai (adoption), power sharing and empowering outcomes. Appendix C (supervisor agreement) describes the arrangements of tiaki and whāngai for this work, whilst power-sharing and empowering outcomes are at the forefront of 'ethical' or tikanga within Māori-led research. A research whānau has been included to ensure data sovereignty and governance. Māori ultimately have the control and power of how this research will be conducted with the lead researcher identifying as Māori; therefore, this work is positioned within kaupapa Māori research.

3.4 Kaupapa Māori Theory

In the late 1980s, Graham Smith, challenged the idea of combining 'Kaupapa Māori' and 'theory' to give Māori a socio-political voice (G. Smith, 1997; Kerr, 2012). G. Smith (1990, p.100) suggests a kaupapa Māori base presupposes that the "validity and legitimacy of Māori is not taken for granted; the survival and revival of Māori language and culture is imperative; and the struggle for autonomy over cultural well-being, and over our own lives is vital to Māori survival". For this reason, kaupapa Māori theory has links to critical theory and constructivism.

Critical theory is a perspective that is conscious of power relations, challenging the dominant social structures to fully reveal how privilege has a direct effect on equity and the potential to oppress. For Māori, losing land (capital) because of colonisation is the consequence of social injustice (Eketone, 2008). Pihama (1993) acknowledges that an analysis of societal inequalities is intrinsic to kaupapa Māori theory to expose power held by dominant groups which serve to marginalise Māori. Pihama (2005) further exerts:

> As part of the wider struggle against colonialism Māori people have engaged multiple forms of intervention and resistance. Our histories remind us of many acts of resistance. Our histories remind us of many acts of resistance to colonial imperialism and struggles of resistance against the forced cultural genocide imposed in our lands. In the history of Taranaki, where my own tribal links hold

> firmly, we have many examples of the approaches taken by our tupuna, our ancestors, in the struggle against the confiscation of our land, the imprisonment and death of many of our people and the denial of our language, culture and knowledge bases. As such our people have always been theorists. We have for generations engaged with our world and constructed theories as a part of our own knowledge and ways of understanding our experiences. The denial of our knowledge and theorising has been an integral part of the colonising agenda. (pp. 191)

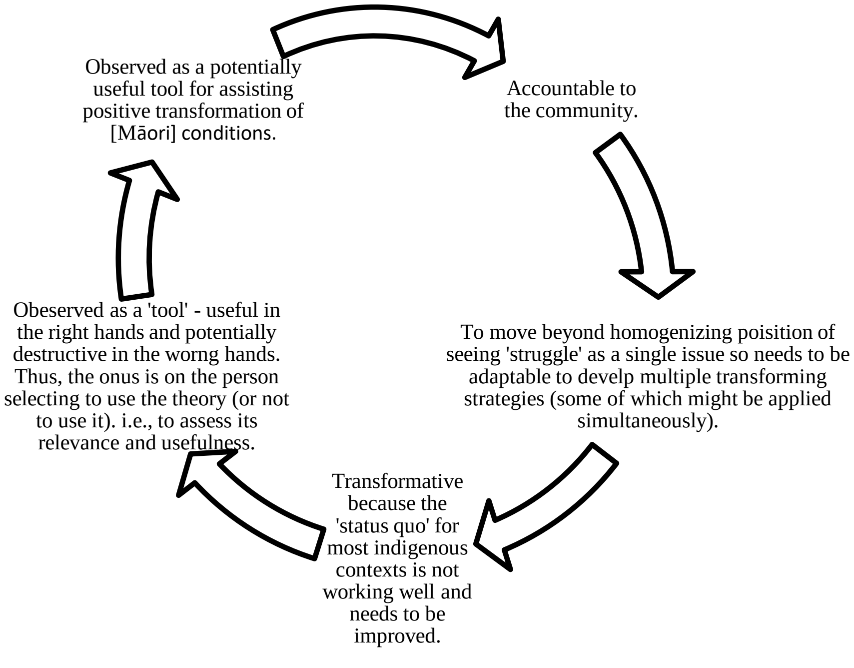
Mahuika (2008, p. 3) suggests that kaupapa Māori theory underpinned by critical theory must benefit Māori, and therefore Māori must be critical, looking inward rather than criticising the oppressors. Eketone (2008) adds that to resist power, you first must have experienced power and concludes that kaupapa Māori theory underpinned by critical theory evaluates Māori by Western values rather than values upheld by Māori. The current study considers Māori ways of knowing and doing to prevent limb loss as a complication of diabetes. It would be naive to ignore the societal inequities that impact on the health and wellbeing of Māori as much to evaluate the findings and not use the information to transform practice. Furthermore, the researcher is mindful that the current study will be evaluated and critiqued by non-Māori measures in recognition of a higher degree and publications. To mitigate these factors, careful selection of reviewers and dissemination of the findings rely on the partnership between the research team and the National Hauora Coalition. The research is explicit in the attempts to ensure that the research whānau determine the merit and worth of the evaluation (SenGupta et al, 2004); thus, benefiting tāngata whenua.

Eketone (2008) proposes that kaupapa Māori theory aligns closer to a constructivist approach. Constructivism at the epistemology level is concerned with ‘construction of reality through language and practice’ (Eketone, 2008, p.4). This work centres on Māori interacting and exchanging their experiences of diabetes podiatry services delivered by Māori. This enables construction of what is meaningful to create new knowledge (or expose inherent knowledge) through a Māori worldview. Hence, both critical theory and constructivism provide the foundation of kaupapa Māori as a theoretical framework (Eketone, 2008). Marsden (2003) states that for Māori, a constructivist approach to knowledge is that reality is assembled from the understanding of the material and the spiritual world, incorporating aspects of mana and tapu. To process information, one must reflect on past experiences which makes kaupapa Māori theory unique to Western frameworks as it does not claim to superiority or truth (Mahuika, 2008). Due to the low number of Māori podiatrists in this profession, the researcher is mindful that people who consent to this study may draw upon experiences or comparisons to non-Māori podiatrists.

Furthermore, Pihama (2010, p.6) describes kaupapa Māori theory as a theory "based upon and informed by mātauranga Māori that provides a cultural template, a philosophy that asserts that the theoretical framework being employed is culturally defined and determined." Kaupapa Māori theory is in fact, Māori reaffirming and reclaiming their knowledge as a direct result of colonisation. Kaupapa Māori continues to evolve. G. Smith (2003, p.5) identifies that for kaupapa Māori theory to be transformative, there are five key elements required (figure 5).

Figure 5

Elements for Transformation



To summarise, kaupapa Māori theory is a theoretical framework to ensure cultural integrity is maintained when exploring Māori issues, it is therefore evolving and fluid and does not provide answers by following a set process (Mahuika, 2008). Those who apply kaupapa Māori theory recognise there are key principles that assist in demonstrating the methods used within a Māori framework (L. Smith, 1996, 2015). Kaupapa Māori theory provides a foundation for kaupapa Māori programme evaluation methods (Kerr, 2012). The research methods for the current study are defined in table 2.

Programme evaluation cannot occur without appropriate engagement. Cram (2004) identifies that regardless of the research methods used; the concept of whakawhānaungatanga is always critical. Whakawhānaungatanga describes the connections between the researcher[1] and the stakeholders. In the Māori world, this connection is through whakapapa and creates an environment of mutual understanding of the roles and responsibilities as a collective. This work aims to give Māori visibility and present this as re-colonising (Cram, 2004). Kaupapa Māori theory principles assert Māori knowledge, values, processes, and self-determination. The goals of these principles are to assert Māori advancement and Māori development (as Māori) evidenced by social change 'by Māori for Māori' and using this knowledge to create, improve and transform.

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[1] When conducting evaluation research, it is a journey between the evaluators and the stakeholders. In this thesis, the evaluator will be referred to as the researcher as this work is also aimed toward a higher degree.

Table 2

Kaupapa Māori Theory Principles in Relation to the Research Question

Smith (1996, 2015)	**Application in current study**	**Kerr (2012)**	**Application in current study**
Principle of Rangatiratanga	Māori define the outcomes of the project and equal sharing of power and control of the research.	Control	Māori determine participation, and the evaluation process and communication of the findings. A research whānau acted as the governance group.
	Relationships are empowered by trust and faith in Māori tika, pono, aroha	Challenge	Kaupapa Māori theory has connections with critical social theory and issues of power and control may surface. As Cram (2004) states, it is the right of Māori to challenge the dominant culture as Māori and the Crown are equal partners. The diabetes podiatry services are contracted services to primary health organisations, therefore may not necessarily work within the same kaupapa as these services. This kōrero did not surface throughout this work.
	Māori autonomy and as a symbol of how ideas are organised	Change	The application of kaupapa Māori evaluation shifted from deficit-based theorising to focus on transformative praxis. The benefit for Māori continues to inform cultural competency for registered and the Podiatry curriculum, curriculum development and design.

Principle of Tikanga / Principle of Te Reo	Respecting tikanga values and practices including te reo Māori and spiritual integrity	Culture	Normalising Māori was purposeful to this study. Language, location, process, and protocols were guided by the research whānau, stakeholders, and participants.
		Credibility	Researcher credibility and research credibility are fundamental to kaupapa Māori evaluation and will be judged according to the community it serves. The work was grounded in Māori tradition to legitimises mātauranga Māori.
Principle of Whakapapa	Acknowledging relationships and ancestral connections	Connection	Whakawhānaungatanga and the sharing of whakapapa enabled relationships with the research whānau and participants. Moewaka Barnes (2009) noted that kaupapa Māori evaluation is a collective, collaborative journey with shared goals, thus a relationship-based journey of learning.

3.5 Engagement

The success of this study relies on relationships with Māori communities that have diabetes podiatry services. A collaborative research relationship ensures equitable sharing of power, and protection of ngā taonga including mātauranga Māori (National Ethics Advisory Committee, 2012).

Initial contact was made in March 2019 with Dr Rawiri Jansen (Ngāti Raukawa) clinical director and leader in service design and development for the National Hauora Coalition to discuss the aims, purpose, and benefits of this work. To conceptualise the idea, a proposal expanding on the mutual benefits of this study for wider consultation and consideration was sent July 2019, as well as a separate ethics approval via the National Hauora Coalition Research Committee. Post Covid-19 lockdown restrictions required clarifications in February 2021, and these were approved in April 2021 (Appendix D). This process ensures sovereignty over the data and will be discussed in Chapter four. Following this, contact was made with Dr Rachel Brown in May 2021 as the key contact person for this work which then resulted in the identification of a research whānau. The National Hauora Coalition is a Māori-led charitable social enterprise and primary health organisation with the underlying core values: mana whānau, whānau ora; prosperous families, living well. In collaboration with their partners, they deliver a wide range of Indigenously designed, innovative health and social programmes that improve outcomes for whānau, to achieve health equity and benefit Aotearoa. Their whakapapa spans over two decades, driven by the hopes, dreams and aspirations for whānau, hapū and iwi to achieve self-determined success. The National Hauora Coalition serve an enrolled population of approximately 230,00 people across five district health boards and they also advocate for social change and equity in the health sector, leading a Waitangi Tribunal claim (Wai 2575) centred around the gulf between what the health system currently provides for Māori and what it should deliver. Decisions around the delivery of diabetes podiatry services to and for Māori are considered in the findings of this work and align to the core values of the National Hauora Coalition.

3.6 Kaupapa Māori Evaluation

Programme evaluation is the collection of information about the ‘value’ of a programme. This work considers diabetes podiatry services and ‘programme’ to be fluid. Evaluation can assist with reviewing the achievement of objectives and identify strategies to increase the likelihood of success. It can also help to ensure that a programme does what is intended; and answers the key question, “is this the best way of doing things” (Moewaka Barnes, 2009, p. 9). There are no set or defined standards or methods to use for Māori evaluation purposes (Moewaka Barnes, 2009). Māori focused evaluation has been described as ‘a space in-between a Maori worldview and a colonial system of government” (Cram et al, 2018). For this reason, Western processes, existing models, resources, and in particular, evaluation findings need to be centered within a Māori paradigm to enable iwi and Māori service providers.

This thesis considered the work by Cram (2004) to frame the kaupapa Māori evaluation. Cram (2004) identified four domains to determine how Māori legitimise knowledge as either ‘colonising or decolonising’ forces. Cram described the evaluation journey as being a ‘critical friend’ where the evaluator walks alongside the providers to seek the ‘what’ the ‘how’ and the ‘why’ to provide this as an objective overview.

Knowledge and Power

Prior to the landing of non-Māori in Aotearoa in 1769, Māori were able to navigate from Hawaiki to Aotearoa and create societies governed by their respective kawa and tikanga principles. Yet today, Māori are seen as the ‘non’ or the ‘other’ of this country (Cram, 2004). Belittling Māori knowledge and mātauranga Māori makes Māori suspicious of research and its applicability to Māori culture, values, and beliefs (Kerr, 2012). An example was highlighted in a letter sent to the editor of the New Zealand Listener (Clements et al, 2021) by seven professors at the University of Auckland who claimed that science was being attacked by mātauranga Māori (Stewart, 2021). This public display of white fragility was met by criticism by non-Māori peers (Sowman-Lund, 2021). However, the absence of Māori knowledge is more widespread and almost absent in scientific publications with high impact factors. This assumes that only the dominant race is the authority on such subjects (including knowledge of Indigenous subjects).

Māori have previously identified issues with podiatry service provision and provided solutions to overcome these challenges (Browne & Garrett, 2010). One of the recommendations from Browne & Garrett’s study was to incorporate Māori values, beliefs and practices by utilising Māori models and frameworks. Te whare tapa whā (Durie, 1994) is one such model recognised by the Whānau Ora framework which considers a holistic view of health and wellbeing of Māori. Therefore, the focus of this domain is to celebrate mātauranga

Māori and the connections that Māori organisations have with their communities as well as the connection with the diabetes podiatry service.

Deficits and Strengths

Providing diabetes podiatry services that are specific to Māori needs and aspirations may seem to some trivial considering Māori make up 16.5% of the population of Aotearoa (Statistics New Zealand, 2022). However, when Māori are represented in amputation statistics; there is little to no context relating to how workplaces are supportive of Māori health and wellbeing which does nothing to improve deficit theorising or thinking (Gurney et al, 2018a; Robinson et al, 2016). The lack of context exemplifies disconnection between the researched and the researchers. Rejecting the historical and socio-political structures that prevent Māori from asserting a position; is in a sense unethical and culturally nuanced. Tino rangatiratanga asserts Māori sovereignty and self-determination (Cram, 2004) affirming the right of Māori to determine how Māori will be represented.

Institutional racism has impacted negatively on Māori health and wellbeing (Came et al. 2018). Grosfoguel et al (2015) described racism as “a fundamental dimension of the ‘system’ of oppression that shapes the lives, opportunities, and exposures of all people in ways that create and sustain racialised hierarchies of privilege and disadvantage”. Cormack et al (2018) found that Māori experienced racial discrimination including age, gender, and appearance which was proportional to social deprivation. Bastos et al (2017) identified that experiences of multiple forms of discrimination may impact negatively on future engagement with services. Māori health and wellbeing are the ethical responsibility of all people concerned with delivering health services, not just Māori. Therefore, shifting from deficit-based thinking to strength-based approaches was the focus of the current work. The Whānau Ora framework provides an opportunity for Māori to navigate across health and social services, drawing on services that are whānau-centred, therefore providing Māori with an opportunity to *be* Māori and embrace cultural values and beliefs (Hayes, 2016).

This domain explored how essential relationships were in knowledge sharing, and ways of knowing to challenge racially structured access to diabetes podiatry and associated services.

Evidence and Anecdote

Kaupapa Māori theory and evaluation cannot occur without appropriate engagement with Māori communities whose interest are equally vested in this research. The first approach to evaluation is whakawhānaungatanga (Cram, 2004; Cram et al, 2018). The research whānau reviewed the focus group questions, and online survey sent to Māori podiatrists. This was crucial to ensure the information was tailored appropriately. This also provided the opportunity to determine the appropriate method of enquiry and how the findings would be presented, celebrating the validity and legitimacy of Māori knowledge.

Standstill and Change

The components above assert Māori knowledge, values, processes, and self-determination. The overarching goal of these components are to assert Māori advancement and Māori development (as Māori) (Eketone, 2008). This was evidenced by social change, 'by Māori for Māori' and using that knowledge to create, improve and inform change. Pipi et al. (2003) determined that the reason why Māori organisations moved away from mainstream delivery of services was because the design was not working for their community. The he pikinga Waiora implementation framework (Oetzel et al., 2016) is based on Indigenous self-determination that align to kaupapa Māori aspirations. This framework can be applied to demonstrate strengths of the providers in navigating barriers to improve Māori health and well-being outcomes and to measure the overall outcome and value of this research design.

3.7 Research Whānau

The National Hauora Coalition was selected as the site for this research due to their commitment to delivering Whānau Ora services. The research whānau were at the heart of this research as they formed the connection between the community, the iwi provider and Māori podiatrists who provide diabetes podiatry services. The research whānau was made up of six people and consisted of members of the National Hauora Coalition (practice managers, policy makers, and kaumātua), to ensure the collective goal of the research was to benefit Māori and aligned to Māori research ethics (Hudson et al, 2010; Smith, 1999).

It was anticipated that regular meetings (every 3 months from March 2019) with the research whānau would commence according to the original timeline provided in Appendix D. However, due to extenuating circumstances and Covid-19 restrictions; a kanohi-te-kanohi meeting was held in June 2021 at National Hauora Coalition headquarters. This meeting was to reconfirm the researcher and research whānau roles, responsibilities but more importantly, the value of the work for tāngata whenua. Whakawhānaungatanga allowed each member to form closer connections, determine key members who would be involved in recruitment, review the focus group inclusion / questions and koha.

One of the suggestions from the research whānau was to include a fourth focus group (whānau only) to consider their voices and experiences caring for and supporting whānau with diabetes mellitus. This was discussed with the supervisory team who acknowledged the value of whānau experiences; and suggested a separate ethics application at the conclusion of the original application. This was agreed upon by the research whānau. Furthermore, there were some amendments requested for the focus group questions and online survey by the research whānau. A supervisory discussion and an agreement in a variation in ethics for the electronic survey was carried out in June 2021 (Appendix E). It was also recommended to change from using the title “Podiatrist” to “Foot Doctor”. However, section 7 of the HPCA Act (2003) outlines that the use of this title by an unqualified person is a breach of the Act. It was determined by the researcher to give a thorough explanation of podiatrist during the introduction of the focus groups. The information and consent forms are provided in Appendix F and G.

3.8 Kaupapa Māori Methods

Qualitative methods are better suited for kaupapa Māori research to expose power differences that can be made by assumptions of quantitative data alone (Pihama, 2010). An evaluation plan states the purpose and the key steps taken so that the stakeholders of the evaluation are clear about the intentions of this work. Patton (1999) identifies that the purpose of evaluating a programme is to make critical judgements and improve the program’s effectiveness, therefore there should be transparent as outlined in an evaluation plan (Appendix D). The analysis plan is described in table 3.

Table 3

Analysis Plan

Evaluation of diabetes podiatry services for Māori					
Research question	Outcomes	What data is collected and method of collection	Data sources	Data collection	Data analysis
What is the effectiveness of diabetes podiatry services delivered by Māori for Māori?	Number of diabetes podiatry services offered; people seen by diabetes podiatry service; people continuing to use the diabetes podiatry services. people referred to other services; people referred to secondary podiatry services; and the risk level/ Lower limb status	Mixed methods design to determine effectiveness of diabetes podiatry services by Māori for Māori. A framework will be used which incorporates four key outcomes that assert Māori knowledge, values, processes, and self-determination.	A range of stakeholders will be invited to participate including service providers, consumers of the diabetes podiatry service (including caregivers, whānau), and podiatrists.	The primary researcher conducts the focus group at one time point for each group or online survey to podiatrists who have provided services to Māori Health Organisations utilizing Whānau Ora initiatives.	The qualitative data will be coded by the primary researcher to create general themes across the groups. The quantitative data will be analysed using a computer statistical analysis package (SPSS V25.0). The programme uses an innovative model where effectiveness has not yet been demonstrated.

3.9 Māori Health Organisation Service Data

Quantitative data is necessary to understand the level of risk of lower limb amputation in Māori in the Māori health organisation's service area so that the organisation can determine the seriousness of the situation in relation to a) its community; b) guidance to promote effective community-driven diabetes podiatry services, and c) advocating funding and resources to meet those needs. This data, the focus groups, and the online survey of Māori podiatrists are complementary.

The type of data used in this evaluation is listed in Table 4. Data was collected between 2013-2018 which is representative of the time necessary to embrace diabetes podiatry service guidelines and populate data. Given the geographical breadth of the National Hauora Coalition; only Counties and Auckland districts were included in this data. Māori consumers of diabetes podiatry services in these areas were invited to participate in the study because, according to Carroll et al. (2020) the greater Auckland region is populated with the most podiatrists (although the ethnicity of the podiatrists is unknown).

Collaboration with the Mōhio technology team within the National Hauora Coalition enabled the creation of a data extraction tree to assist in this process (Appendix J).

Table 4 :*Māori Health Organisation Service Data*

Service Data	**Demographic Data**
Number of patients with DM at location	Age
Number of patients referred to podiatrists	Sex
Number of patients referred to secondary podiatry services	Diabetes duration
Number of patients referred to other services (physiotherapy, orthotics, social services etc.)	Medications
Foot risk status	HbA1c (latest)
Did not attend appointments	Body Mass Index

Note. To protect anonymity, the Mōhio platform aggregated the data.

The Statistical Package for the Social Sciences (SPSS) V25.0 was used to analyse the quantitative data. Descriptive data (age, sex, clinical demographics) was reported as the mean (SD) and service data was analysed as nominal data and reported as percentages (%).

3.10 Semi-structured Questions for Focus Groups

Interpretive description was selected to guide the semi-structured interviews. Interpretive description allowed the understanding of relevant findings for health practice and like kaupapa Māori theory, was loosely defined (Thorne & Sandelowski, 2016). This approach is more responsive to practice-based disciplines such as podiatry (Thorne et al., 2004), and has been implemented alongside kaupapa Māori methodology previously (Brewer et al., 2014). Although Moewaka Barnes (2010, p.31) states that methods are "subordinate" in terms of asserting mātauranga Māori and revealing how Māori view success; interpretive description within a kaupapa Māori framework sits well within this study, as traditional qualitative methods do not fit with the concept of 'by Māori for 'Māori'.

Focus group interviews were audio-recorded and note taking assisted in formulating new questions to facilitate in later analysis (Patton, 1999). Focus group interviews are useful for people who have similar backgrounds to discuss an area they have similar experiences. This approach is aligned with the kaupapa Māori theory principles in Table 2, honouring the collaborative journey for all stakeholders. Following consultation with the research whānau, further revisions were made, with revisions for consent in Appendix H.
Audio-recordings were transcribed by the researcher so that cultural words or phrases were not lost within the data (Down-Wamboldt, 1992). This process is useful when dealing with data which may be difficult to describe to others and therefore suited to this work (Elo & Kyngäs, 2008). An inductive approach as described by Thomas (2006) for analysing the data was employed to establish links between the goals of the evaluation and the findings presented in the raw data in both the focus groups and online survey. Thomas (2006) noted that a general inductive approach has been used in different types of qualitative analysis, it sits well within kaupapa Māori evaluation because it "allows research findings to emerge from the frequent, dominant, or significant themes inherent in raw data, without the restraints imposed by structured methodologies" (p.238). This approach considered stakeholder and member checks to assess trustworthiness to align to kaupapa Māori principles particularly connectedness and affords Māori the right to operate within these principles.

The initial reading of the raw data transcriptions (preparation of the raw data) with closer reading of this data allowed the researcher to become familiar with the content of that data. The creation of general themes were derived from the evaluation aims and specific themes derived from multiple reading and coding of that data. Themes were then reduced by eliminating any overlapping or uncoded themes that were not specific to the evaluation aims. Further improvement of the themes with quotations to highlight the vigour of the themes was the final step of the coding process.

In aligning with kaupapa Māori principles, the National Hauora Coalition provided a facilitator which is discussed in Chapter 5. In keeping with tikanga principles, the processes of kāranga (calling for people to participate and offering information and consent); mihimihi (whakawhānaungatanga) and koha (reciprocity) occurred for each focus group

3.11 Online Survey for Podiatrists

An online survey was created using Qualtrics XM, Provo, UT software prior to the research whānau overseeing the value and appropriateness of the questions. This was standard practice to obtain ethical approval, with the ability to amend if required. The survey was sent to two non-Māori podiatrists, to ensure the survey was applicable to diabetes podiatry service, was not laboursome in time-to-complete and to ensure the formatting was accessible to the reader. Furthermore, the dissemination process (via email) was also queried. Non-Māori podiatrists were selected with the aim to reserve the Māori podiatrists specifically for the finalised survey. As a result of this process, although both could not answer the questions from a Māori worldview, the dissemination of the survey and the formatting required adjustments.

Eysenbach (2004) reported that whilst checklists for randomised trials and systematic reviews have been developed, the same standard should apply to internet-based surveys for reporting results. Table 5 demonstrates the processed used to report the results. Whilst it has been a feature of this work not to rely on Western methods of validation, in terms of publication this checklist is required in many peer-reviewed journals.

A kāranga through social media via Facebook to nineteen Māori podiatrists throughout Aotearoa was sent, inviting them to participate in the study. Having these relationships celebrates the connectedness of Māori in podiatry practice. To ensure all Māori podiatrists with a current annual practicing certificate had the opportunity to participate, a kāranga was sent out to the Registrar of the Podiatrist Board of New Zealand to distribute an email to all Podiatrists, asking those who identify as Māori to participate September 7th, 2021, with a URL link to access the survey (Appendix I). A total number of twenty-eight Māori podiatrists were identified from a total pool of four hundred and seventy-two (n=472) which equates to 6% of Māori with an annual practicing certificate (n=28).

Qualtrics XM, Provo, UT, software package provided an information sheet regarding the study purpose, anonymity of data and data collection as well as the lead researcher’s contact information. Participants who consented to complete the study did so by continuing to the next page on the online survey.

Table 5

CHERRIES – Checklist for Reporting Results of Internet E-Surveys

Checklist item	***Explanations***
Describe survey design	Māori podiatrists with an Annual Practicing Certificate in Aotearoa who provide diabetes podiatry services
IRB approval	Approved by AUTEC 20/10 and the National Hauora Coalition (Appendix A, D)
Informed consent	Consent is implicit in the completion of the survey, and podiatrists could withdraw from the survey at any point until the response had been submitted. Once this has occurred the response could not be identified or withdrawn. Responses from this survey were anonymised. The author and supervisors' names and contact details were provided in the cover letter.
Data protection	No personal information was collected.
Development and testing	Once the survey was developed it was distributed to two non-Māori podiatrists to ascertain if the instructions were clear, it wasn't too laboursome (time to complete); it did not time out and all the functions were working. Non-Māori podiatrists were selected due to a limited number in the workforce (6%).
Open survey versus closed survey	This was a 'closed-survey'. All registered podiatrists were sent an email on behalf of the Podiatrist Board of New Zealand with an email from me stating I extend a research invitation to podiatrists who identify as Māori and welcome you to email me so that I can send you the link to the online survey. Your participation in this work is entirely voluntary and anonymous and I will have no way of linking you to your individual responses. Māori podiatrists who I have existing links to were sent the link to the survey directly.
Contact mode	Initial contact was made through email which explained the study, contact details and link to the study.

Advertising the survey	A Māori podiatrist roopu is a group formed via social media site Facebook. The survey was not ‘advertised’ as such, but members were alerted to its future release.
Web/Email	The software can send an email with the link embedded in it. The email addresses were added manually to the software.
Context	Qualtrics XM is an online survey tool that users can custom build surveys, distribute and analyse the results. Research software can be used by companies, universities or any industry interested in research. This is an international company.
Mandatory/voluntary	Voluntary
Incentives	None
Time/date	August – October, 2021
Randomization of items or questionnaires	-
Adaptive questioning	-
Number of items	Continuous page
Number of screens (pages)	The first page was an introduction
Completeness check	A completeness check was performed after each draft of the survey. The answers from these checks were then deleted in the data and analysis tab by using the edit function.
Review step	The back button feature was available.

Unique site visitor	Users were only allowed to use the link to the survey once.
View rate	-
Participation rate	28
Completion rate	20
Cookies used	no
IP check	Users could not retake the survey using the same IP address.
Log file analysis	No
Registration	The survey never displayed a second time once the user had filled it in.
Handling of incompletes questionnaires	All questionnaires were analysed. It is not the quantity of information, but the quality of the information.
Questionnaires submitted with an atypical timestamp	Initially the end date had to be extended as I was receiving emails from podiatrists who understood their anonymity would be compromised. These podiatrists wanted the end date extended due to work hours and access to computers and data at home. This was also during the period where some of the country moved to different Covid levels to Auckland and therefore work demands were different.
Statistical correction	none

Note. This checklist is essential for publications in peer reviewed journals.

3.12 Presentation of the Data for Thesis Presentation and Dissemination

The process of mana whakahaere assures ownership of data by Māori, and therefore affirms Māori the right to disseminate the data in a manner that suits the collaborative effort. According to Rainie et al (2017), “Indigenous data sovereignty is the right of Indigenous peoples and tribes to govern the collection, ownership, and application of their own data”. In Aotearoa, Te Mana Raraunga (2017) advocates for “realisation of Māori rights and interests in data” including its ethical use. In this instance, the National Hauora Coalition forms the basis of a Māori data governance group exercising the principles of Māori data sovereignty as described by Te Mana Raraunga (2017). By reclaiming sovereignty over health data, Indigenous people can use this to determine their own path to advocate for better health and services (Walker et al, 2017). This includes digital and digitisable information, language, and culture (Te Mana Raraunga, 2017). Appendix J included consideration of protecting the data.

3.13 Summary

Kaupapa Māori celebrates being Māori, having a Māori worldview and philosophy. It is ordinary, and normal for Māori. To attach theory to something ordinary, gives Māori a socio-political voice, validity, and legitimacy from a non-Māori perspective. Two views are situated within this context. From a socio-political context, critical theory is a perspective that is conscious of power relations, challenging the dominant social structures to reveal how privilege has a direct effect on equity and the potential to oppress minority groups. The online survey and quantitative data yielded information to critique social structures and systems of power. From a more ordinary perspective, constructivism is concerned with how knowledge is constructed from personal experience through engaging with the natural and unnatural world. Semi-structured interviews using interpretive description were selected as the methods of data collection. Employing these mixed methods enabled Maori to share their experiences from three different perspectives: those who provide it, those who receive it and those who are tasked to facilitate health services that are aspirational for Māori.

CHAPTER FOUR: ETHICAL CONSIDERATIONS

"He aha te mea nui o tenei au? Maku e ki atu he tāngata, he tāngata, he tāngata"

What is the greatest treasure in the world? I will say to you, It is people, it is people, it is people"

4.1 Introduction

Research can either emancipate or oppress those who wish to pursue it, those of whom it researches, and those who chose to apply it. Being ethical in approach to research ensures that the behaviour and processes of the researcher, and the researched are conducted and aligned with good ethical practices. These processes were established as the result of adverse outcomes and / or experiences of participants and their communities, specifically Māori (Hudson et al, 2010). This chapter aims to discuss research ethics from a Māori worldview to ensure the validity and credibility of this work is beneficial for Māori.

4.2 Western Ethics Malignment to Kaupapa Māori Research

Te Ahukaramū Charles Royal (2009) stated that whakapapa informs mātauranga through connections and relationships. This is supported by Smith (1996), who emphasised that maintaining these relationships ensures the outcomes of the research are relevant, add meaning, and allow the community to make transformative changes. When research is informed by Māori for Māori, it is to benefit Māori and ensure that this is what iwi and community want and need (Pihama, 2010). However, Western approaches to ethical practice challenge connections and relationships for Māori. As a Māori researcher with various connections and previous research experience with another Māori health provider, it was perceived from a Western standpoint that this relationship perpetuates the researcher in a position of power. The tension of this political notion lies within the misunderstanding between upholding the interests of community through tikanga Māori, and relationships that last beyond the completion of a research project (Cram, 2001). That whakawhānaungatanga was challenged and agreed by non-Māori that a new relationship with another Māori health organisation be established. This compromised the researcher's credibility with the established community given the researchers visibility in this space. Indigenous research is centred on protecting knowledge of the community, and is a shared responsibility (Carroll et al, 2019).

From a Māori worldview, it was difficult to articulate or translate the AUTEC (AUT University Ethics Committee) EA1 sections D (Partnership, Participation and Protection) and E (Social and Cultural Sensitivity including the obligations of the Treaty of Waitangi (English text) into anything that resonates with kaupapa Māori research given what has been highlighted in the aforementioned paragraph (chapter 3). This becomes even more apparent given the frustrations of acknowledging te Tiriti o Waitangi as the legislation that governs Aotearoa. Furthermore, when attesting that the researcher will be recruiting vulnerable adults from a minority group it was pivotal that that group be given direct, succinct information about the study using words to promote understanding. Health literacy in vulnerable adults, especially Māori has been documented in the literature (Kidd et al, 2018; MOH, 2010), emphasising that thought processing of information is difficult for people with long-term conditions. Lignou et al (2012) discuss how participants decisions to participate is influenced by using informational manipulation. This creates a further challenge – understanding the community and their needs versus the Western ethos of complicated information so that participants can make an informed decision. This exemplifies a good example of power imbalance. This was mitigated by kaimahi reading and explaining the Information form to the participants.

4.3 Tikanga Māori for Māori Researchers

Given that Māori health researchers have dual accountability of the research, Smith (1999, p. 120) outlines ethical responsibilities to inform guidance for Māori researchers that will be discussed in relation to the research processes. This serves as a better fit for research using kaupapa Māori methodology.

Aroha ki te tangata (respect for people)

Cram (2001) identifies that kaumatua are central to mātauranga translation and formulating connections, this could not occur due to Covid-19 restrictions. The research whānau were involved in discussion regarding the aims and outcomes of the study, with time to reflect and to raise questions and share thoughts. The membership was formed by the clinical leads, who made decisions based on the research whānau' collective credibility, good communication skills and knowledge of their respective communities. Kaimahi had extensive expertise for engaging and facilitating programmes aimed at health and wellbeing for their local communities and were provided with the researchers' contact details for further discussion, particularly around the information and consent process.

Kanohi kitea (the seen face)

Pipi et al (2004) discuss the importance of meeting kanohi-te-kanohi for Māori. It is an opportunity to experience the mauri of a person to flesh out the purpose of the research. Numerous meetings and discussions were held with the clinical lead of the organisation prior to establishing the research whānau. Upon consideration of the purpose of this research, the kaimahi were essential in the recruitment of participants kanohi-te-kanohi. This occurred during the time of a pandemic, where they were actively involved in the immunisation for Māori and were potentially the only external contact Māori participants had. Furthermore, kaimahi were able to deliver devices for the participants who did not otherwise have access and / or had difficulties accessing the meeting platform. This approach hastened the recruitment, as the familiarity and connection with kaimahi added the further dimension of trust and connection to the study. This was a momentous achievement, given the timeline to complete this work and their work commitments.

Titiro, whakarongo….korero (look, listen, speak)

A facilitator who was connected to the research whānau was chosen to conduct the semi structured interviews. This allowed the researcher to look and listen and allow participants to share their stories. The linguistics of the group and body language also told a story, which informed deeper relationships (Pipi et al, 2004). The researcher did not influence the conversations and participated at the end to awhi and affirm the information that was shared.

Manaaki ki te tangata (share and host people, be generous)

It is important that these relationships continue past the current study. As a direct result of these connections, the researcher has provided the National Hauora Coalition education to its primary nurses and is looking to establish clinical placements for podiatry students. In recognition of the mana of the research whānau, it is only appropriate that they be acknowledged in research publications.

Kia tupato (be cautious)

This ethical responsibility considers the researchers remembering that this is not their space, that there are different protocols and processes that need to occur in this space prior to the research process. To engage with Māori podiatrists, the researcher had to protect their anonymity and reassure that they would not be identifiable through social media platforms.

This meant sacrificing iwi information, geographical location, and community versus hospital employment details because of the sensitivity of the data being shared. The researcher had to have been reflexive of their political views and position. Being guided by supervisors, mentors (outsiders) and the research whānau (insiders) has enabled a good mix or balance to achieve harmony.

Kaua e Māhaki (do not flaunt your knowledge)

The researcher has been privileged and humbled to share the stories of the people involved in this work. This knowledge is therefore not the researchers but belongs to the people. Whilst the work will be used for a qualification, it has no meaning or value unless it benefits the community of whom created it.

Kaua e takahia te mana o te tangata (do not trample over the mana of the people)

This ethical principle is centred on feedback mechanisms including dissemination. With respect to the sensitivity of data and data sovereignty; the results, discussion and dissemination chapters were shared for feedback as drafts to the National Hauora Coalition. This was important to maintain trust and credibility of the researcher, the organisation, and the community. Thoughtful ways to disseminate the findings are outlined in Appendix K.

4.4 Summary

In conclusion, a dual approach to research ethics was considered in this work. Western approaches are necessary for non-Māori researchers to understand and unpack research with, by and for Māori, whilst Māori ethical principles ensure the research is guided by tikanga principles and values. Whilst the primary objective of this chapter was to discuss ethical principles for Māori researchers choosing kaupapa Māori methodology, there are lessons for non-Māori and Māori to ensure they are culturally safe to, and for the communities for which they chose to engage.

CHAPTER FIVE: RESULTS

I orea te tuatara ka patu ki waho

A problem is solved by continuing to find solutions

5.1 Introduction

The philosophical underpinnings of this work are embedded in kaupapa Māori. Chapter three highlights' Māori knowledge, and the importance of following tikanga in research. These results were collected by a variety of data collecting methods. Inequity of lower limb amputation rates for Māori as a result of diabetes has been well documented (Gurney et al, 2018a; Pricewaterhouse Coopers, 2021; Robinson et al, 2016); but evaluation of the value of diabetes podiatry services for Māori have not. The results of the National Hauora Coalition service data which demonstrates demographic and clinical management are presented to offer context to the type of population served by Māori podiatrists. Then, through a Māori lens, demonstrate how Māori for Māori diabetes podiatry services are effective in organisations that adopt kaupapa Māori based values. The most effective ways to do this are through focus groups and an online survey with Māori podiatrists.

5.2 Māori Health Organisation Service Data

Table 6 presents data from the National Hauora Coalition, Mōhio database for the period January 1st, 2013 – January 1st, 2018. This data represents Māori who were enrolled with practices within the Counties Manukau and Auckland District with the aim of providing information regarding the reach and context of Māori enrolled with this Māori health organisation (table 6).

Table 6

Demographic Data for Māori Enrolled at the National Hauora Coalition with Diabetes (T1/2DM)

	Female	Male	Total
Number of Enrolments at NHC 2013–2018 (n, %)	754 (54)	643 (46)	1397
Age (in years) at time of referral to podiatrist (mean ± SD)	57 ± 11.37	53 ± 11.86	55 ± 11.77
Year of Diagnosis (mean ± SD)	6 ± 5.06	6 ± 4.74	6 ± 4.92
BMI (Kg/m^2) (mean ± SD)	38.45 ± 14.77	36.87 ± 11.72	37.71 ± 13.43
HbA1c (mmol/mol) in last 6 months (mean ± SD)	61.35 ± 20.08	62.37 ± 20.82	62.37 ± 20.44

Note. Mean and standard deviation reported. A non-binary option was not available during the time of data analysis.

There was a higher number of enrolments for females compared to males with a diagnosis of diabetes mellitus. Research suggests that there are gender differences in the prevalence of diabetes mellitus, with men having a higher prevalence and different diabetes management behaviours; therefore, increasing the risk of amputation (Fan et al., 2021). People who identify as non-binary were not explicit in this data. The mean (SD) age for podiatry referral for both female and male highlights early presentation of lower limb complications for Māori with diabetes mellitus, given the presentation of foot risk status presented in figure 10.

The indications for podiatry referral are indicated in Chapter one (p.4). The mean (SD) duration of time of disease diagnosis for males and females is similar, indicating diagnosis at a younger age compared to non-Māori and may be attributable to the diabetes foot risk profile in figure 6.

The body mass index for this cohort was higher than the Ministry of Health's guidelines (≥ 30 kg/m^2 for people of other ethnicities) for both males and females (MOH, n.d). These findings represent a population with an increased risk of fatal and non-fatal ischaemic heart disease (Ni Mhurchu, 2004). Furthermore, the glycaemic control is represented over a 6-month period to allow for a larger pool of data (target range ≤ 53mmol/mol). Medication for glycaemic control were prescribed to 1,058 people (female, n = 546; male, n = 494). However, the data does not distinguish if more than one medication is prescribed per individual, as combinations of these may be necessary to achieve individualised glycaemic control. A range of medications including first line medications (metformin hydrochloride) were prescribed over this time. The newly funded (bpac^{nz}, 2021) sodium-glucose co-transporter 2 inhibitors (SGLT2i) were prescribed primarily (Jardiance®) or in combination with metformin hydrochloride (Jardiamet®). Medications in the absence of heart failure were prescribed (Pioglitazones); or where SGLT2i may not be tolerated, or the HbA1c remains high (Sulfonylureas, Vildagliptin, Insulin) were also prescribed.

The frequency of podiatry visits or number of podiatrists providing diabetes podiatry services for this population was not captured over these time periods in the Mōhio database (data captured from 2014 to 2018). Table 7 provides information regarding number of diabetes podiatry referrals over this period.

Table 7

Diabetes Podiatry Data, 2014-2018

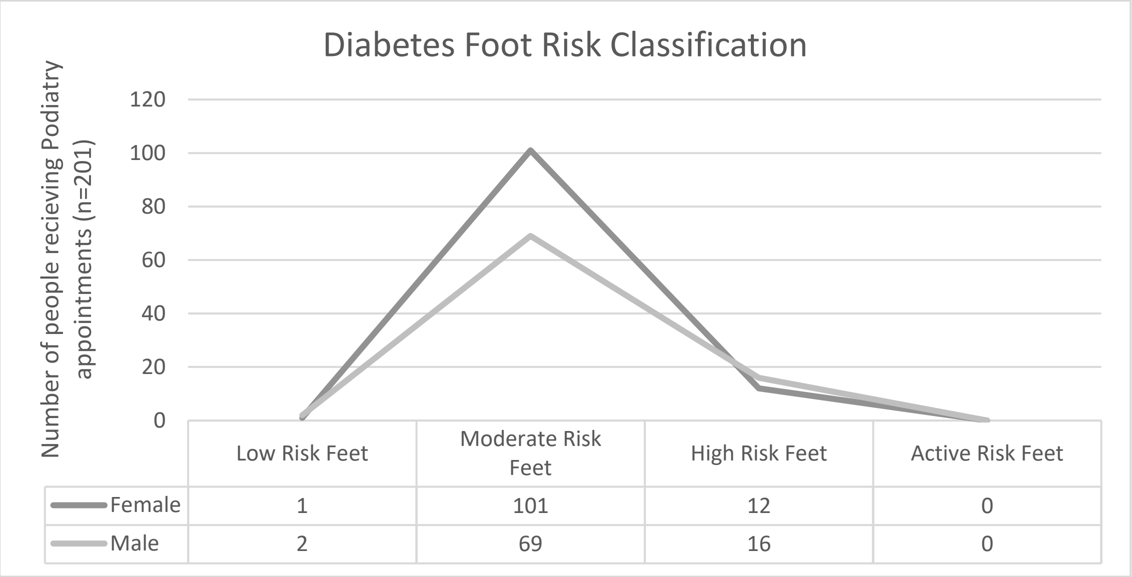
		Female	Male	Total
Mōhio Database Diabetes Podiatry Service Data	Diabetes podiatry referrals (community)	114	87	201
	Did not attend appointments	7	6	13
	Referral to Secondary (Hospital) Podiatrist	1	1	2
	Diabetes Podiatry referrals to other health professionals	0	8	8

Note. The total population of Māori with diabetes enrolled with the National Hauora Coalition within the Counties Manukau and Auckland District is 1,937.

Of the group referred for diabetes podiatry, it is unknown if those referred to the secondary diabetes podiatrist were reviewed in that service (Mōhio does not capture this data). *Did not attend appointments* were captured for the diabetes community podiatrist, but not *did not attend appointments* for other referrals (secondary podiatry and referrals to other health professionals) was not collected in a manner that can be recorded using the current data management systems. However, no referrals were declined or refused by either service.

Figure 6

Diabetes Foot Risk Profile



	Low Risk Feet	Moderate Risk Feet	High Risk Feet	Active Risk Feet
Female	1	101	12	0
Male	2	69	16	0

Of the total enrolments for this population (n=1397), 14% (n=201) received diabetes podiatry appointments over a four year period. The majority of that number displayed moderate risk features for diabetes foot ulceration (n=170, 84%) and were female (n=101, 60%). An exceptionally small number (n=3, 1.5%) were at low risk of developing a diabetes foot ulceration (figure 6). Furthermore, 14% (n=28) displayed a high risk of developing a diabetic foot ulceration. Of importance, there were no cases of active risk complications detected.

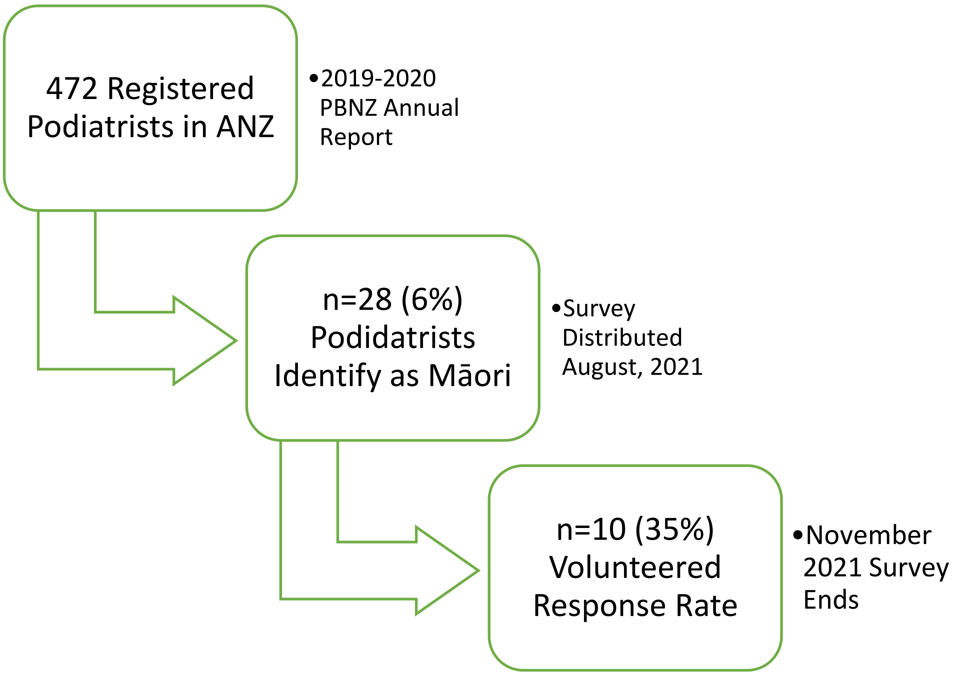
5.3 Māori Podiatrist Data

The 2019-2020 annual report from the Podiatrist Board of New Zealand (2020) identifies four hundred and seventy-two (n=472) podiatrists registered with an annual practicing certificate (without conditions). A total of twenty-eight (n=28) Māori podiatrists were identified either through existing networks or by exclusion from the registration search engine on the Podiatrist Board website. They were invited to participate via a link to the online survey sent on behalf of the Board or via the same link sent to these existing networks.

As reported in the coronavirus Covid-19 Impact Statement there were various interruptions with the distribution and timing of this survey. This survey was distributed August 2021 and data collection ended November 2021.

Figure 7

Māori Podiatrists Response Rate



5.4 Voices of Māori Podiatrists

Ten (n=10) Māori podiatrists responded to the survey, representing a 35% response rate of all Māori podiatrists within the total profession (Figure 7). Eleven online surveys were deemed incomplete or duplicated and therefore not included in the final analysis There were eleven questions in total with a combination of closed and open-ended questions (Appendix I). The initial reading of the raw data transcriptions for all groups allowed the researcher to become familiar with the content of that data. The creation of general themes was derived from the evaluation aims and multiple reading and coding of that data. Themes were then reduced by eliminating any overlapping or uncoded themes not specific to the evaluation aims.

The narratives will be presented verbatim under each of the themes with the goal of allowing the participants voices to be heard, affirming the mātauranga shared by the participants (Te Ara Paerangi, 2022). Each voice represented by "MP" (Māori podiatrist) and a number for anonymity and preservation. Furthermore, in this section 'patient' is used to describe a person with diabetes mellitus.

Knowledge and Power

This domain celebrates mātauranga and connections. There was a mixed response to this question which may be due to community or secondary employment positions and institutional or organisational expectations of those services. One podiatrist reported that the connection with other health professionals and community is paramount to the health outcomes of Māori and also identifies some organisations that do not have kaupapa Māori frameworks may not be as responsive.

> … the referrals to secondary care are low as our patients are managing their foot health really well and we are seeing new referrals within a week of being referred so we can act and provide services quickly. We have referred to other social services i.e. MSD [sic], Salvation army, Pacific services, Māori community services, physio, OT, limb center, diabetes nurses, orthotic center however have been pretty slack in their service so we are providing footwear for our patients. It is challenging with palliative diabetes as Māori patients are only allocated so many visits and we have to justify more visits. (MP1)

Whilst another podiatrist celebrated their position within the team to make and be a part of some significant changes to improve services provided to Māori.

> …I am included in meeting results and discussions. Since being a part of this Diabetic podiatry team – I have seen further improvements on overall management of foot health and prevention of further foot complications. For example, funded toenail surgery, more regular funded appointments for ulcer debridements, funded medical grade shoe wear and non-bespoke orthotics. (MP2)

One Māori podiatrist highlighted frustration of workforce shortages and how these impacts on health outcomes for Māori.

> Not enough appointments, patient almost revert back to original status of borderline ulceration. There isn’t enough podiatrists in the North. There isn’t enough support from DHB services for community podiatry. (MP7)

Figure 8

Themes arising from Māori Podiatrists

Trust was one of the major themes and was used to describe relationships, connections and ensure safety for both the practitioner and the person with diabetes (Figure 8). Te ao Māori celebrates a collective decision to guide a course of action rather than individuality. Māori podiatrists rely on these connections with their community, Māori patients and other allied health professionals to achieve positive health outcomes. Furthermore, Māori podiatrists expressed connection with Māori organisations through outcomes such as access to off-loading devices (MP2) as well as having the reassurance that access to and from appointments, and after care were available to their patients:

> I can do my clinical work knowing that I have a social worker on site, admin, a health care person who will literally go and pick up people. They also spent time that I do not have convincing whānau that the health environment is safe, friendly, and non-judgmental. Anything I need to cover in terms of health care can be followed up by staff who support the clinic. (MP3)

Podiatrists prescribed with an annual practicing certificate are bound by the standards maintained by the Podiatrist Board of New Zealand (2019) outlined in Principles and Standards for the Practice of Podiatry in New Zealand and the Ethical codes and Standards for Conduct (PBNZ, 2015), specifically 5.26 maintaining professional boundaries. A challenge for Māori podiatrists is to navigate these standards and *be* Māori to maintain connection with the community.

> I often feel I am walking a fine line regarding professional communication, however the outcome is 'am I driving that message home' yes. Then to further treatment, the continuity of care is cemented in their familiar surroundings of marae, hui, and the 'catchup' with their whānau outside of work. Work hours can be 24/7. (MP7)

Deficits and Strength

Themes arising from this domain included empowerment and challenging the status quo to improve connections and wellbeing for Māori. A feature of this domain is the value of the dynamic relationships Māori podiatrists have with their communities and service providers. This also includes mana enhancing relationships between the Māori podiatrist and general practitioner.

> …We have had one amputation under our care due to an addiction non-related to podiatry since operating in 2017. We have had GPs request advice from me regarding wounds and patients, I have had GPs refer the wounds to me in this instance are referred [sic] to appropriate services that same day. (MP8)

One of the Whānau Ora outcomes (Te Puni Kōkiri, 2022) is to empower whānau to be self-managing and empowered leaders, asserting tino rangatiratanga and reaffirming Māori position. This is expressed in the following excerpt:

> I think whānau centric service is working, and it may not be as obvious by looking just at podiatry but rather as a collaborative service… Podiatry yes this makes a difference to footcare and saving limbs, but it also helps with lifestyle changes, heart health, diabetes medication and adherence, better diabetes control and other co-morbidities are indirectly monitored by the whānau centre collaborative team. (MP1)

The following extract challenges colonised attitudes and behaviours, and how the relationship between Māori may offer the sense of autonomy to confidently participate and be Māori. It also represents a stigma around the feet and the role of podiatry in the health environment.

> …not feel ashamed or shy about the state of their feet. Have a Māori podiatrist, patients almost always feel valued…appreciate what Podiatry has to offer and how it can help with the overall health and wellbeing and the [sic] patient and wider whānau. (MP4)

The next entry demonstrates autonomy by encouraging anti-racism policy which not only serves to empower whānau to be self-managing, but also strengthen the podiatrist-person relationship to improve overall wellbeing.

> Māori endured a lot of hurt and today we live the effects. I have been fortunate to adopt policy such as no racism of any kind, those involved in the patients' journey are respectful to my patient and provide quality services. When Māori walk through my door, they do not experience any of this past hurt, it is more about focusing on a better pathway forward to a healthy outcome for both ourselves and our future generation. (MP8)

The Māori podiatrist has a strong sense of cultural identity and therefore an understanding of intergenerational trauma and socio-political agendas that have impacted negatively on Māori health outcomes. This extract highlights the need to ensure all podiatrists are culturally responsive and safe in their practice.

> …social issues, te ao hurihuri, wairua and loss of Mãori leadership particularly in hapū and iwi are general factors that contribute to Māori health and rural wellbeing. My approach to treating our own is that of patience, listening to cues or prompts that may lead us (patient & I) to mutual solutions not only in the management of their presenting condition but their overall general health and wellbeing. (MP5)

Ethnicity is a social construct that could serve to marginalise Māori in health and social statistics and is discussed further in Chapter 6. Māori podiatrists were unsure if access and retention has improved for Māori in diabetes podiatry services by including ethnicity as a risk factor for inclusion, with 40% indicating ethnicity as an inclusion criteria beneficial versus 30% respectively not being in favor or unsure.

Ethnicity as a criterion is perceived as negatively stereotyping Māori:

> It attaches a negative connotation with the words "Māori" and "diabetes" as if to say being Māori your automatically categorised as being diabetic. Yes, Māori are perceived as being more at risk of developing diabetes due to a number of other risk factors but ethnicity itself is not a risk factor and the negative connotation therefore may hinder patient retention in podiatry services. (MP4)

Another Māori podiatrist offered a different view, challenging the notion that although ethnicity is a criterion, it doesn’t make podiatry more accessible for Māori. However, supports the sentiment that Podiatrists want to curb barriers to access:

> Māori ethnicity as a risk factor from my world view says Podiatry is accessible and a recruiting process of patients being referred. It also speaks to me in that Podiatry want to support and work with Māori, they are a priority and at the top of the list, they are not forgotten, this is a partnership with us medical

> professionals and the whānau, we want to participate in Māori patients' health, we want to provide the services to protect their feet. (MP8)

Evidence and Anecdote

Māori are cautious to document their knowledge as a result of colonial constructs and therefore rely on storytelling for the survival of that taonga through the generations and to maintain sovereignty over that research (Bishop, 1999). Collaborative storytelling within Indigenous space allows the researched and the researchers to create our own evidence from anecdote to legitimise Māori knowledge. Māori knowledge includes social interaction whakawhānaungatanga, connection to the natural and unnatural worlds. There is no hierarchical measure of the validity and legitimacy of 'Māori evidence' as this is intrinsic or the fabric of being Māori. This domain celebrates mātauranga Māori.

> …Being Māori makes me strive for excellence and quality to share with my peoples/whānau and they feel it the moment we make that first point of connection. (MP8)

Explaining the concept of tapu to non-Māori is challenging but has been loosely described in the English language as sacred or restricted. In this context, it could also be used to describe Māori moving into a space that requires a different way of thinking, acting, or behaving; because it is a space which may be foreign until that space, connection or behaviour becomes common. Not only do Māori podiatrists have to navigate their Māori patient's perceptions of the foreign space they are entering but create a space which becomes ordinary and common to Māori and for Māori. This is also the case for Māori podiatrists whose training is almost completely delivered from a Western perspective (Gerrad et al, 2021), they themselves need to feel confident to participate and navigate between both worldviews.

> Te ao Māori has made me more sensitive to the need of our people. (MP3)

Removing restrictions allows Māori podiatrists to elevate mātauranga so that it is given dual credibility and value when managing Māori with diabetes.

> Knowledge of tikanga, Māori medicines, and karakia plays a role in how I deliver my services, especially with our kaumatua and kuia. Asking when they last went to the water and put their feet in. Asking if they had their karakia this morning.

> Using our traditional medicines and having supplies of Kawakawa and Tūpākihi balm at the clinic. Knowing who our local mirimiri therapists are. (MP5)

Standstill and Change

Māori podiatrists occupy 6% of annual practicing certificate holders. Not only are Māori underrepresented in this profession, but it is largely speculative how many Māori provide diabetes podiatry services to communities across Aotearoa. Therefore, *by* Māori for Māori, may not necessarily be practical; however, reclaiming, and regaining autonomy *as* Māori to strive for self-determination is.

> Our role as Māori practitioner's is to be inspirational-inspiration is a powerful vehicle for change , especially for younger Māori-and sometimes they may be the ones accompanying the patient but of course it's all a knock-on effect , sometimes they don't know where to begin with their health so we can be that link. Also, I do see Māori that are successful businesspeople or academics these people still have health issues and are more comfortable under a Māori model –because it is more authentic to them. (MP1)

Reflexivity, and structural transformation as a component of cultural centredness (Oetzel et al, 2018) is demonstrated in the following statements:

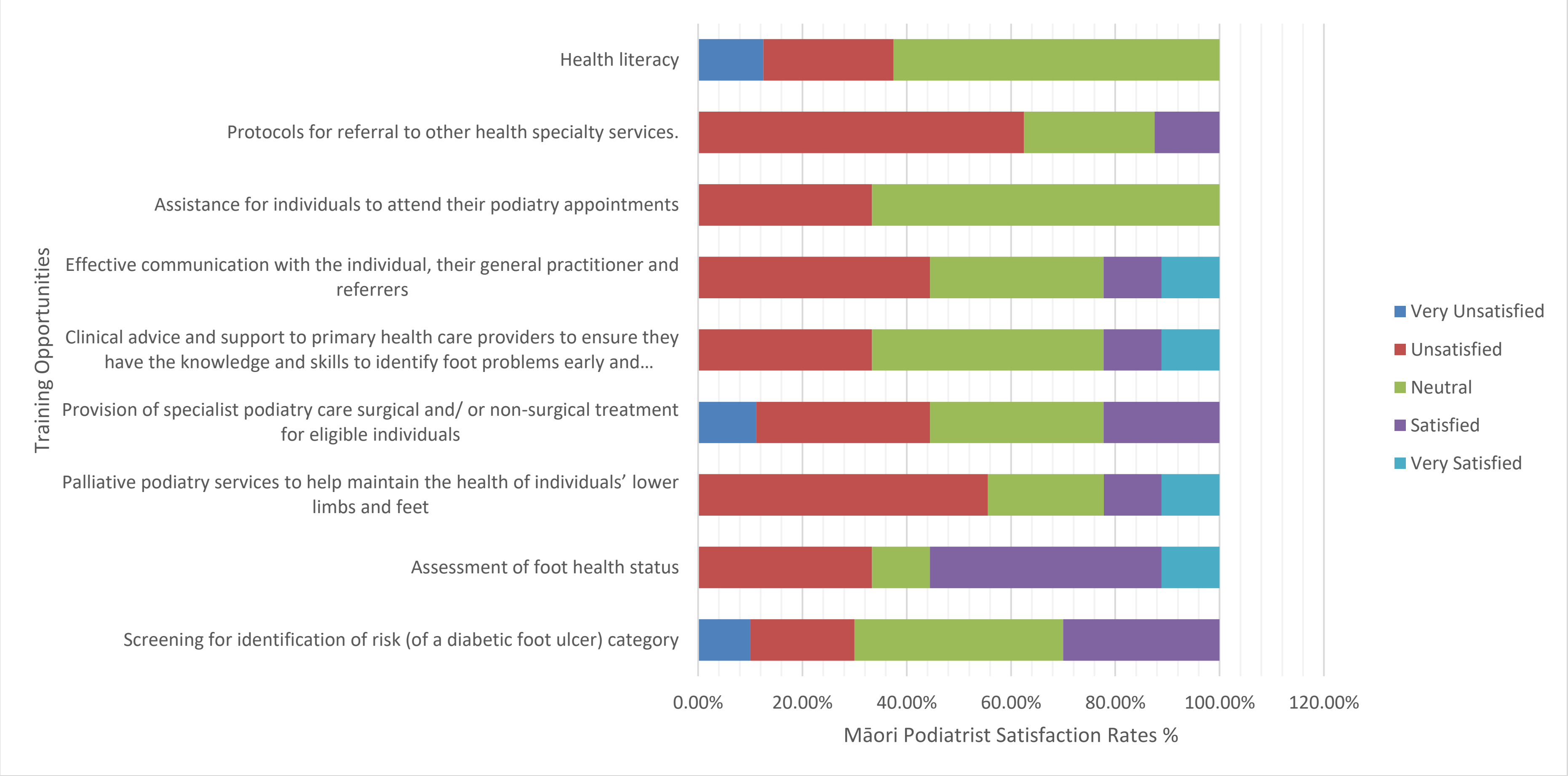
> The organisation actively seeks out whānau with potential health issues. My clinical time is limited, so making sure whānau are followed through the health system is important for them to feel safe and in control of themselves. The support system does this. (MP3)

Change can occur through inspiration, particularly for Māori who feel empowered by their respective organisations. This creates an opportunity to be critical in reflection. Figure 9 illustrates the response of Māori podiatrists about the current training for diabetes podiatry services for Māori. The question asked Māori podiatrists to rate their level of satisfaction regarding current training to provide diabetes podiatry services for Māori.

There will always be a need for improvement with Interdisciplinary care regarding Māori patients a) There isn't any mandatory training for the screening in GP practice. Podiatrists aren't all trained the same b) Assessment of the foot is definitely opportunistic, 15mins Assessment in GP practice isnt just about the foot and so the common problem is TIME…. (MP7)

Figure 9

Satisfaction of the Current Training for Podiatrists Providing Diabetes Podiatry Services for Māori



5.5 Māori Voices: Focus Groups

This section demonstrates the principles of whakapapa, connection, tikanga, te reo and culture as outlined in Chapter 3, Table 2. The ability of the research whānau, stakeholders, to continue with this work under Covid-19 restrictions gives authority and value to the principles of rangatiratanga and whakapapa. Kaimahi / tangata tautoko who were part of the research whānau have existing connections to people living with diabetes mellitus; were active in promoting the study and providing the information and consent forms.

The facilitator nominated by the National Hauora Coalition enabled and strengthened tikanga as they were adept at conducting hui and he mohio mo te reo Māori. Prior to starting each hui, the researcher checked that the information sheets were understood and that the consent forms had been signed and completed. As a consequence of the limited number of Māori podiatrists, it was anticipated that not all of the participants would have had contact with a Māori podiatrist. This is discussed further in the limitations in Chapter 6.

The first focus group took place in March 2022, via zoom. There were four participants in this group (stakeholders' / kaimahi group), one male and three female, with an average of 1.5 years' experience collaborating and supporting Māori and their whānau with diabetes mellitus. A total of seven people were recruited for the patient focus groups, five female and two male. One participant (female) was unable to attend either of the two scheduled zoom meetings (March 30, 2022), and one participant (male); did not meet the inclusion criteria but wanted to consent and take part out of curiosity. He has been waiting for receipt of a referral to a podiatrist after two years of painful lower limb symptoms as a complication of diabetes mellitus. It was decided to include his whakaaro in this work as this highlight's positive self-seeking behaviours and a commitment to that individual's hauora. Therefore, a total of six participants took part in the focus groups.

Two sessions (two female and two males in group 1; two females in group 2) were scheduled to allow for kaimahi to ensure some of the participants had access to data and zoom. The narratives are presented verbatim under each of the themes affirming the mātauranga shared by the participants (Te Ara Paerangi, 2022). Each voice is represented by "SH" for 'stakeholder'(those who work for the NHC) or "FG" for 'Māori consumers of diabetes podiatry services' followed by a number. Each subsection is a combination of Māori voices from both the stakeholders and Māori consumers of diabetes podiatry services.

Knowledge and Power

This domain celebrates mātauranga and connections between the community and the diabetes podiatry services by incorporating Māori values, beliefs, and frameworks. Themes arising from both groups were trust and whānau. Stakeholders and consumers of diabetes podiatry services described inherent connection with diabetes podiatry services.

> I do like my podiatrist because we have a good relationship built over time. (FG6)
>
> At least she had that whānau-whānau stuff going on (sic) and what worked well for the Māori ones (patients) was the ones (podiatrists) that talked and tried to find out and build some rapport some whānaungatanga with them, that worked well particularly our older (sic). (SH1)
>
> Lucky because I worked at a clinic I became friends with a podiatrist who really looked after my mother. (SH2)
>
> After you've built up a rapport, or you have a better understanding. (FG6)

Deficits and Strengths

Themes arising from this space included institutional racism and unsupportive workplace environments. This does nothing but enable deficit theorising or thinking and enables systems to remain unchallenged. Furthermore, when Māori are working in an environment that does not support Whānau Ora initiatives this impacts on the experiences of whānau.

> The whole experience wasnt a very positive one.... so, when I have my annual checks with my new doc where I've moved to, I haven't had to go to a podiatrist, but I maintained, I tried to help myself as much as I could and that's only because of the racism in the health system that im aware of. The podiatrist that seen me was a Māori, failed me. (FG1)
>
> I felt like I was just a customer to this podiatrist it wasn't like he really cared about the end result. (FG2)

Lack of visibility or access to podiatrists in the health sector can lead to Māori not feeling as though their health matters:

> You know, just listening and remembering while I'm in clinics the process around whānau seeing a podiatrist – when a patient is diagnosed they are only supported by the doctor and then they're not referred to the podiatrist until maybe a year later you know until something has gone wrong which I think is wrong it should be done as soon as they're diagnosed. (SH2)
>
> ..going to the same doctor he should have seen a podiatrist or been referred to one and just finding out now that hes never seen one is kinda like ok, a bit worrying. (SH4)

A consequence of enabling deficit theorising is the creation of internalised stigma which disables connection between the diabetes podiatry service and the persons own self-belief and self-worth. Both stakehoders and patients felt undervalued and afraid to speak out:

> You do what your told well I think our culture is pretty much like that except the young ones. (FG2)
>
> Yeh, and if the podiatrist would recommend to do something and the whānau doesn't understand often the whānau don't say anything for sheer embarrassment, sounding stupid right? (SH1)
>
> I'm sitting back thinking, what do I need to ask. (FG5)

Both stakeholders and patients in this study were able to challenge those institutional agendas and idealise ways to support whānau seeing a podiatrist and make diabetes podiatry services more visible within the general health care team. This was expressed through tangata whenua led processes, particularly by the support of kaimahi.

> ..being whānau-centered and that probably makes and reassures our whānau too that they've got some awhi around them which doesn't make them, sort of eases them, ok Il go to the podiatrist and see a podiatrist. (SH3)

One stakeholder believed that diabetes podiatry services should be part of the normal routine care for all:

> ...why is there no evidence, no push for like what (SH2) is saying in terms of full medical health, full body checks, particularly around your feet, teeth, eyes – the first indicators that something is wrong internally. (SH1)

Participants understand the importance of diabetes podiatry services but identified that the appointment costs vary between private podiatry and funded podiatry (at the community level) as a barrier for prevention and ongoing appointments will serve to offset other costs important for their overall health and wellbeing.

> I can afford it now, but I don't know how long that will last, who knows.... that's well beyond our reach its not realistic. (FG1)
>
> ..ok so he gets me to a point after 3 visits where my feet are in a reasonable state, where am I going to get the next $120 for every subsequent visit. Cost will be my health, the health costs me, the taxpayer for all of us and the medical people will go up because I might not be able to look after my feet. (FG2)

What the text lacks, is the emotion when describing these barriers. Here FG2 identifies the economic and personal impact further.

> It's a cost and it's going to cost us dearly if we don't maintain it and the cost is high. (FG2)

Māori health and wellbeing are the ethical responsibility of all people concerned with delivering health services, not just Māori. Podiatrists are trained in pharmacology and use their knowledge and skills to reinforce important messages:

> The podiatrist explains to them how important it is for them to take it because you have a lot of patients who won't take their medication and not realise actually, that medication is for the pain they're getting in their foot and the doctor will explain it but the podiatrist gives them more information about why its so important for them to be taking that medication. (SH2)

The following extracts highlight strengths and mana enhancing relationships to empower whānau to be self-managing when meaningful engagement has occurred:

> She gave me a lot of support, good support, overall support, not just on my feet but as in taking care of myself, and talking about the family as well – she was talking about my family in general like how my life is in general, how that effects everyday living with diabetes and she talked about that as well which was very helpful... taking care of myself and my family. She also said taking care of my family, but I have to take care of myself first (tautoko from rest of group) as mothers we're always running around I have 7 children and 4 moko so im quite busy Im always running around. (FG3)
>
> My podiatrist said not to get a cut under your feet so I wear shoes all the time I never used to so just the knowledge for me was good and the appointment, once you made ... you're ok and the care was good once I knew what to expect. (FG4)

Evidence and Anecdote

As like the Māori podiatrist findings, social interaction and whakawhānaunatanga support Māori knowledge. The focus groups wanted to have their voices heard and their findings presented as evidence. Supportive mechanisms for non-Māori podiatrists through collaboration with kaimahi dispel cultural misunderstanding. Podiatrists working with Māori in Whānau Ora environments have this support:

> And if we see a Pākehā podiatrist, have a kaimahi there to speak with people to say 'well this is what is happening now' because a lot of Pākehā practitioners don't know that you can't touch a person's head that's tapu and their touching heads like that so some explanation and cultural competency most definitely. Im sorry Belinda this is probably stuff you've heard before but im going to say it anyway, but you have to write it down. (FG1)
>
> Im persistent, im not afraid to stalk the podiatrist and find out whats going on because we have a lot of DNAs[2] now prior to Mana Tu and working with the whānau most of our whānau wouldn't turn up to the podiatrist appointment

---

[2] DNA – did not attend

> because they don’t want to hear bad news all the time they don’t want to be told what to do. (SH1)

Māori participants also discussed ensuring the environment of the services were delivered in a space more familiar and normal for Māori.

> I would have liked my footcare to be done down at the local marae with the Māori health care provider in that environment...having it in an environment where it was may more comfortable in terms of managing a Māori person. (FG2)

Furthermore, providing helpful and specific health information by the podiatrist providing diabetes podiatry services also enhances the interaction. Given that our feet connect us and ground us to the whenua enables Māori to be self-managing.

> I was talking to one whānau and she said I wish the podiatrist would tell me 1, 2, 3, 4, 5 what could happen or if you carry on the way that your going, this is what possibly may happen...if that information was given to them from the beginning I think would help. (SH4)
>
> The way he related it to me was very straight up and down so I appreciated that... without our feet where are we going to go how are we going to continue to journey. (FG2)
>
> Its always about filling your kete of knowledge up; so having that but its mostly about humanising the process, educating and being sensitive to the needs of whānau...aroha and manaakitanga should always be at the core nei. (SH1)

Standstill and Change

Social change is created through knowledge to inform and improve the delivery of diabetes podiatry services. Māori organisations moved away from mainstream delivery of services because the design was not working for their community. The reality of the podiatry workforce is a very low number of Māori podiatrists. The participants in this study acknowledge this and propose a way forward:

> I don’t know the ratio I don’t know how many Māori podiatrists that we could have access to or when I see my clinician there was a Māori there with us that could break the ice to get us through that discussion. (FG2)

Both focus groups discussed practices that align with the fabric of being Māori that could help improve and transform diabetes podiatry services by non-Māori podiatrists and organisations.

> I would have like to have been seen in a Māori environment like Hoani Waititi or in the community where the care of the podiatry care can have additional whānau support by talking to our peers and other people in the health sector that have an interest in us. (FG2)

Themes of tikanga and rōngoa also emerged in the data. Conscious that numbers of Māori podiatrists are limited, the focus groups were looking forward past the current work to support future practice through knowledge translation.

> Perhaps this is a way you could align matāuranga Māori into podiatry through rōngoa Māori – im just going off on a tangent, but maybe that is a way to get it in there and it come up in another hui and cultural competency with putting the feet on a pillow, those things they may seem little for other people, but they are big things for us in Te aoMāori. (SH3)
>
> I agree with the use of rōngoa, definitely implement the use of rōngoa in podiatry, for Māori. I like the idea of the podiatrist that (FG3) like how she used the example of looking after her whānau, like how she used that example, talk about not just how to look after your feet but talk about all wellness and incorporate te whare tapa wha and look at the whole person because that’s how were connected – that’s how we think that’s how we feel. (FG1)

Lack of visibility in the health sector or podiatrists providing diabetes podiatry services can lead to other health care providers providing care to the best of their ability.

> The doctors need to refer from themselves not try and take care of our whānau lets say she doesn't attend the doctors til a year later, shes cut her foot and somethings gone wrong so that's something im frustrated about. (SH2)
>
> Podiatry shouldn't be an intervention for disease, that podiatry should be made part of your mainstream health care. (SH1)

A strength of the National Hauora Coalition is the programes they support to navigate whānau to achieve their full potential. The stakeholders have been vocal in their discussions about the support they give to whānau through knowledge they learnt through the Mana Tū programme (a whānau ora approach to people with long term conditions) especially diabetes mellitus.

> We've taught them about what a podiatrist actually does and the importance of podiatry and treatments so I would speak to the podiatrist and make sure im on site when our whānau were coming in because they only came in once a week to our clinic it was scheduled a rotational schedule I'd be onsite the whole day when the podiatrist was there so I could see our whānau come in and I could korero with them, whakatau them into the clinic, ready for the podiatrist then they would ask me if I wanted to come in and see the podiatrist with them so they can ask some questions like it was almost like I was a bystander, Im here. (SH1)

5.6 Summary

Kaupapa Māori evaluation research is guided by many different methods to determine the value of a programme, in this case ensuring services provided are aspirational for Māori. The evaluator walks alongside the organisation in a collaborative effort to inform what the organisation is trying to achieve. An advantage of the current work is the inherent connections and dual accountability to the community and to produce tangible outputs.

CHAPTER SIX: DISCUSSION

Ko au te awa, ko te awa ko au

I am the river; the river is me

6.1 Introduction

The recent health reforms (MOH, 2022) challenges podiatrists to be reflexive and responsible to transforming diabetes podiatry services that meet the aspiration of Māori. The overarching nuances presented in the results section includes access to Māori podiatrists, or access to podiatrists, limited educational opportunities for podiatrists offering diabetes podiatry services, and unhelpful policies and procedures that serve to increase the burden of unfavourable health outcomes for Māori with diabetes. This discussion presents a way to move forward through application of this knowledge to inform innovative creative approaches to change. This chapter will outline how Māori affirm our position to advance diabetes podiatry services to improve Māori health and wellbeing.

6.2 Effectiveness of Diabetes Podiatry Services in Reducing Amputations

The effectiveness of diabetes podiatry services in reducing amputations in Aotearoa requires careful revision with respect to reporting on demographic and clinical outcomes alone, to consider improvements in quality of life and Indigenous health values. Furthermore, a person may present directly to hospital with a life-threatening infection or diabetic foot ulcer resulting in the loss of a limb without ever having accessed a podiatrist. Thus, the overall effectiveness of diabetes podiatry services is unknown. The nuance of the current reporting is the ability to access hospital admissions data, patient tracking mechanisms from primary and secondary data sources, and the variance (or unreported) measure of quality of life of patient reports. The results from the qualitative methods of this cohort, demonstrated that the ability to access diabetes podiatry services were few and far between. Furthermore, a distinction between Māori podiatrists providing diabetes podiatry services at the community and secondary level was not captured due to the likelihood that their anonymity would be revealed. Therefore, diabetes podiatry services includes both community and secondary tier services.

The current study findings indicated a mean HbA1c (mmol/mol) of 61.35 for females (20.8, SD) and 62.37 (20.82, SD) for males (target range ≤ 53 mmol/mol); for an average age of 55 years (6 years SD for females and males respectively). The target ranges should be negotiated individually and for people who are advancing in age, have a long history of diabetes mellitus and/or cardiovascular history. Previous studies report intensive glycaemic control does not show beneficial effects on cardiovascular mortality (Schernthaner, 2010). Māori have experienced racism and negative stereotyping as a result of high HbA1c (Browne & Garrett, 2010), which could have equally disastrous effects on their wairua and hinengaro dimensions of health. However, Keown (2020) found that Māori were more likely to take their medication if they have a good relationship with their doctor, celebrating connection and establishing trust was a key finding from the focus groups in this work. Recent changes to prescription medications and management (bpac^{nz}, 2021) have enabled better decision-making by primary care physicians in Aotearoa. Empaglifoxin was recently introduced for people with diabetes mellitus with a high risk of cardiovascular disease and renal complications in February 2022 (bpac^{nz}, 2021). There has been much controversary over the delay in funding this medication as well as equity and access of these medications for Māori (MOH, 2022b), therefore it is encouraging that Māori enrolled with the National Hauora Coalition are receiving these medications. Early research suggests that these medications improve cardiovascular and renal outcomes, which may help delay lower limb complications (Bohm et al., 2021).

It is estimated that over 40% of Māori have pre-diabetes (prior to diagnosis) in the Auckland region (MOH, 2015), thus suggesting the likelihood of changes in microvascular function contributing to early foot morbidity. These statistics are similar to the clinical characteristics of Māori enrolled in the National Hauora Coalition between 2013 – 2018. The quantitative data in the current work demonstrated a higher body mass index than the Ministry of Health's guidelines (≥ 30 kg/m^2 for people of other ethnicities) for both males and females (MOH, 2016, p.12). The mean body mass index is a crude measure, and the current findings represent an obese population within the Auckland metropolitan area. The prevalence of obesity will steadily increase placing more burden on marginalised groups (MOH, 2020). The current study findings highlight a cohort with an increased risk of fatal and non-fatal ischaemic heart disease (Ni Mhurchu et al, 2004). However, these biomarkers do not tell the full story and do not consider the economic and socio-political perspective. Recent work has highlighted how institutional and societal racism contribute to obesity in Māori (MOH, 2020; Warbrick et al, 2016; Warbrick et al, 2019).

The diabetes podiatry services identified 14% of Māori enrolled in the National Hauora Coalition have at-risk to high-risk foot characteristics. As indicated earlier, a huge proportion of this cohort at that period of time were not reviewed by a podiatrist. The voices of Māori in the current study empathise, understanding workforce shortages in community and the secondary setting. Whilst diabetic foot ulcers have a multifactorial aetiology, current approaches to identify and manage these has not improved for Māori. Therefore, a multifaceted approach which considers Māori solutions as per the current study and Browne et al study (2010); are warranted for equity of outcomes rather than equity of services.

Only four Māori podiatrists in this study agreed that ethnicity as an inclusion criterion to access diabetes podiatry services in the community was helpful as a risk factor. Māori are key players in unfavourable demographic, neighbourhood deprivation, employment, education, racial discrimination, unfair treatment based on ethnicity and risk and protective factors statistics (MOH, 2020). Flanagin et al (2021) indicated in their work that reporting of ethnicity data should also include information on sociodemographic data, social determinants and concerns of institutional racism, inequities, and disparities. Using ethnicity as a data source without this background do nothing but extend the unequal distribution of power, privilege, and resources (Cormack et al, 2019). Self-identification and language have been used in other countries to replace ethnicity (Armenta-Paulino et al, 2020); but the size of Indigenous populations, loss of te reo, and negative prejudices may indeed create further challenges.

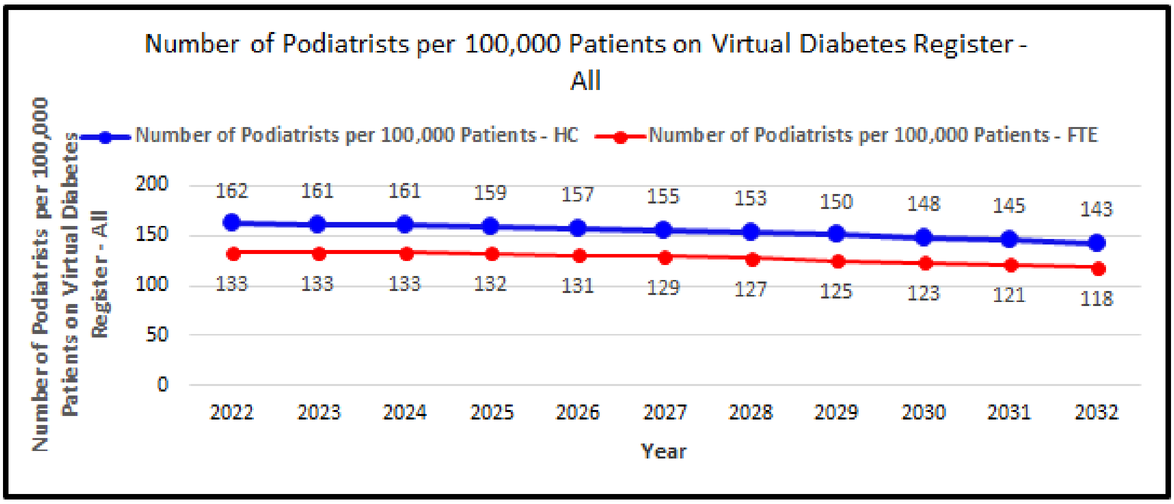
The current study cohort is spread across the Auckland region which has three large hospitals (Te Whatu Ora o Counties, Te Toka Tumai Auckland, Waitemata) that provide diabetes podiatry services to their respective communities with active foot risk or in remission status. It is unknown how many podiatrists work within these settings and / or the full-time equivalence of these positions. Te Whatu Ora Health New Zealand Counties Manukau reported a ten per cent reduction in lower limb amputation between 2013-2019 for a 0.5 FTE Māori podiatrist in the renal dialysis unit (Te Whatu Ora, 2019). However, no further information could be found for Te Whatu Ora Te Toka Tumai Auckland. Carroll et al (2020) reports that 47% of the North Island population of podiatrists practice in Auckland, suggesting this region has the most podiatrists available in Aotearoa; although it is undetermined how many of these podiatrists provide diabetes podiatry services in the community. Mōhio data from the National Hauora Coalition captured 201 appointments to community diabetes podiatry services which reported the lower limb risk status. Given the total number of people enrolled in the National Hauora Coalition with diabetes mellitus and at-risk cardiovascular risk profiles (body mass index, HbA1c), the number of podiatry appointments / referrals during this time were low according to the inclusion criteria provided by the New Zealand Society for the Study of Diabetes (2017). Further speculation about inability to access services, workforce issues or otherwise arise. The Mōhio clinical platform used by the National Hauora Coalition can only provide data which has been determined by contractual obligations to the district health boards for funding requirements. Therefore, if the data is not necessary for reporting (MOH, 2010, p.11) then essentially it is not collected.

Priority areas for health investment through the Health Workforce Development fund to address post-entry workforce training was reviewed in 2018 (MOH, 2018). The primary focus of the proposals was equity and need which enable more innovative and participatory models of care to incorporate professional and service collaboration; and inform practice development and intelligence in more than one area. Unfortunately, although the vision sounded promising, podiatry was not named as a recipient for health investment but was included later in the allied health list in November 2020 (MOH, 2020b). This lack of prioritisation is mirrored in the current podiatry workforce. Recent work (Carroll et al, 2020; Beeler et al, 2022) identified the podiatry profession in crisis; indeed, this is mirrored by the lack of commitment to invest by the Crown’s agency and increase Māori participation in training and workforce development. Furthermore, there is no hard data regarding the uptake of Indigenous people enrolled in podiatry training institutions globally, but anecdotal opinion suggests that it’s not just Aotearoa, but a worldwide problem (Linne, 2022). When compared to other allied health professions, nurses, and medical practitioners; Taylor et al (2019) found a lack of retention of First Nations people in Australia due to institutional barriers. Zambas et al (2020) adds that by assuring the environment for students is respectful of indigenous values with strategies aimed at self-empowerment, the development of good relationships will meet the needs of all, not just Māori.

With the Covid-19 pandemic outbreak, the increased pressure on health services served to highlight the workforce shortage by including podiatrists on the Green List by Immigration New Zealand (Ministry of Business, Innovation & Employment, 2022). The list was created to attract overseas professionals in highly skilled areas due to the pandemic. The uptake of oversees trained podiatrists utilising this pathway remains unknown, and does 'more' improve health outcomes of Māori? According to figures released by the Te Whatu Ora, analysists predict that approximately 15 FTE positions for diabetes specialist podiatrists will be lost in 10 -years owing to the critical workforce shortage (figure 10).

Figure 10

Podiatry Workforce in Crisis. Emmanuel Jo, Manager, Analytics and Intelligence, Health Workforce, Te Whatu Ora, 2022

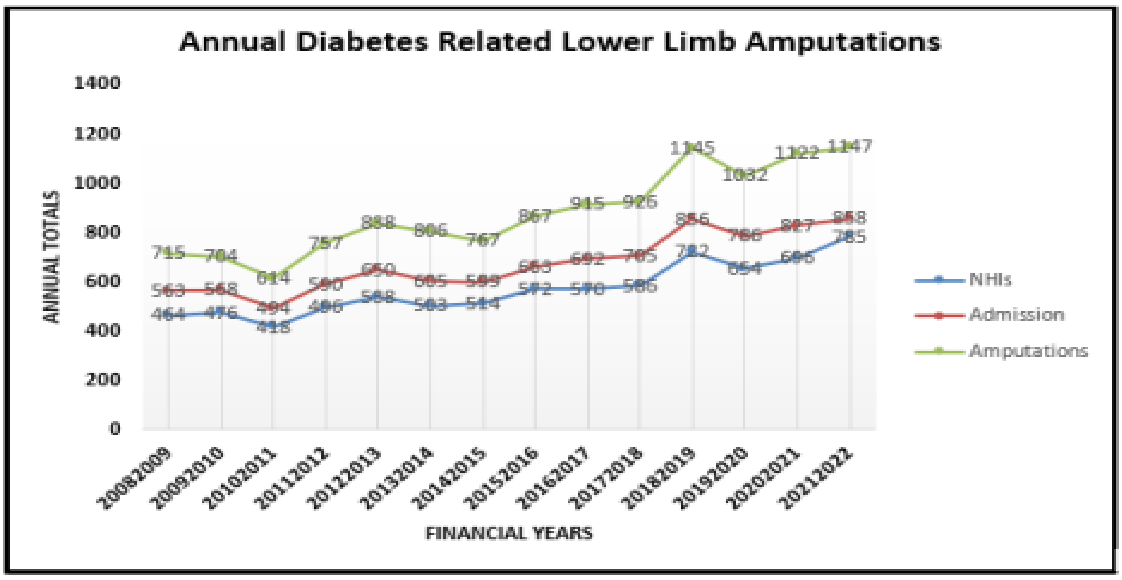


Note. HC = Head count; FTE = Full time equivalent.

Figure 11 represents amputation and admissions data over time. Workforce shortages increases the strain on the health budget which is proportional to the economic and psychological burden to the person (Aljarrah et al, 2022; Jordan et al, 2012). It is difficult to establish at what point (if any) people who underwent this treatment had access to podiatrists. When reviewing figures 10 and 11 and identifying Māori living in urban localities are still unable to access diabetes podiatry services, the gravity of inequity of health and wellbeing outcomes for Māori becomes more surreal. Furthermore, with the strain to the health workforce and health economies worldwide, it is timely to review prescribing rights for medications like the United Kingdom and Australia (Fitzpatrick & Borthwick, 2019: Graham et al, 2022). Delayed access to antibiotics for people with diabetic foot ulcerations increases the risk of spreading infection, hospital admission and threat of a diabetes related lower limb amputation (Lipsky et al, 2020). To complicate matters further, unequal access to medications for Māori has been widely criticised and is the subject of review in Aotearoa (MOH, 2022b).

Figure 11

Diabetes Related Amputations. Steve York, Scientific Technical & Allied Health Directorate, Te Whatu Ora, 2022



Note. NHI = National Health Index number.

International studies have reported on nurse-led interventions for the primary care and management of diabetic foot ulcerations (Gershater et al, 2011; Lincoln et al, 2008). Sánchez-Rìos et al (2019) report delay in specialist foot care for people with diabetic foot ulcers in Europe, despite differences in health care systems. Some countries in this study relied on nurses for management (France and Spain) whereas Germany relied on the general practitioner as the first line health professional. Only the United Kingdom had access to specialist diabetes podiatrists. There is evidence of this happening in Aotearoa, with nurses leading diabetes foot clinics and debridement of diabetic foot ulcers in the community (New Zealand Wound Care Society [NZWCS], 2022a). There is no current evidence to support additional benefits of these courses as they commence in 2023 via a 2-day workshop (NZWCS, 2022b). What needs to be considered, with reference to limitations in previous chapters are cultural responsiveness (i.e., wellbeing measures, linking in with kaimahi) data collection, ability to detect worsening or acute pathology, knowledge of referral mechanisms and duplication of services. Gooday et al (2013) demonstrated the consequences of negatively influenced admission rates and length of hospital stay in the absence of specialist podiatrists. Podiatrists are specialists of the lower limb with expert knowledge in structural and functional pathology, and extensive diagnostic and clinical skills in the management of diabetes complications. Therefore, nurse-led interventions should be reserved in countries where podiatrists are not available because it is not the quantity of people providing these services, it is the quality.

Much focus of diabetes-related foot amputation prevention literature supports a multidisciplinary approach to care, however the authors found discrepancy between primary care physicians' perceptions of the benefits of a multidisciplinary approach. van Netten et al. (2020) found that ulcer prevention is underrepresented in research and clinical practice and call for a shift from stratified healthcare delivery to tailored delivery for the individual in collaboration with industry stakeholders. This shift extends from evidence-based guidelines (NZSSD, 2017; Schaper et al., 2019) to include modifiable risk factors. The participants in the current study provide further truth to evidence, suggesting that the podiatrist needs to consider the environment they are providing services in. Furthermore, for podiatrists to consider their role within the broader health care context by taking a whānau-centred approach, as opposed to an individual approach.

6.3 Defining Effectiveness of Diabetes Podiatry Services through a Māori lens

The He pikinga Waiora framework (Oeztal et al, 2017) can be used to inform policy and as a planning tool for diabetes podiatry services for Māori. It was designed with Indigenous self-determination as the foundation, with kaupapa Māori as the overarching epistemology and ontological approach that reflects the reality of the participants in this cohort. According to Wilson et al (2021), this evidence is of greater relevance and meaning to inform transformational policy and practice. Whilst there is limited? evidence to support podiatrist lead amputation prevention programmes internationally (Albright et al. 2020); there were few studies yeilded when the geographical limits were selected to countries with similiar educational and resourcing. These studies did not consider multiple worldviews or Indigenous perspectives nor consider the multi-level effects of those interventions. Therefore, He pikianga waiora could not be applied to evaluate that literature. This was not unexpected. Whilst Māori strive to have their knowledge claims accepted as legitimate and valued by non-Indigneous standards, it is time for non-Indigenous researchers to return the gaze inward.

Māori stakeholders, podiatrsits and consumers were cognisant of the challenges of low Māori podiatry workforce and the overall complexity of being governed by systems that are not condusive to the same value systems of the National Hauora Coalition. Trust was a constant theme echoed by the three cohorts in this study. Trust does not require funding, resources or training, it is the cornerstone in ensuring effective and meaningful engagement. When trust is relational, Māori podiatrists working within these environments and whānau connecting with the diabetes podiatry services build confidence necessary to be self-managing. The effectiveness of diabetes podiatry services is centred within these relationships, and those connections need to be reciprocated throughout organisations, not just with the consumers. Both consumers and stakeholders discussed how service messages have created mistrust, impacting negatively on those relationships.

The Office of the Auditor-General (2022) commissioned a report on Māori perspectives on public accountability. Those findings align to the current findings, that trust is essential, and the moot point is tikanga values (pono, tika, aroha, mana, whānaungatanga, kotahitanga and manaakitanga). The participants in this work were surprised to learn that there were Māori podiatrists. Māori participants were open to guiding tangata Tiriti and support them in the provision of diabetes podiatry services. Both stakeholders and consumers offered insight for ‘best practice’ and navigating this space, particularly around the use of rōngoa rakau and te oo mai reia so Māori can have their cultural identity and integrity centre front. The building blocks to restore some balance lies within the institutions that provide undergraduate and postgraduate training opportunities. What was meaningful for Māori in this work was freedom to express their ways of knowing and the incorporation of language for mana enhancing practice and self-management. Transformative praxis (G. Smith, 2003) encourages moving beyond seeing the ‘struggle’ as an insular entity to respond on multiple levels with multiple strategies (workforce, training, tikanga). Appendix L provides an example of He pikinga Waiora as a planning tool given the current study findings to meet Māori aspirations. Although the aim of this study was to determine the effectiveness of diabetes podiatry services for Māori, it is obvious that there is still plenty of room for improvement.

6.4 By Māori for Māori

A requirement of receiving funding for podiatry services is to report any general issues or highlights of the service; management and utilisation of podiatry services for Māori; and a 12-monthly outline of plans or intentions for the projected year (MOH, 2013). Specific data identifying patient volume, referrals received/type of referrals; referrals sent to various specialists and ‘did not attend’ appointments are also required. These are not reporting mechanisms that support Māori worldviews, particularly when these only give an indication of quantity rather than the quality of the diabetes podiatry service. Furthermore, this type of reporting only serves to dispel and dismiss what Māori consider to be important to their health and well-being. Māori podiatrists in this study expressed how important their shared lived connections were with whānau in relation to colonisation, and how tikanga practice enables trust and confidence in whānau to improve health and wellbeing. Diabetes podiatry services by and for Māori requires revision with adequate resourcing and outcomes developed by the community. Co-governance, co-design is not a new concept for Māori (Smith, 1996, 2015; Kerr, 2012); shared decision making, and collaboration has been evidenced throughout the current work. Power-sharing, ways of knowing, understanding, and creating services through past and current experiences enable Māori to determine and reclaim their health and wellbeing. Some of the kaimahi involved in the focus groups expressed their experiences working within and supporting the Mana Tū programme (Harwood et al, 2018). This is an example of co-governance and co-design. Mana Tū was developed in response to unequitable outcomes and treatment of Māori, who are more likely to be diagnosed, experience worse outcomes, and receive inappropriate treatment for diabetes mellitus. The intention is for kaimahi to engage and support to offer advocacy and diabetes-specific clinical knowledge. The kaimahi integrate tikanga and manaaki-first approaches, through co-design with Māori clinicians, community health workers, and whānau with T2DM. This enables people to be self-managing in a holistic setting – woven through the kōrero and throughout the programme. Essentially, Māori podiatrists had reported better engagement when working alongside kaimahi who support and navigate Māori with diabetes mellitus. This form of commitment alleviates frustrations from fragmented services (Browne & Garrett, 2010).

When Māori have access to Māori podiatrists who practice from a te ao Māori perspective, Māori have full cultural autonomy. Applying the Pa Tu Tahi model (Garrett, 2016), the past illustrated by the hindfoot, indicated low to at-risk foot profiles of Māori with diabetes mellitus. There is connection to Papatūanuku and a relational connection of Māori podiatrists to their patients. The sole / soul indicated transdisciplinary approaches to management, involving general practitioners, social workers and access to other services enabling the patient and their whānau to step off their forefoot (toe off) towards the future, and a foot that remains intact. That future is supported by having full autonomy. It would be naive to assume that we could increase the capacity of a Māori podiatry workforce within a short timeframe. Reiterating the earlier sentiments of the current low numbers of podiatrists, these ideas may be counterproductive for Māori. As like Papatūānuku, the increase demand for Māori to constantly provide, can lead to irreparable burnout if the systems are not aligned or open to receiving mutual investment or are solely focussed on Māori to deliver. When our connection to each other is lost, so is our relationship to the natural world. These ideas may in fact be the mirror image of colonisation. Rather than think 'more' a rethink of what is currently available and sustainable may be more realistic. These need to be nurtured for dual benefit reinforcing gazing inward rather than critiquing the oppressors (Mahuika, 2008).

6.5 Culturally Responsive Practitioners

Transformative praxis is the action part of kaupapa Māori evaluation methods. The following sections outlie the bottom-up approach, where implementation of a discursive curriculum and community engagement advance cultural diversity of staff and students to be culturally safe (Hood, 2008, Rātima et al, 2022). Equally, an effective top-down approach is required from our regulatory body, professional body, and other organisations (Te Whatu Ora, Health New Zealand) involved in ensuring equity in health and wellbeing of Māori. Culture changes are the result of bottom-up responses to top-down approaches but those in the leadership positions must be critical of their organisation and this may require a bottom-up approach (Sabatier, 1986). For the podiatry profession to advance, transformation of continuing professional development around cultural safety, policies and procedures and becoming a te Tiriti compliant Responsible Authority is currently underway (PBNZ, 2022b).

Carroll et al (2021) identified in a survey of one hundred and thirty-four podiatrists that time to complete continuing professional development was a barrier for 44% of this cohort. Furthermore, the cultural safety requirement drew criticism, citing time-based approaches may not be a reflective measure of behavioural changes in practice. Also, some podiatrists felt disconnected from their peers:

> I didn't understand how much I had to do in the company of other podiatrists, CPD[3] is not something you can do alone, you have to belong to a team of people you can trust. Working in a small community it can be very uncomfortable to work with 'the opposition' in town. (full-time podiatrist with greater than 21 years' experience). (p.7)
>
> Quite honestly found it difficult to network and meet with colleagues in rural, regional practice." (full-time podiatrist with 3–5 years' experience). (p.7)

Both of these statements delineate attitudes within the profession. The Podiatrists Board of New Zealand (2017) "Guidance for establishing a formal peer group and recording formal peer group activities" outlies how podiatrists can interact with peers to establish relationships to reduce the very risk of professional isolation. Of noting is that members of the peer group must be registered with the Board (p.3). Workforce issues, low attrition in the profession and low future growth oblige fresh eyes. One of the strategic goals of the Podiatrist Board is to develop standards that reflect the changing health environment, the extension of general practitioners, nurses or any allied health professional delegated the same responsibilities under the HPCA Act 2003 to that guidance document could mitigate these issues.

Australia and New Zealand have a trans-Tasman mutual (TTMR) agreement which recognises the merit and recognition of study from each university to align with both countries' competency standards including cultural safety. With the shift from a Treaty partner to a te Tiriti compliant Responsible Authority, bottom-up approaches enable the Board to rethink TTMR registration and registration of overseas and non-practicing podiatrists wanting re-entry into the workforce (PBNZ, 2022a). This has been endorsed by Manatū Hauora / The Ministry of Health and it reflexive of the shift of attitudes within the organisations. This is a major step forward for the Board, however given the international comparisons between diabetes related mortality and morbidity of First Nations people in Australia, it is necessary.

The podiatrists in this study indicated very unsatisfactory responses in areas to upskill in health literacy, surgical and non-surgical treatment, and diabetic foot ulcer screening. Monthly online continuing professional development meetings for the management of diabetes related foot pathology have been available since 2019 (A. Connell, personal communication, 21 October 2022) and there is opportunity for podiatrists to flag areas for

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[3] CPD – Continuing professional development

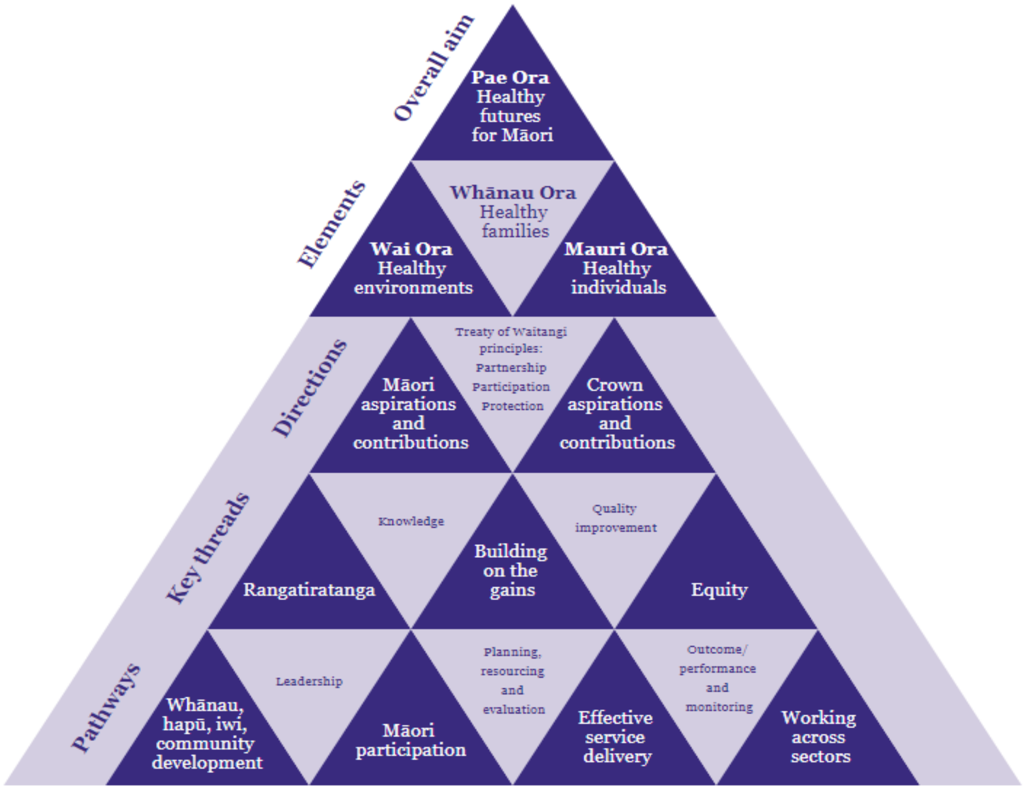
development. Carroll et al (2021) noted that podiatrists in Aotearoa voiced inability for local learning opportunities and rural locations of practice may act as barriers for continuing education. Māori podiatrists understand their respective communities have different societal, environmental, and value systems to that of the general public and these salient features require further investigation. Continuing professional development does not have to be delivered by podiatrists as indicated earlier, no two communities have the same needs. Poitras et al (2022) found that for Indigenous people with long term conditions in primary care, currency of cultural competence is required throughout a health professionals' time registered with the regulatory authority. The authors found that when culturally safe interventions are adequately resourced and funded, patient-reported outcomes increase. Came et al (2018) and Rae et al (2022) found a substantial deficit in funding Māori Health at the primary care level. Institutions and systems that encourage racist agendas linger (Houkamau et al, 2017; Liu et al, 2016; Reid et al, 2018) with Houkamau et al stating that the dream of being a 'bi-cultural' country is far and distant. Racism is a modifiable risk factor that creates barriers for people to high-quality care (Rutter et al., 2022). Māori podiatrists in this study reported the need to create a safe space in order to deliver meaningful services. Browne and Garrett (2010) found that podiatrists in Aotearoa behaved in a manner described as minimising in the knowledge and expertise of Māori and this was perceived as disrespectful and judgemental. This colonial superiority is still pervasive in the podiatrists in Aotearoa as noted in the results section.

The Pae Ora (Healthy Futures) Bill (2022) is the highest top-down approach to achieving equity in health and wellbeing outcomes for Māori (figure 12). A focus of this work was a kāranga to Māori podiatrists who work within environments supporting the Whānau Ora framework. This was an arduous task, given the low percentage of Māori providing diabetes podiatry services, but it was normal and natural for Māori podiatrists. It is now the responsibility of each respective responsible authority to demonstrate how they will meet the goals of Pae Ora and podiatrists holding annual practicing certificates to demonstrate this in practice.

Māori podiatrists were confident they support the framework of Whānau Ora well, particularly when working alongside other likeminded health and social services and these goals were met by celebrating cultural identity and whakawhānaungatanga. Māori receiving care from non-Māori podiatrists considered whakawhānaungatanga to be the key element of a clinical interaction, particularly when podiatrists consider the wider whānau. However, the way in which information was shared by non-Māori podiatrists to Māori creates an opportunity to construct Indigenous best practice for non-Indigenous podiatrists. This is discussed below.

Figure 12

Strengthening He Korowai Oranga, Ministry of Health, 2019



6.6 Indigenising Training Institutions

Gaudry & Lorenz (2018) conceptualize the idea of decolonial indigenization, in which the entire institution changes to reorient knowledge production and structure from Indigenous and non-Indigenous perspectives. This may be difficult given that Heleta (2016) defined universities as Eurocentric and rooted in Western views, reinforcing Western dominance and privilege. The current proportion of Māori staff in academic positions (full time equivalent) at Universities in Aotearoa is 6% (McAllister et al, 2019; Education Counts, 2021). The importance of educating undergraduate students to achieve equitable and sustainable health outcomes for Māori should be the responsibility of all members involved in the delivery, development, and quality of all health-related papers, not just the responsibility of Māori.

Health education should focus on a shift toward antiracism approaches (Ahuriri-Driscoll et al, 2022) where staff and students value the impacts of colonisation in Aotearoa. If Māori health is not given the same priority as colonial approaches to health; then habitus continues enabling staff and students to conform to the institution's dominant values (Roberts et al., 2010). Vass et al (2021) found that without educator preparedness, evidence-based teaching models and accountable curriculum accreditation; colonisation of the curricula and minimal Indigenous content will suffice. Ultimately, denying an opportunity to build Māori capacity and advance Māori. A major barrier for students to develop cultural intelligence, safety and competence lies within the system of the institution (e.g., qualified podiatry supervisors within Māori health organisations, rigid timetabling, financial requirements). These features do nothing to improve access and deprive students from being supported to learn in an environment which they are unfamiliar with. This goes against te ao Māori values of tika, pono and aroha, those cornerstones identified earlier as essential for building and establishing trust. Furthermore, for Māori podiatry students, it creates the sense that these environments are not valuable. Pihama (Tomlins-Jahnke et al, 2021, p.64) reminds us of the marginalisation of Māori knowledge and pedagogy, refuting our learning and teaching processes to Māori and as Māori in universities. A future question to consider is how can podiatry align to Indigenous worldviews, and how will this be achieved in an institution steeped by colonial imperialism?

When there are cultural gaps between the teachers and students, and when the curriculum supports the mainstream culture; conflict will arise, and the dominant discourse will prevail (Hood, 2018). Gerrad et al (2021) explains these challenges, which forces a rethink about how educationalists should transform their current rationale if they are going to produce graduates who are culturally safe:

Reading this as podiatrists trained in a Western model of healthcare we are likely to interpret the above as; knowledgeable in terms of Western science; elderly as non-Indigenous octogenarians supported by an array of social systems designed specifically to support their long life expectancy; research that doesn't include Aboriginal and Torres Strait Islander perspectives nor their peoples as participants; health outcomes being directed by biomedical markers rather than spiritual or cultural elements, or connection to country;
and governance without consideration of treaty. So, is podiatry culturally safe? (p.2)

When students and teachers are critically conscious, the rejection of deficit theorising and deeply rooted Western paradigms creates the space for Indigenisation (Opara, 2021). West et al (2021) created space for non-Indigenous students to learn from local Indigenous people. The authors recognised crucial gaps in students' experiences and interaction with Indigenous communities, highlighting systemic and practitioner biases as contributors to poor health outcomes in Aboriginal and Torres Strait Islander peoples. An environment that was supported by local Indigenous clinicians and encapsulated physical, social, emotional, and spiritual dimensions; afforded students the opportunity to engage and build confidence in this space. Thus, enabling students' cultural capability skill development.

Culturally responsive pedagogies challenge the dominant discourse by allowing minority groups to engage and construct knowledge based on their understanding and value systems (Hood, 2018). Curricula that allow students to develop knowledge through power-sharing, active learning, and problem-solving utilising co-creation with whānau and haapori, enables culturally responsive learning. West et al (2022) demonstrated this further by implementing traditional yarning circles and group appointments for their students to engage with the community they served. In addition to the students gaining new knowledge through interaction with community leaders and members, the outcome resulted in improved student behaviour and attitude to Indigenous knowledge and sharing with thus improved foot health and self-care knowledge of their Indigenous partners.

Rātima et al (2022) used ngā hau e wha o Tāwhirimātea (the four winds of the God of weather) as a model to foster learning and teaching experiences in the tertiary sector. The shift of position from power to sharing creates an opportunity for students to share their perspectives and has the adage of constructing further resources if supported in a safe environment. A Pacific-designed research method that was co-designed by older Pacific Island members, used talanoa (shared ideas and thinking) to identify priority areas for health (Neville et al, 2022). Podiatry was identified as an area of interest for Pacific peoples, specifically foot care knowledge. The AUT podiatry students were tasked with providing foot health checks and then develop resources alongside and for each of the groups guided by research assistants fluent in the languages of representative groups. Despite the valuable learning experiences, access to clinical space and medical records were not available to students to provide management as these services were often provided in community halls.

Spaces that have this access such as the National Hauora Coalition, offer a way forward. The stakeholders in the current study (both consumers, kaimahi and podiatrists) indicated that diabetes podiatry service draws strength from a transdisciplinary approach in an environment that is supportive of the cultural values of Māori. The potential for virtual supervision is feasible given the workforce shortage and need to improve lower limb morbidity in Māori with diabetes.

In the current study, the reader is reminded that Māori are not homogenous and nor are the haapori, hapu and iwi they are situated. For the University, staff, and students to engage in these spaces, they must be mindful of these differences including language, practices, and beliefs because a 'one size fits all' approach is just as harmful as not engaging in these spaces. Ironically, the Covid-19 pandemic forced educational institutions worldwide to be more creative in a very short timeframe (Muflih et al, 2021; Naciri et al, 2021; Stoehr et al, 2021). The introduction of virtual classrooms, online forums and examinations were a way to moot the barriers of kanohi-te-kanohi traditional learning practice. With advanced information technology, the health sector moved to shared electronic records to more recently artificial intelligence for problem solving in surgery (De Simone et al, 2022; Hashimoto et al, 2018). Virtual supervision would increase access of diabetes podiatry services for Māori. The mode should be reflective of collaboration with clinical placements overseen by general practitioners or nurses registered with their respective regulatory authorities. This has been a topic of discussion across regulatory authorities in response to the strain to the allied health service as a result of Covid-19 (M. Chadwick, personal communication, October 6, 2022) but is yet to be established.

6.7 Informing Indigenous practice

Kaupapa Māori evaluation is a journey between the researcher and the iwi / community they serve to benefit. The shared experiences from the voices in this work has enabled some key concepts for informing Indigenous best practice for podiatrists from a te ao Māori perspective. The major overarching element and key to successful engagement from this study was trust and the following suggestions for undergraduate and continuing professional development work on the premise of tikanga in table 8. This is not intended to be an exhaustive list for non-Māori podiatrists, but some ideas as a result of this study to develop further.

Table 8

Indigenous Best Practice for Podiatrists in Aotearoa

	Loose definition	Example	Practice *Doing*
Whānaungatanga	meaningful engagement, forming effective relationships	Share your whakapapa, challenge your implicit bias; allow whānau / kaimahi to be present if person is consenting and engage with them also.	Hui Process, revisit invitations (emails, phone calls, signage, payment) as barriers to the diabetes podiatry service. Find out about local Māori history.
Pono	Transparency, being genuine	Speak honestly, be informed and be realistic of outcomes.	Be brave, challenge policy and procedures of organisations. Change age-standardised rates to be more reflective of tangata whenua in institutions.
Tika	Doing it the right way	Culturally responsive	Implicit Bias readings, antiracism, white privilege, strengths-based solutions, social justice. Consider the immediate environment invite Iwi / mana whenua / Community leaders into your facility. Contact your local Council.
Aroha	Negotiate risks by showing care and compassion	Allow space for questions, for every action, provide and explanation.	Reflect, how did you learn? Support and encourage questions and solutions.

Mana	Te ao Māori / te ao Pākeha worldview	Relational approach – not what *you* are going to do, but how can the persons' values and belief systems be forefront in the clinical encounter	Mātauranga Māori, Rongoa Māori. Be mindful of people who practice (including the persons own health organisation) in your local area.
Kotahitanga	Togetherness, unity	Marae-based learning; normalising te reo and other linguistic characteristics. Clinical facilities that are co-designed by Māori, reaffirming messages through active listening	Virtual placements, interprofessional and transdisciplinary approaches to care and education
Manaakitanga	Kindness and respect; cultural and social responsibility	Support the networks that support the diabetes podiatry services.	Give back – community talks. Whatever the value of the service is, you 'manaaki' that value.

Note. These are examples to explore in future studies.

6.8 Limitations

A limitation of the study was the method used to collect data from the Māori podiatrists. It was anticipated that protecting the anonymity of Māori podiatrists would encourage more dialogue as we are a small cohort. Some podiatrists who were involved contacted the researcher via email to ask if they could access their answers to provide more feedback or upon reflection of the questions answered. This mutes any issue of a power imbalance and strengthens the value of connection. The questions were trialled by non-Māori podiatrists and the research whānau prior to dissemination, but not trialled podiatrists who work in those environments. This lead to an ambigous question that would have been difficult for podiatrists that are not governed or operationalised by the Whānau Ora framework to answer: question 4 - Please discuss how your Whānau Ora organisation allows you to provide high quality services and resources for Māori? With regards to the overall findings, these limitations have two different outcomes. First, the method of data collection disabled the opportunity to ratify and explore this question further. Second, podiatrists may have had to draw upon past employment experiences to infer an answer. Future work should make the distinction between working environments and the online surveys may not be the best method when wanting to dive deeper into specific areas. Careful consideration regarding the protection of anonymity would be required due to the low numbers of Māori practicing. Furthermore, the timing of the release of the survey (although it was online) was during the second Covid-19 lockdown and some podiatrists reported that they were fatigued and sent incomplete surveys because they were trying to work from home (telehealth) and manage children.

Another limitation of this work was the interaction and access between the focus groups to Māori podiatrists. This may be explained by recruitment strategies and the low number of Māori podiatrists providing diabetes podiatry services. The latter is a reality of the podiatry workforce in general. The former may be partially explained by Covid-19 restrictions and the pace in which recruitment was conducted. However, this point can actually be highlighted as a strength, given the variance in findings relating to barriers in both group experiences. What may have been more helpful is expanding on each person’s responses to dive deeper into the dialogue, particularly around how Māori self-manage their lower limb when access to a podiatrist is limited. We can speculate that perhaps Māori are presenting at emergency departments for active risk foot morbidity or managing these through other means - this may explain low active risk profiles. These further questions impact on the overall findings, as they may help inform programme design or curriculum development particularly around discovering foot care practices unique to Māori. This limitation could be highlighted for future research.

6.9 Summary

Kaupapa Māori evaluation seeks to identify the effectiveness of a programme or service to determine its value, drawing upon various methods in its approach (Ratima & Wikaire, 2021). This work sought information from those who met the criteria for it, those who advocate for it and those who provide it. The current work serves as the interface between both - evaluating diabetes podiatry services through a kaupapa Māori worldview. Moewaka Barnes (2009) describes Māori evaluation as similar to evaluation in general, but it lies within a value and power context. The following statements distinguish Māori from non-Māori evaluation: Māori control it; it meets Māori needs (although it may meet other needs as well); it demonstrated within a Māori worldview, which is likely to question the dominant culture and norms; and it aims to make a positive difference. The amputation statistics for Māori should be an indication that the currency of knowledge and skills into practice is not working for Māori. This discussion considers what matters most to Māori in this study cohort. Māori are not a homogenous group, and it is important to remember that these results should not be generalised to the entire population. The podiatrists interviewed this study were from across Aotearoa, and the stakeholders of diabetes podiatry services were from urban Auckland.

It was clear that there are variables which should be considered to determine the effectiveness of diabetes podiatry services for and by Māori. These include meaningful engagement; location of services, services that allow Māori to participate in te ao Māori and systems that are supportive of those constructs. Access to diabetes podiatry services may be the common denominator for Māori suffering from preventable and avoidable amputations as a complication of diabetes. Primary health care providers that work within Whānau Ora framework, have the edge on dealing with tangata whenua who are marginalised in every health and societal statistic. Despite this, they are largely underfunded but are able to maintain some of the most incredible relationships with their whānau. In contrast, non-Māori podiatrists have been offered some very basic guidance to ensure meaningful relationships with Māori and organisations. This is the responsibility of practicing podiatrists in Aotearoa in recognition of the amended HPCA Act (2019), and commitment by the Crown in the Pae Ora (Healthy Futures) Bill (2022).

CHAPTER SEVEN: RECOMMENDATIONS

Ehara taku toa i te toa takitahi, engari he toa takitini

My success is not mine alone, it is the work of many.

7.1 Introduction

The prevalence of amputations will likely increase in Aotearoa over the next 10 years as a result of increased prevalence of diabetes mellitus, particularly in Māori (PwC, 2021; Carroll et al, 2022). Māori in the current study are cognisant of the current health care challenges and propose a diabetes podiatry service that is aspirational for this community. This work aimed to determine the effectiveness of diabetes podiatry services in reducing lower limb amputation in Aotearoa using kaupapa Māori evaluation. Māori were front and centre of this work, enlisting Māori podiatrists, a Māori Health Organisation and Māori living with the condition. A research whānau decided on the evaluation processes and how the information would be used. The relevant findings of this work included:

1. Diabetes podiatry services are effective when Māori feel engaged with the practitioner.
2. Kaimahi are champion navigators when Māori are unable to process information, are fearful of the service or have limited access to and from appointments.
3. Kaimahi are willing to engage with diabetes podiatry services to better inform Māori and learn more about diabetes podiatry education
4. There are opportunities for mutual learning, and spaces or environments to incorporate traditional healing practices.
5. Māori podiatrists take a holistic approach to Māori with diabetes wrapping other health and social support services to achieve Pae Ora.
6. Culturally responsive learning opportunities need to be embedded at the undergraduate level and continuing professional development for registered podiatrists requires revision for non-Māori and for oversees qualified podiatrists wanting to practice in Aotearoa.
7. Funding bodies need to invest in Māori development and capability given the amputation forecasts and these need to be sustainable investments.

In reviewing the literature, we considered effectiveness to include reduced length of hospital stay; reduced hospital admission; return to primary care; improved patient self-management; reduction in ulceration/re-ulceration; reduction in amputation; limb salvage. Only international studies met these criteria. The studies that were included were good quality in terms of diabetic foot risk classification but were unable to identify clear management strategies (Craig et al., 2013; Perrin et al, 2012a; Searle et al., 2008). Although it was highlighted that at the time of the review an appropriate effectiveness tool was not available, following a similar process as the Albright et al (2020) study would not have produced different results owing to the countries selected. Furthermore, there was a clear lack of Indigenous health values embedded within these studies although this was not part of the inclusion criteria. What was apparent from excluded studies was that the multidisciplinary team in secondary services are effective for people with active diabetes foot disease, if a podiatrist and vascular surgeon are involved (Albright et al, 2020); or if primary care physicians refer them (Rìos et al, 2019); and that multidisciplinary teams' costs more to fund than an amputation (Ignatyeva et al, 2014). However, Searle et al (2008) were able to determine that diabetes foot education is an area that requires attention in its delivery prior to the development of a diabetic foot ulceration. Recent work (van Netten et al. 2020) suggests that the current ulcer prevention strategies require a transformational shift from a stratified healthcare approach to consider modifiable risk factors; the current work extends these findings and considers a culturally responsive health workforce as a modifiable risk factor.

Māori are ordinary, Māori have a unique philosophy of health (Durie, 1994; Durie, 1999) and have learnt from colonised lessons, to create a path forward as a collective and assert autonomy of Māori health and wellbeing (Te Puni Kokiri, 2016). Pae Ora is the vision, and the National Hauora Coalition is the driver to enable whānau to achieve tino rangatiratanga. It is essential that provisions for the inclusion of non-clinical measures of wellbeing are incorporated in diabetes podiatry services, using Te Kupenga (New Zealand Statistics, 2021) as a starting point of good practice. These are necessary to ensure these services are meeting the aspirations of Māori and the governance and sovereignty of the data be protected by Māori. All participants in this study highlighted and celebrated the connection they had to each other and their communities (including members involved in the overall care of a person with diabetes mellitus). Engagement / whakawhānaungatanga / whakapapa were the key drivers between actively maintaining patient/practitioner relationships and wanting to aspire to deliver diabetes podiatry services more meaningfully to the community. Furthermore, participants were able to reflect on their ideal diabetes podiatry service and work in partnership with tauiwi partners willing to engage. Previous studies in Aotearoa and Australia have shown that this reciprocal approach improves cultural responsiveness and patient self-management outcomes (Browne & Garrett, 2010; West, 2021, 2022). Universities and other institutions that provide Podiatry education need to be reflexive if they are honest / pono about improving the health and wellbeing of Māori by producing culturally responsive graduates.

The key findings from this work are celebrated by the connections formed by the researcher and the community. These connections align to the methodological approaches embedded within kaupapa Māori principles and tikanga, including using tikanga guided ethical responsibility of the researcher.

7.2 Contributions to Local Scholarship

At the heart of this work is the research whānau, which includes those committed to ensuring the health and wellbeing of members of the National Hauora Coalition and those who access diabetes podiatry services, the community. A hui was agreed for February 2023. Māori podiatrists who participated in this work are fundamental in the initial dissemination strategy. A karanga will be sent out to all of the people involved in this study to participate in a kanohi-te-kanohi presentation alongside a one-page report. The cultural connectedness and engagement with the National Hauora Coalition has extended to presentations to University of Auckland students (Appendix M) and a teaching session for nurses working across the National Hauora Coalition (June 2021). Given the high numbers of people with diabetes in this organisation, and opportunity for AUT podiatry students to develop their cultural safety and other skills, this relationship is likely to result in innovative ways to combine education and diabetes podiatry services to the community.

7.3 Contributions to National Scholarship

The wider community are also vested in the findings of this work, as it is a way forward for the profession to respond to Pae Ora (Health Futures) Bill (2022) through transforming training and policy. An application to the School of Clinical Sciences, AUT for funding a research project was awarded in September 2022 (Appendix N). This study is the first to explore strategies for podiatrists in Aotearoa to develop culturally safe practice and inform the Podiatrists Board of New Zealand a way forward for continuing professional development. Dissemination of these findings will be through the School of Clinical Sciences Research Day, the professional body Podiatry New Zealand biannual conference, and direct communication to the Podiatrist Board of New Zealand.

For podiatrists who provide diabetes podiatry contracts within the community or working within Te Whatu Ora, Health New Zealand; the New Zealand Society for the Study of Diabetes Special Interest Group for Podiatrists offer a place for discussion at their annual meeting and specific podiatry special interest group. This is also a platform to discuss rethinking current diabetes podiatry service inclusion criteria (specifically ethnicity) and consider attitudes toward biochemical assays and age-standardisation as oppressive forms of assessment.

Manatū Hauora, Te Aka Whai Ora (Māori Health Authority), Te Whatu Ora (Health New Zealand), Te Puni Kokiri, the Public Health Association and Health Workforce New Zealand should be interested in these findings given workforce shortages, an increase in prevalence of diabetes in Māori and responsiveness of podiatrists in relation to Pae Ora (Healthy Futures) Bill in improving access and equity for Māori. Therefore, dissemination includes article submissions through New Zealand Medical Journal and personal representation at Allied Health quarterly meetings hosted by the Chief Allied Health Professions Officer on behalf of Manatū Hauora.

7.4 Contributions to International Scholarship

The podiatry profession is currently experiencing a global workforce shortage for diabetes foot care training (Baird & McInnes, 2009; Bakker, 2009; Carroll et al, 2020; Tulley et al, 2009) which has wider consequences for Indigenous people who are at risk of or currently are living with diabetes mellitus. The wider international community includes those who provide podiatry education or those educational facilities that provide training for people providing diabetes management in countries where access to podiatrists is limited or non-existent. Dissemination through international peer reviewed journals targeting podiatrists and health care professionals (Journal of Foot & Ankle Research) and diabetes (Diabetes Medicine, Diabetes Research & Reviews) and presentations to the global diabetic foot community (International Working Group on the Diabetic Foot) provide a further source of dissemination. Discussions with Australian Universities providing podiatry education (Australasian Council of Podiatry Deans) to promote culturally responsive practice within Australasian Universities is also taking effect (C. Robinson et al, personal communication, September 30, 2022). It is anticipated that a funded project through the Australian Podiatry Education & Research Foundation (APERF) or Health Research Council (HRC), New Zealand to support the council to improve health and wellbeing outcomes for First Nations peoples and communities as a result of those discussions.

A meeting with the Australian Podiatry Regulatory Authority on behalf of the Australian Health Practitioner Regulation Agency to discuss cultural safety mechanisms for the profession is scheduled with the Podiatrist Board of New Zealand. A review of the Trans-Tasman mutual agreement has the support of Manatū Hauora, the Ministry of Health. This is to safeguard the public and recommends that any podiatrist who is not tangata whenua understands te Tiriti o Waitangi and the effects of colonisation as well as cultural safety requirements applicable to Aotearoa. Furthermore, it is anticipated that the outcomes from this meeting will transform the current requirements for practitioners to be culturally responsive to Aboriginal and Torres Straight peoples. The Health Research Council of New Zealand is collaborating with other Indigenous Health networks including the National Health and Medical Research Council of Australia and the

Canadian Institutes of Health Research. These networks serve as a source to collaborate with International researchers who are vested in equitable outcomes for Indigenous peoples.

7.5 Implications for Podiatry Practice and Future Research

The reality of burgeoning gaps between Māori and non-Māori become more surreal with workforce shortages and low attrition in University (Carroll et al, 2020). Currently, diabetes podiatry services are not accessible for Māori despite ethnicity as a risk factor for inclusion into the service. In an ideal world, podiatrists would be culturally responsive and accessible, but this is the current reality. In the short term, consistency between podiatrists through shared electronic databases with defined outcomes for high quality reporting could provide regional and national data to target funding directly to those areas. Approaches to management which accept and legitimise Māori ways of doing things which consider Māori in the design of diabetes podiatry services are necessary. At the very least, provisions for the inclusion of non-clinical measures of wellbeing are necessary to ensure these services are meeting the aspirations of Māori. Considered cultural wellbeing indicators include: wairuatanga (spirituality), tikanga (custom and practices), te reo Māori (language) and kaitiakitanga (guardianship of the natural world). These data can be gathered through stories, karanga, whakairo, waiata and the knowledge shared in wānanga. However, Māori are not homogenous and podiatrists need to be aware that differences in beliefs and values differ amongst communities, hapu and iwi and are encouraged to kōrero with Māori prior to defining what data represents effectiveness outcomes.

Furthermore, challenging practitioners' attitudes and behaviours toward accepting and legitimising Māori health worldviews, require a professional organisational and educational approach which provides equal power sharing of Western and matāuranga knowledge. An organisational approach including educational providers, registration bodies and government policy need to react to improve the current health workforce initiatives, particularly those strategies that are designed to empower and ensure health equity for Māori.

Māori in this study have envisioned a diabetes podiatry service which is culturally responsive. Although this was not the purpose of this work, it demonstrates that there are gaps in the current practice and education of podiatrists. A cost-effectiveness study to secure this vision is warranted as well as diving deeper into rōngoa practices and health literacy resources. These can be measured against the current cost of amputation, not just the physical / surgical costs but the emotional and spiritual loss to Papatūānuku. Future studies to evaluate students' perceptions of marae-based learning (kaumatua / kuia) and co-design and co-partnership of diabetes podiatry services are key indicators of future culturally responsive measures.

7.6 Limitations of the Study

Prior to undertaking this work, members of this profession anecdotally ‘knew’ there were issues with Māori accessing diabetes podiatry services, workforce shortage and vocational training. This anecdote was shared through stories and experiences from a wide variety of sources. These experiences have been shared from critical and constructivist views in the current study from a Māori perspective. Cram (2004) identified that regardless of the research methods used; the concept of whakawhānaungatanga is always critical and therefore kaupapa Māori evaluation goes beyond the doing to creating and maintaining connections, it underpins ethical and moral components – tikanga. Chapter 4 outlines kaupapa Māori practices to guide Māori researchers. In light of being the researcher, there were some limitations in applying these as smoothly as anticipated.

1. Aroha ki te tangata – to mitigate tensions of space and power, a kaumatua was not directly involved, instead a research whānau and the CEO and lead research officer were involved to engage and support the researcher.

2. Kanohi kitea – kanohi te kanohi meetings with the focus groups were planned, however due to the Covid-19 pandemic, virtual focus groups were a reality due to the timeline of this project. Kaimahi were tasked with recruiting whānau they had relationships with that met the criteria.

Another limitation of this work is access to shared electronic platforms and lack of information sharing by health care providers and large organisations. The current digital platforms (virtual diabetes register, atlas of health care variation) show some useful data around ethnicity and amputation, but not the socio-economic or access to services data that actually speaks to high amputation in Māori; and these are not up to date. Also, evaluation research has its own limitations.

Conducting research during a pandemic is not ideal for any researcher or participants or organisations. Having to request changes to ethical approvals, extend timelines with limited access to resources (internet) were other limitations of this research. Finally, kaupapa Māori research should not be boxed in a timeline or timeframe, unless it is at the request of the service providers.

7.7 Conclusion

A kaupapa Māori evaluation approach was used to identify the effectiveness of diabetes podiatry services by Māori for Māori. The collaboration between the researcher, the National Hauora Coalition, and a research whānau ensured the process of, and results from the work aligned with tikanga Māori. A mixed methods approach using semi-structured interviews, electronic surveys and quantitative service data was collected, but most valuable were the perceptions provided by Māori. One of the key themes from this work was that current diabetes podiatry services are effective when Māori feel engaged with the practitioner; and Māori podiatrists embrace mātauranga and tikanga in their approach to Māori with diabetes. The participants in this study suggested mutual learning within culturally safe environments. Furthermore, culturally responsive learning opportunities need to be embedded in undergraduate studies and continuing professional development for registered podiatrists and those wishing to practice in Aotearoa. Finally, funding bodies need to invest in Māori development and capability if they are truly committed to the Pae Ora (Healthy Futures) Bill (2022). It is essential that provisions for the inclusion of non-clinical measures of wellbeing are incorporated into diabetes podiatry practice and reporting. These are necessary to ensure these services are meeting the aspirations of Māori. In conclusion, Māori have a unique philosophy of wellbeing and have learnt from critical and constructivist views, how to create a path forward for quality diabetes podiatry services.

REFERENCES

.

Ahuriri-Driscoll A, Williams M, Vakalalabure-Wragg U, et al. (2022). *Evolution of Racism and Anti-racism Literature Review & Summary Document – Whiria Te Muka Tangata*. Wellington: Ministry of Health. https://www.health.govt.nz/publication/evolution-racism-and-anti-racism-literature-review-summary-document-whiria-te-muka-tangata.

Albright, R. H., Manohar, N. B., Murillo, J. F., Kengne, L. A. M., Delgado-Hurtado, J. J., Diamond, M. L., Acciani, A. L., & Fleischer, A. E. (2020). Effectiveness of multidisciplinary care teams in reducing major amputation rate in adults with diabetes: A systematic review & meta-analysis. *Diabetes Research and Clinical Practice*, 161, 107996. https://doi.org/10.1016/j.diabres.2019.107996.

Alexiadou, K., & Doupis, J. (2012, Nov). Management of diabetic foot ulcers. *Diabetes Therapy*, 3(1), 4. https://doi.org/10.1007/s13300-012-0004-9.

Aljarrah, Q., Bakkar, S., Aleshawi, A., Al-Gharaibeh, O., Al-Jarrah, M., Ebwayne, R., Allouh, M., & Abou-Foul, A. K. (2020). Analysis of the Peri-Operative Cost of Non-Traumatic Major Lower Extremity Amputation in Jordan. *Clinicoeconomics & Outcomes Research*, 12, 13-21. https://doi.org/10.2147/CEOR.S232779.

Anichini R, Z. F., Cerretini I, Meucci G, Fusilli D, Alviggi L, Seghieri G, De Bellis A. (2007). Improvement of diabetic foot care after the Implementation of the International Consensus on the Diabetic Foot (ICDF): results of a 5-year prospective study. *Diabetes Research & Clinical Practice*, 75(2):153-8. doi: 10.1016/j.diabres.2006.05.014.

Apelqvist. J., Ragnarson-Tennvall, G., Larsson, J., & Persson, U. (1995). Long-term costs for foot ulcers in diabetic patients in a multidisciplinary setting. *Foot and Ankle International*, 16, 388-94. https://doi.org/10.1177/107110079501600702.

Armenta-Paulino, N., Castelló, A., Sandín Vázquez, M., Bolúmar, F. (2020). How the choice of ethnic indicator influences ethnicity-based inequities in maternal health care in four Latin American countries: who is indigenous? *International Journal for Equity in Health*, 19(31). https://doi.org/10.1186/s12939-020-1136-6.

Armstrong, D. G., Fiorito, J. L, Leykum, B. J, Mills, J. L. (2012). Clinical Efficacy of the Pan Metatarsal Head Resection as a Curative Procedure in Patients with Diabetes Mellitus and Neuropathic Forefoot Wounds. *Foot & Ankle Specialist,* 5(4):235-240. doi:10.1177/1938640012449038

Auckland and Waitemata District Health Boards Community & Public Health Advisory Committee (2019, February 20). https://www.adhb.health.nz/assets/Uploads/ADHB-WDHB-CPHAC-Feb-2019.pdf

AUT Bachelor of Health Sciences (Podiatry) (2022). Academic calendar. AUT University, https://www.aut.ac.nz/about/auts-leadership/official-aut-publications.

Baird, S., McInnes, A. (2009). Diabetic foot care training in the absence of podiatrists. *Wounds Middle East*, 12(3). https://www.woundsasia.com/uploads/resources/dotn/_master/1547/files/pdf/df_12_3_1046810.pdf. Retrieved 12 December, 2022.

Bakker, K. (2009). Diabetic foot care assistants for the developing world. The Diabetic Foot Journal, 12, 10-12. https://diabetesonthenet.com/wp-content/uploads/tdfj-12-1_pg1012-1.pdf.

Baxter, J. (2002). *Barriers to health care for Māori with known diabetes: A literature review and summary of issues*. Wellington, Te Roopu Rangahau Hauora a Ngai Tahu. https://doi.org/10.2105/AJPH.2005.070680.

Bayley, A., Ihaka, B., Rome, K., Poratt, D., Penney, L., Rapana, S., McNeill, E., Marsden, L., Hetaraka-Stevens, L., Garrett, N. (2008). Development and implementation of an evidence-based podiatric screening too for diabetes-related foot complications among Māori. *Diabetes Research and Clinical Practice*, 79(1), S41. https://doi.org/10.1016/S0168-8227(08)70746-0.

Bastos, J. L., Harnois, C. E., Paradies, Y. C. (2017). Health care barriers, racism, and intersectionality in Australia. *Social Science & Medicine*. 199:209-218. doi: 10.1016/j.socscimed.2017.05.010.

Beaton, A., Manuel, C., Tapsell, J. et al. (2019). He Pikinga Waiora: supporting Māori health organisations to respond to pre-diabetes. *International Journal for Equity in Health*, 18, (3). https://doi.org/10.1186/s12939-018-0904-z.

Beeler, E., Brenton-Rule, A. & Carroll, M. (2022). Recruitment and retention of the rural podiatry workforce in Aotearoa New Zealand: a qualitative descriptive study of podiatrist perceptions. *Journal of Foot and Ankle Research* 15(58), 2-8. https://doi.org/10.1186/s13047-022-00562-3.

Betancourt, J. R., Green, A. R., Carrillo, J. E. (2002). *Cultural competence in health care: Emerging frameworks and practical approaches.* The Commonwealth Fund. https://www.ecald.com/assets/Resources/Assets/Cultural-Competence-in-Health-Care.pdf.

bpac^{nz} (2021, June). *New diabetes medicines funded: empagliflozin and dulaglutide.* 19-27. https://bpac.org.nz/2021/docs/diabetes.pdf

Böhm, M., Anker, S., Butler, J., Filippatos, G., Ferreira, J. P., Pocock, S. J., Mahfoud, F. et al. (2021). Empagliflozin Improves Cardiovascular and Renal Outcomes in Heart Failure Irrespective of Systolic Blood Pressure. *Journal of the American College of Cardiology*, 78 (13), 1337–1348.**https://doi.org/10.1016/j.jacc.2021.07.049**

Borrell, L. N., Elhawary, J.R., Fuentes-Afflick, E., Witonsky, J., Bhakta, N., Wu, A., Bibbins-Domingo, K., et al. (2021). Race and Genetic Ancestry in Medicine — A Time for Reckoning with Racism. *New England Medical Journal*, 384(5), 474-480. DOI: 10.1056/NEJMms2029562.

Boulton, A., Gifford, H., Allport, T., White, H. (2018). Delivering on diversity: The challenges of commissioning for Whānau Ora. *Journal of Indigenous Wellbeing. Te Mauri – Pimatisiwin,* 3(4), 45-56.

Brewer, K. M., Harwood, M.L., McCann, C.M., Crengle, S.M., Worrall, L.E. (2014). The use of interpretive description within kaupapa Māori research. *Advancing Qualitative Methods,* 24,9, 1287-1297. http://journals.sagepub.com/doi/abs/10.1177/1049732314546002.

Browne, J., Garrett, N. (2010). An intervention trial for Māori at risk of diabetes-related lower limb pathology. Retrieved April 19, 2018, from http://eds.b.ebscohost.com.ezproxy.aut.ac.nz/eds/detail/detail?vid=1&sid=d03d5958-4a40-4568-aff6-119444dc4473%40sessionmgr103&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=aut.b13007713&db=cat05020a.

Burgess, H., Cormack, D., Reid, P. (2021). Calling forth our pasts, citing our futures. An envisioning of a Kaupapa Māori citatioinal practice. *MAI Journal,* 10(1), 57-67. DOI: 10.20507/MAIJournal.2021.10.1.8.

CALD Cultural Competency Courses and Resources. Retrieved September 1, 2018 from https://www.ecald.com/.

Came, H., Tudor, K. (2016). Bicultural praxis the relevance of Te Tiriti o Waitangi to health promotion internationally. *International Journal of Health Promotion and Education*, 54(4). https://doi.org/10.1080/14635240.2016.1156009.

Came, H., Doole, C., McKenna, B., & McCreanor, T. (2018). Institutional racism in public health contracting: Findings of a nationwide survey from New Zealand. *Social Science & Medicine*, 199, 132-139. https://doi.org/10.1016/j.socscimed.2017.06.002.

Came, H. A., Herbert, S., & McCreanor, T. (2019). Representations of Māori in colonial health policy in Aotearoa from 2006-2016: a barrier to the pursuit of health equity. *Critical Public Health*, 31(3), 338-348. https://doi.org/10.1080/09581596.2019.1686461.

Came, H., O'Sullivan, D., McCreanor, T. (2020a). Introducing critical Tiriti policy analysis through a retrospective review of the New Zealand Primary Health Care Strategy. *Ethnicities*, 20(3). https://doi.org/10.1177/1468796819896466.

Came, H. A, Tudor, K. (2020b). The whole and inclusive university: a critical review of health promoting universities from Aotearoa New Zealand. *Health Promotion International*, 1,35(1):102-110. doi: 10.1093/heapro/day091.

Came, H., Kidd, J., McCreanor, T., Baker, M., Simpson, T. (2021). The Simpson-led health sector review: a failure to uphold te Tiriti o Waitangi. *New Zealand Medical Journal*, 134(1532), 77-81. https://journal.nzma.org.nz/journal-articles/the-simpson-led-health-sector-review-a-failure-to-uphold-te-tiriti-o-waitangi.

Cargo, M., Potaka-Osborne, G., Cvitanovic, L., Warner, L., Clarke, S., Judd, J., Chakraborty, A., Boulton, A. (2019). Strategies to support culturally safe health and wellbeing evaluations in Indigenous settings in Australia and New Zealand: a concept mapping study. *International Journal for Equity in Health*. 18(1):194. doi: 10.1186/s12939-019-1094-z.

Carroll, S. R., Rodriguez-Lonebear, D., & Martinez, A. (2019). Indigenous Data Governance: Strategies from United States Native Nations. *Data Science Journal*, 18. https://doi.org/10.5334/dsj-2019-031.

Carls, G. S., Gibson, T. B., Driver, V. R., Wrobel, J. S., Garoufalis, M. G., Defrancis, R. R., Wang, S., Bagalman, J. E., Christina, J. R. (2011). The economic value of specialized lower-extremity medical care by podiatric physicians in the treatment of diabetic foot ulcers. *Journal of the American Podiatric Medical Association*, 101(2):93-115. doi: 10.7547/1010093.

Carroll, M., Jepson, H., Molyneux, P., & Brenton-Rule, A. (2020, Oct 12). The New Zealand podiatry profession - a workforce in crisis? *Journal of Foot and Ankle Research*, 13(1), 62. https://doi.org/10.1186/s13047-020-00430-y.

Carroll, M., Brenton-Rule, A., Jepson, H., & Molyneux, P. (2021, Sep 8). Perceptions and satisfaction of a mandatory continuing professional development programme amongst Aotearoa New Zealand podiatrists. *Journal of Foot and Ankle Research*, 14(1), 54. https://doi.org/10.1186/s13047-021-00492-6.

Carroll, M., Al-Busaidi, I. S., Coppell, K. J., Garrett, M., Ihaka, B., O'Shea, C., Wu, J., & York, S. (2022). Diabetes-related foot disease research in Aotearoa New Zealand: a bibliometric analysis (1970-2020). *Journal of Foot and Ankle Research*, 15(1), 23. https://doi.org/10.1186/s13047-022-00528-5.

Cavanagh, P., Attinger, C., Abbas, Z., Bal, A., Rojas, N., Xu, Z. R. (2012). Cost of treating diabetic foot ulcers in five different countries. *Diabetes Metabolism Research Reviews*. 28 (Suppl 1), 107-11. doi: 10.1002/dmrr.2245. PMID: 22271734.

Chan W. C., Lee (A. W). M., Papaconstantinou D, (2020). *Understanding the heterogeneity of the diabetes population in Metro Auckland in 2018*. Auckland: Counties Manukau, & Health. https://countiesmanukau.health.nz/assets/About-CMH/Reports-and-planning/Diabetes/2020_Understanding_the_Heterogeneity_of_the_diabetes_pop.pdf

Cheng, Q., Lazzarini, P. A., Gibb, M., Derhy, P. H., Kinnear, E. M., Burn, E., Graves, N., & Norman, R. E. (2016). A cost-effectiveness analysis of optimal care for diabetic foot ulcers in Australia. *International Wound Journal*, 14(4), 616-628. https://doi.org/10.1111/iwj.12653.

Chuter, V., West, M., Hawke, F., & Searle, A. (2019). Where do we stand? The availability and efficacy of diabetes related foot health programs for Aboriginal and Torres Strait Islander Australians: a systematic review. *Journal of Foot and Ankle Research*, 12, 17. https://doi.org/10.1186/s13047-019-0326-1.

Cormack, D., Robson, B., Purdie, G., Ratima, M., Brown, R. (2005). *Access to cancer services for Māori.* A report prepared for the Ministry of Health, Wellington School of Medicine and Health Sciences. https://www.health.govt.nz/system/files/documents/publications/maoricancerserviceaccess.doc

Cormack, D., Stanley, J. & Harris, R. (2018). Multiple forms of discrimination and relationships with health and wellbeing: findings from national cross-sectional surveys in Aotearoa/New Zealand. *International Journal of Equity in Health*, 17, 26. https://doi.org/10.1186/s12939-018-0735-y

Cormack, D., Reid, P., & Kukutai, T. (2019). Indigenous data and health: critical approaches to 'race'/ethnicity and Indigenous data governance. *Public Health*, 172, 116-118. https://doi.org/10.1016/j.puhe.2019.03.026.

Craig, J., Shenton, R., Smith, A. (2013). Economic analysis of soft-heel casting for diabetic foot ulcer: prevention and treatment. Journal of Wound Care, 22(1), 44-8. doi: 10.12968/jowc.2013.22.1.44.

Cram, F. (2001). *Rangahau Māori: Tona Tika, Tona Pono* in M. Tolich (ed.) Research Ethics in Aotearoa. Longman (pp.35-52).

Cram, F. (2004). Kaupapa Māori evaluation: Theories, practices, models , analyses. Paper presented at the 2004 Evaluation Hui Summit, Waikiki, Hawaii. Retrieved from https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxrYXRvYWx0ZHxneDo3ZjA5NTg2NWNiODc0ZDQy

Cram, F., Pipi, K., Paipa, K. (2018). Kaupapa Maori evaluation in Aotearoa New Zealand. New Directions for Evaluation, 159, 63-77. https://doi.org/10.1002/ev.20331.

Crengle, S., Luke, J.N., Lambert, M., Smylie, J.K., Reid, S., Harré-Hindmarsh, J., & Kelaher, M. (2018). Effect of a health literacy intervention trial on knowledge about cardiovascular disease medications among Indigenous peoples in Australia, Canada and New Zealand. *British Medical Journal*, 24(1), e018569. https://doi: 10.1136/bmjopen-2017-018569.

Critical Appraisal Skills Programme (2018). CASP Economic Evaluation Checklist. [online] Retrieve April 7, from https://casp-uk.net/wp-content/uploads/2018/03/CASP-Economic-Evaluation-Checklist-Downloads.pdf.

Cunningham, C. (2000). A framework for addressing Māori knowledge in research, science and technology. *Pacific Health Dialogue*, 7(1).62-69. https://pacifichealthdialog.nz/pre-2013-archive/Volume207/No120Maori20Health20in20New20Zealand/Original20Papers/A20framework20for20addressing20Maori20knowledge20in20research20science20and20technology.pdf

Curtis, E., Jones, R., Tipene-Leach, D., Walker, C., Loring, B., Paine, S., & Reid , P. (2019). Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. Int J Equity Health, 18(174). https://doi.org/10.1186/s12939-019-1082-3.

Dalbeth, N., Dowell, T., Gerard, C., Gow, P., Jackso, G., Shuker, C., Te Karu, L. (2018). Gout in Aotearoa New Zealand: the equity crisis continues in plain sight. *New Zealand Medical Journal*, 131(1485), 8-12. https://pubmed.ncbi.nlm.nih.gov/30408813/

De Simone, B., Abu-Zidan, F. M., Gumbs, A. A., Chouillard, E., Di Saverio, S., Sartelli, M., Coccolini, F., Ansaloni, L., Collins, T., Kluger, Y., Moore, E. E., Litvin, A., Leppaniemi, A., Mascagni, P., Milone, L., Piccoli, M., Abu-Hilal, M., Sugrue, M., Biffl, W. L., & Catena, F. (2022). Knowledge, attitude, and practice of artificial intelligence in emergency and trauma surgery, the ARIES project: an international web-based survey. *World Journal of Emergency Surgery*, 17(1), 10. https://doi.org/10.1186/s13017-022-00413-3.

Downe-Wamboldt, B. (1992). Content analysis: Method, applications and issues. *Health Care for Women International*, *13*, 313-321. https://doi.org/10.1080/07399339209516006.

Duke, J., Connor, M., & McEldowney, R. (2009). Becoming a Culturally Competent Health Practitioner in the Delivery of Culturally Safe Care: A Process Oriented Approach. *Journal of Cultural Diversity*, *16*(2), 40–49.

Druie, M. (1994). *Whaiora-Maori health development*. (2nd Eds.). Oxford University Press

Durie, M. (1999, November 22). *Cultural competence and medical practice in New Zealand.* [Paper presentation], Australian and New Zealand Boards and Council Conference, 22 November, 2001. https://www.massey.ac.nz/massey/fms/Te%20Mata%20O%20Te%20Tau/Publications%20-%20Mason/M%20Durie%20Cultural%20competence%20and%20medical%20practice%20in%20New%20Zealand.pdf?593A067DE46338C6AEA781519C30CC73

Durie, M. (2001). *Mauri ora: the dynamics of Maori health*. Oxford University Press.

Edcation Counts (2021). *Tertiary Resourcing, Human Resources 2021*. https://www.educationcounts.govt.nz/statistics/resources.

Eketone, A. (2008). Theoretical underpinnings of Kaupapa Māori directed practice. *MAI Review*, Nga Pae o te Māramatanga, University of Otago, Otago, New Zealand. https://ourarchive.otago.ac.nz/handle/10523/7084.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62, 107-115. https://doi.org/10.1111/j.1365-2648.2007.04569.

Eysenbach, G. (2004). Improving the Quality of Web Surveys: The Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *Journal of Medical Internet Research*, 6(3):e34, doi: 10.2196/jmir.6.3.e34.

Fan, L., Wu, X. J. (2021). Sex difference for the risk of amputation in diabetic patients: A systematic review and meta-analysis. *PLoS One*, 11;16(3). doi:10.1371/journal.pone.0243797.

Flanagin, A., Frey, T., Christiansen, S.L., (2021). Updated guidance on the reporting of race and ethnicity in medical and science journals. *American Medical Association*, 326(7), 621-627. https://jamanetwork.com/.\

Fitzpatrick, M.T., Borthwick, A.M. (2022). A decade of independent prescribing in the UK: a review of progress. *Journal of Foot and Ankle Research*, 15(35), 2-7. https://doi.org/10.1186/s13047-022-00541-8.

Frykberg, R. G. (1997). Team approach toward lower extremity amputation prevention in diabetes. Journal of the American Podiatric Medical Association. 87(7), 305-312.

Garrett, M., Ihaka, B. (2013). Save our soles: An audit of a district health board community podiatry programme. May 30-31. Sydney Diabetic Foot Conference, Liverpool Hospital, Sydney, Australia. https://www.diabetesfeetaustralia.org/repository/update-on-the-inaugural-sydney-diabetic-foot-conference-2013/.

Garrett, M. (2016). *A step into the unkown: Footnotes of feet and diabetes in Aotearoa/New Zealand.* [Master's thesis, University of Auckland]. http://hdl.handle.net/2292/30430

Gaudry, A., & Lorenz, D. (2018). Indigenization as inclusion, reconciliation, and decolonization: navigating the different visions for indigenizing the Canadian Academy. AlterNative: *An International Journal of Indigenous Peoples*, 14(3), 218–227. https://doi.org/10.1177/1177180118785382.

Gerrard, J. M., Godwin, S., Chuter, V. et al. Release of the National Scheme's Aboriginal and Torres Strait Islander Health and Cultural Safety Strategy 2020-2025; the impacts for podiatry in Australia: a commentary. *Journal of Foot and Ankle Research*, 14, 38 (2021). https://doi.org/10.1186/s13047-021-00466-8.

Gershater, M. A., Pilhammar, E., Apelqvist, J., Roijer, C. A. (2011). Patient education for the prevention of diabetic foot ulcers. *European Diabetes Nursing*, 8(3). https://doi.org/10.1002/edn.189.

Gillon, A., Cormack, D., Borrell, B. (2019). Oh, you don't look Māori: Socially assingned ethnicity. *MAI Journal*, 8(2). Doi: 10.20507/MAIJournal.2019.8.2.3.

Gooday, C., Murchison, R., Dhatariya, K. (2013). An analysis of clinical activity, admission rates, length of hospital stay, and economic impact after a temporary loss of 50% of the non-operative podiatrists from a tertiary specialist foot clinic in the United Kingdom. *Diabetic Foot & Ankle*, 4, https://doi:10.3402/dfa.v4i0.21757.

Graham, K., Matricciani, L., Banwell, H., Kumar, S., Causby, R., Martin, S., Nissen, L. (2022). Australian podiatrists scheduled medicine prescribing practices and barriers and facilitators to endorsement: a cross-sectional survey. *Journal of Foot and Ankle Research*, 15(11), 2-12. doi: 10.1186/s13047-022-00515-w.

Grosfoguel R, O. L., Christou A. (2015). 'Racism', intersectionality and migration studies: framing some theoretical reflections. *Identities*, 22(6):635–52. https://doi.org/10.1080/1070289X.2014.950974.

Gurney, J. K., Stanley, J., York, S., Rosenbaum, D., & Sarfati, D. (2018a). Risk of lower limb amputation in a national prevalent cohort of patients with diabetes. *Diabetologia*, 61(3), 626-635. https://doi.org/10.1007/s00125-017-4488-8.

Gurney, J. K., Stanley, J., Rumball-Smith, J., York, S., Sarfati, D. (2018b). Postoperative death after lower-limb amputation in a national prevalent cohort of patients with diabetes. *Diabetes Care*, 41(6), 1204-1211. http://dx.doi.org.ezproxy.aut.ac.nz/10.2337/dc17-2557.

Hale, L., Bryant, K., Ward, A., Falloon, A., Montgomery, A., Mirfin-Veitch, B., Tikao, K., & Milosavljevic, S. (2018). Organisational views on health care access for hauä (disabled) Mäori in Murihiku (Southland), Aotearoa New Zealand: A mixed methods approach. *New Zealand Journal of Physiotherapy*, 46(2): 51-66. doi:10.15619/NZJP/46.2.03.

Harris R., C. D., Tobias M., Yeh L.C., Talamaivao N., Minster J. & Timutimu R. (2012) Self-reported experience of racial discrimination and health care use in New Zealand: results from the 2006/07 New Zealand Health Survey. *American Journal of Public Health Research*, 102, 1012–1019. https://doi: 10.2105/AJPH.2011.300626

Harris, S.B., Tompkins, J. W., TeHiwi, B. (2017). Call to action: A new path for improving diabetes care for Indigenous peoples, a global review. Diabetes Research and Clinical Practice. 123, 120-133. doi: 10.1016/j.diabres.2016.11.022.

Harwood, M., Tane, T., Broome, L., Carswell, P., Selak, V., Reid, J., Light, P., Stewart, T. (2018). Mana Tū: a whanau ora approach to type 2 diabetes. *New Zealand Medical Journal*, 131(1485), 76-83. www.nzma.org.nz/journal.

Hashimoto, D. A., Rosman, G., Rus, D., & Meireles, O. R. (2018). Artificial Intelligence in Surgery: Promises and Perils. *Annals of Surgery*, 268(1), 70-76. https://doi.org/10.1097/SLA.0000000000002693.

Hayes, R. (2016). Whanau Ora: A Maori health strategy to support Whanau in Aotearoa. *Whitireia Nursing and Health Journal*, 23, 25-29.

Health and Disability System Review. (2020). *Health and Disability System Reivew*. https://www.health.govt.nz/system/files/documents/publications/health-disability-system-review-final-report-executive-overview.pdf.

Health Practitioners Competence Assurance Act (HPCAA) (2003). Retrieved August 5, 2018 from http://www.legislation.govt.nz/act/public/2003/0048/latest/DLM203312.html

Health Practitioners Competence Assurance Amendment Act (HPCAA) (2019). Retrieved December 17, 2022 https://legislation.govt.nz/act/public/2019/0011/latest/whole.html#LMS12009

Health Quality & Safety Commission (2018). *Diabetes prevalence by age and ethnicity*. Retrieved August 4, 2018 from: https://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/atlas-of-healthcare-variation/diabetes/

Health Quality & Safety Commission (2019, November 4) *Who me – biased? He ngākau haukume tōku?* https://www.hqsc.govt.nz/news/who-me-biased-he-ngakau-haukume-toku/.

Health Workforce New Zealand (2011). *Diabetes workforce service review. Report of the Diabetes Care Workforce Service Review Team*. Retrieved August 4, 2018 from https://www.health.govt.nz/system/files/documents/pages/diabetes-workforce-service-review.pdf

Heleta, S. (2016). Decolonisation of higher education: Dismantling epistemic violence and Eurocentrism in South Africa. *Transformation in Higher Education*, 1(1), 1-8. a9. http://dx. doi.org/10.4102/the.v1i1.9.

Hood, N. (2018). Principles for culturally responsive teaching in early childhood education. The Education Hub. https://theeducationhub.org.nz/.

Houkamau, C. A., Stronge, S., Sibley, C.G. (2017). The Prevalence and Impact of Racism Towards Indigenous Maori in New Zealand. *International Perspectives in Psychology*, 6(2), 61-80. https://doi.org/10.1037/ipp0000070.

Hudson, M., Milne, M., Reynolds, P., Russell, K., Smith, B. (2010). *Te Ara Tika Guidelines for Māori research ethics: A framework for researchers and ethics committee members*. https://www.fmhs.auckland.ac.nz/assets/fmhs/faculty/tkhm/tumuaki/docs/teara.pdf.

Ignatyeva, V., Avxentyeva, M., Galstyan, G.R., Bregovskiy, V., Udovichenko, O. (2014). Cost-effectiveness of interventions aimed at decreasing the number of amputations among patients with diabetes mellitus. *International Society for Pharmacoeconomics and Outcomes Research 19th Annual International Meeting*, Montreal, QC, Canada. https://www.valueinhealthjournal.com/issue/S1098-3015(14)X0003-3.

Ihaka, B., Rome, K. Came, H. (2021) Indigenous Perspectives in Podiatry: Aotearoa. Australian Podiatry Conference, 3-17th July 2021. https://podiatry.eventsair.com/cmspreview/apodconf21/indigenous

Ihaka, B., Rome, K., & Came, H. (2022). Diabetes podiatry services for Maori in Aotearoa: a step in the right direction? *Journal of Foot and Ankle Research*, 15(1), 59. https://doi.org/10.1186/s13047-022-00564-1.

Independent Māori Statutory Board. (2019) *Data issues of significance.* https://www.imsb.maori.nz/assets/sm/upload/pa/0z/vq/ww/IMSB%20Data%20Issues%202019_d.pdf?k=8451bdff4e.

Jordan RW, M. A., Higman D. The cost of major lower limb amputation: a 12-year experience. *Prosthetics and Orthotics International*. 2012;36(4):430-434. doi:10.1177/0309364612441489.

Joret, M. O., Dean, A., Cao, C., Stewart, J., Bhamidipaty, V. (2016). The financial burden of surgical and endovascular treatment of diabetic foot wounds. *Journal of Vascular Surgery*, 64(3),648-55. doi: 10.1016/j.jvs.2016.03.421.

Kandi, L., & Tan, T.-W. (2020). Disparities in lower extremity amputation among native americans with diabetic foot ulcerations. *Vascular Diseases and Therapeutics*, 5(1). https://doi.org/10.15761/vdt.1000176.

Keown, S. A. (2020). *Access to medicines and use of medicines by Maori with type 2 diabetes in Tairawhiti*. [Doctoral thesis, University of Otago]. https://ourarchive.otago.ac.nz/handle/10523/10699

Kereama (Hoeft), M. (2019). *The tail of the fish: Maori memories of the Far North*. Oswald-Sealy. (Original work published 1968).

Kerr, S. (2012). Kaupapa Māori theory-based evaluation. *Evaluation Journal of Australasia*, 12, 1, 6-18.

Kidd, J., Black, S., Blundell, R., & Peni, T. (2018). Cultural health literacy: the experiences of Maori in palliative care. *Global Health Promotion*, 25(4), 15-23. https://doi.org/10.1177/1757975918764111.

Kidman, J., Chu, C. Fernadez, S., Abella, I. (2015). *Maori scholars and the university*. Victoria University of Wellington. https://inabrownstudy.nz/wp-content/uploads/2017/07/pdf-1.-Maori-scholars-and-the-university.pdf.

Kumagai, A. K., Lypson, M. L. (2009). Beyond cultural competence: critical consciousness, social justice, and multicultural education. *Academic Medicine*, 84(6):782-7. doi: 10.1097/ACM.0b013e3181a42398.

Lavery, L. A., Wunderlich, R.P., Tredwell, J.L. (2005). Disease management for the diabetic foot prevention program to reduce amputations and hospitalizations. *Diabetes Research & Clinical Practice*, 70, 31-37. doi: 10.1016/j.diabres.2005.02.010.

Lignou, S., Edwards, S. J. L. (2012). Manipulation of information in medical research: Can it be morally justified? *Research Ethics*, 8(1), 9-23. https://doi.org/10.1177/1747016112437319.

Lipsky, B. A., Senneville, E., Abbas, Z. G., Aragó-Sánchez, J., Diggle, M., Embil, J. M., Kono, S., Lavery, L. A., Malone, M., van Astern, S. A., Urbaničič-Rovan, V., Peters, E. J. G. (2020). Guidelines on the diagnosis and trreatment of foot infection in persons with diabetes (IWGDF 2019 update). *Diabetes Metabolism Research and Reviews*, 36(S1) e3280. https://doi.org/10.1002/dmrr.3280.

Lincoln, N. B., Radford, K. A., Game, F. L., Jeffcoate, W. J. (2008). Education for secondary prevention of foot ulcers in people with diabetes: a randomised controlled trial. *Diabetologia*, 51, 1954–1961. https://doi.org/10.1007/s00125-008-1110-0.

Linne, A. (2022). Sending Out an SOS. A decline in the applicant pool threatens podiatry. *Podiatry Management Magazine*. 65-70. https://podiatrym.com/pdf/2022/8/Linne822Web.pdf.

Liu, J. H., Robinson, A.R. (2016). One ring to rule them all Master discourses of enlightenment and racism from colonial. *European Journal of Social Psychology*, 137-155. https://doi.org/10.1002/ejsp.2141.

Long, H. A., French, D. P., Brooks, J. M. (2020). Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences*, 1(1):31-42. doi:10.1177/2632084320947559.

Mahuika, R. (2008). Kaupapa Maori theory is critical and anit-colonial. *MAI Review*, 3(4). Retrieved from https://www.researchgate.net/publication/26569994_Kaupapa_Māori_theory_is_critical_and_anti-colonial.

Manning, P., Hendry, G., Farmer, V. (2009). *NZSSD Workforce Survey*. [PowerPoint Slides]. Retrieved from http://www.nzssd.org.nz/professionals.html.

Marsden, M. (2003). *Kaitiakitanga: A definitive introduction to the holistic worldview of the Māori*. In T. C. Royal (Ed.), *The woven universe* (pp. 54–72). Otaki, New Zealand: The Estate of Rev. Maori Marsden.

McAllister, T. G., Kidman, J., Rowley, O., Theodore, R.F. (2019). Why isn't my professor Māori? A snapshot of the academic workforce in New Zealand universities. *MAI Journal*, 8(2), 235-249. https://doi.org/10.20507/MAIJournal.2019.8.2.10.

McLean, A., Gardner, M., Perrin, B. (2019). PodCast: A rural and regional service model for podiatrist-led total contact casting. *Australian Journal of Rural Health* 27(5s), 369-470. https://doi.org/10.1111/ajr.12548.

McLeod, M., , Blakely,T., Giorgi Kvizhinadze, G., Harris, R. (2014). Why equal treatment is not always equitable: the impact of existing ethnic health inequalities in cost-effectiveness modeling. *Population Health Metrics*, Open Access. https://doi.org/10.1186/1478-7954-12-15.

Medical Council of New Zealand & Māuri Ora Associates (2008). *Best health outcomes for Māori: Practice implications*. https://www.mcnz.org.nz/assets/News-and-Publications/Statements/Best-health-outcomes-for-Māori.pdf.

Meier, R. H., Heckman, J. T. (2013). Principles of contemporary amputation rehabilitation in the United States. *Physical Medicine and Rehabilitation Clinics of North America*, 25(1), 29-33. http://dx.doi.org/10.1016/j.pmr.2013.09.004.

Ministry of Business, Innovation & Employment, (2022, July 12). *Immigration Rebalance – determining the green list and sector agreements.*

https://www.mbie.govt.nz/dmsdocument/22707-immigration-rebalance-determining-the-green-list-and-sector-agreements-proactiverelease-pdf.

Ministry of Health. (n.d). *Body Size*. https://www.health.govt.nz/our-work/populations/maori-health/tatau-kahukura-maori-health-statistics/nga-tauwehe-tupono-me-te-marumaru-risk-and-protective-factors/body-size.

Ministry of Health. (2003). *Community health, transitional and support services – allied health services (non inpatient) tier level two service specification.* Retrieved from https://nsfl.health.govt.nz/system/files/documents/specifications/t2alliedhealthservicesservicespecificationmarch2015.docx

Ministry of Health. (2007). *Diabetes Surveillance: Population-based estimates and projections for New Zealand, 2001-2011*. Retrieved April 18, 2018, from https://www.health.govt.nz/publication/diabetes-surveillance-population-based-estimates-and-projections-new-zealand-2001-2011

Ministry of Health. (2010). *He korero marama: Health Literacy and Māori. Results from the 2006 Adult Literacy and Life Skills Survey*. Retrieved April 18, 2018, from http://www.health.govt.nz/system/files/documents/publications/korero-marama.pdf

Ministry of Health (2013a). *Community Health, Transitional and Support Services, Allied Health Services - Podiatry for People with at Risk / High Risk Feet, tier three-service specification,* Nationwide Service Framework. Retrieved April 18, 2018, from https://www.google.co.nz/search?q=Community+Health%2C+Transitional+and+Support+Services%2C+Allied+Health+Services+-+Podiatry+for+People+with+at+Risk+%2F+High+Risk+Feet%2C+tier+three+service+specification%2C&rlz=1C1GGRV_enNZ765NZ765&oq=Community+Health%2C+Transitional+and+Support+Services%2C+Allied+Health+Services+-+Podiatry+for+People+with+at+Risk+%2F+High+Risk+Feet%2C+tier+three+service+specification%2C&aqs=chrome..69i57.1133j0j4&sourceid=chrome&ie=UTF-8

Ministry of Health. (2013b). *National Health IT Plan Update 2013/2014*. Retrieved April 19, 2018, from https://www.health.govt.nz/system/files/documents/publications/national-health-it-plan-update-2013-14-nov13.pdf

Ministry of Health. (2015a). *Tatau Kahukura: Māori health chart book, 3rd Eds, Ministry of Health.* Retrieved April 18, 2018, from https://www.health.govt.nz/system/files/documents/publications/tatau-kahukura-Māori-health-chart-book-3rd-edition-oct15.pdf

Ministry of Health. (2015b). *Living well with diabetes: A plan for people at high risk of or living with diabetes 2015-2020.* https://www.health.govt.nz/publication/living-well-diabetes

Ministry of Health. (2017a). *He Korowai Oranga*. Retrieved April 18, 2018, from https://www.health.govt.nz/our-work/populations/Māori-health/he-korowai-oranga

Ministry of Health. (2017b). *Māori health models – Te Wheke*. https://www.health.govt.nz/our-work/populations/maori-health/maori-health-models/maori-health-models-te-wheke.

Ministry of Health. (2018). *Health Workforce Development Fund*. Retrieved August 13, from https://www.health.govt.nz/our-work/health-workforce/investment-and-purchasing/investing-new-zealands-future-health-workforce/health-workforce-development-fund.

Ministry of Health. (2020). *Core Performance Standards for Responsible Authorities: Consultation document*. https://www.health.govt.nz/system/files/documents/pages/core-performance-standards-responsible-authorities-consultation-document-april2020_1.pdf

Ministry of Health (2020b, November 25). *Health Workforce Funding Review Current State September 2020.* https://www.health.govt.nz/system/files/documents/pages/health_workforce_funding_review_-_current_state_final_25_nov.pdf.

Ministry of Health (2022). *Developing the future Ministry of Health: Our strategy and strategic intentions, 2022 to 2026.* https://www.health.govt.nz/publication/developing-future-ministry-health-our-strategy-and-strategic-intentions-2022-2026.

Ministry of Health (2022b). *Pharmac Review Panel. 2022. Pharmac Review: Final report: Executive summary*. https://www.health.govt.nz/system/files/documents/publications/pharmac-review-executive-summary.pdf.

Moewaka Barnes, H. (2009). *The evaluation hikoi: A Māori overview of programme evaluation*. Massey University (Te Ropu Whariki), Auckland, New Zealand. https://natlib-rimo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=NLNZ_ALMA11343518020002836&context=L&vid=NLNZ&search_scope=NLNZ&tab=catalogue&lang=en_US.

Moewaka Barnes, H., McCreanor, T. (2019). Colonisation, hauora and whenua in Aotearoa. *Journal of the Royal Society of New Zealand*, 49(supplement 1), 19-33, DOI: 10.1080/03036758.2019.1668439.

Moher, D.L. A., Tetzlaff, J., Altman, D. G. The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLOS Medicine*, 6(7), doi:10.1371/journal.pmed1000097.

Moorfield, J. C. (2001). *Te aka: Māori-English, English-Māori dicitionary and index*. Pearson.

Muflih, S., Abuhammad, S., Al-Azzam, S., Alzoubi, K. H., Muflih, M., & Karasneh, R. (2021). Online learning for undergraduate health professional education during COVID-19: Jordanian medical students' attitudes and perceptions. *Heliyon*, 7(9), e08031. https://doi.org/10.1016/j.heliyon.2021.e08031.

Munn, Z., Barker, T. H., Moola, S., Tufanaru, C., Stern, C., McArthur, A., Stephenson, M., & Aromataris, E. (2020). Methodological quality of case series studies: an introduction to the JBI critical appraisal tool. *JBI Evidence Synthesis*, 18(10), 2127-2133. https://doi.org/10.11124/JBISRIR-D-19-00099.

Naciri, A., Radid, M., Kharbach, A., Chemsi, G. (2021). E-learning in health professions education during the COVID-19 pandemic: a systematic review. *Journal of Educational Evaluation for Health Professionals*, 18, 27. https://doi.org/10.3352/jeehp.2021.18.27.

Naqshbandi, M. Harris, S. B., Esler, J. G., Antwi-Nsiah, F. (2008). Global complication rates of type 2 diabetes in Indigenous peoples: a comprehensive review. *Diabetes Research & Clinical Practice*, 82(1), 1-17. Doi: 10.1016/j.diabres.2008.07.017.

National Ethics Advisory Committee. (2019). *National Ethical Standards: Health and Disability Research and Quality Improvement.* https://neac.health.govt.nz/assets/Uploads/NEAC/publications/national-ethical-standards-health-disability-research-quality-improvement-2019.pdf.

National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. (2009). *Prevention and Treatment of Pressure Ulcers: Quick Reference Guide*. (2nd Ed.). Cambridge Media.

Nepe, T. M. (1991). Te toi huarewa tipuna: Kaupapa Maori, an educational intervention system. [Master’s thesis, University of Auckland]. http://hdl.handle.net/2292/3066

Neville, S., Wrapson, W., Savila, F., Napier, S., Paterson, J., Dewes, O., Soon, H. N. W., & Tautolo, E. S. (2022). Barriers to older Pacific peoples participation in the health-care system in Aotearoa New Zealand. *Journal of Primary Health Care*, 14(2), 124-129. https://doi.org/10.1071/HC21146.

New Zealand Legislation. (2000). *New Zealand Public Health and Disability Act 2000.* https://www.legislation.govt.nz/act/public/2000/0091/latest/DLM80051.html.

New Zealand Parliament. (2022, June 14). *Pae Ora (Healthy Futures) Act 2022 (2022/30).* https://www.parliament.nz/en/pb/bills-and-laws/bills-proposed-laws/document/BILL_116317/pae-ora-healthy-futures-bill.

New Zealand Society for the Study of Diabetes (2014). *Diabetes foot screening and risk stratification tool.* Retrieved April 18, from https://www.nzssd.org.nz/healthprofs/14%2007%20Primary%20diabetes%20foot%20screening%20and%20referral%20pathways.pdf.

New Zealand Society for the Study of Diabetes (2017). *Referral pathway for diabetes foot screening and assessment*. Retrieved April 18, 2018 from https://nzssd.org.nz/content/17_12_2_REFERRAL_PATHWAY_FOR_DIA.pdf

New Zealand Wound Care Society. (2022a). *The diabetic foot, Part 1*. [PowerPoint slides]. Zoom. https://mobilehealth.zoom.us/w/81280273871?tk=fnv0kmv0eGUKhvN0d3wR390ySEPoAPauaWK47V4Gmvc.DQMAAAAS7K6NzxZGbHE3b1lfWVRoQ0xIV3l0bnNpdTBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA&uuid=WN_t_4xVoAeTyWOLS-pv6UCYQ

New Zealand Wound Care Society. (2022b). Certificate Course in Wound Debridement online. https://www.nzwcs.org.nz/education/certificate-course-in-wound-debridement. Retrieved 15 December, 2022.

Ni Mhurchu, C., Rodgers, A., Pan, W. H, Gu, D. F., Woodward, M. (2004). Asia Pacific Cohort Studies Collaboration. Body mass index and cardiovascular disease in the Asia-Pacific Region: an overview of 33 cohorts involving 310 000 participants. *International Journal of Epidemiology*, 33(4):751-8. doi: 10.1093/ije/dyh163.

Oetzel, J., Scott, N., Hudson, M., Masters-Awatere, B., Rarere, M., Foote, J., Beaton, A., & Ehau, T. (2017, Sep 5). Implementation framework for chronic disease intervention effectiveness in Maori and other indigenous communities. *Globalization and Health*, 13(1), 69. https://doi.org/10.1186/s12992-017-0295-8.

Office of the Auditory-General. (2022). *Māori Perspectives on Public Accountability.* https://oag.parliament.nz/2022/maori-perspectives.

Opara, I. (2021, July 29). It’s Time to Decolonize the Decolonization Movement. Speaking of Medicine and Health. *PLOS Blogs*. https://speakingofmedicine.plos.org/2021/07/29/its-time-to-decolonize-the-decolonization-movement/

Papps, E., Ramsden, I. (1996). Cultural safety in Nursing: the New Zealand experience. *International Journal for Quality in Health Care*, 8(5), 491–497, https://doi.org/10.1093/intqhc/8.5.491.

Patout, C. A. Jr., Birke, J. A., Horswell, R., Williams, D., Cerise, F. P. (2000). Effectiveness of a comprehensive diabetes lower-extremity amputation prevention program in a predominantly low-income African-American population. *Diabetes Care*, 23(9), 1339-42. doi: 10.2337/diacare.23.9.1339.

Patton, M, Q. (1999). Enhancing the quality and credibility of qualitative analysis. Health Services Research, 34(5 Pt 2):1189-1208. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089059/?page=20.

Perrin, B. M., Gardner, M. J., Kennett, S. R., Cornelius, J. L., Fanning, M. J. (2012a) An organised approach to the podiatric care of people with diabetes in regional Australia. *Australian Health Review*, 36(1), 16-21. https://doi.org/10.1071/AH11010.

Perrin, B. M., Gardner, M. J., Kennett, S. R. (2012b). The foot-health of people with diabetes in a regional Australian population: a prospective clinical audit. *Journal of Foot and Ankle Research*, 5(6), 1-9. http://www.jfootankleres.com/content/5/1/6.

Pharmaceutical Benefits Advisory Committee. (2013). *Guidelines for preparing submissions to the Pharmaceutical Benefits Advisory Committee*. Canberra. https://pbac.pbs.gov.au/.

Pihama, L., Cram, F., Walker, S. (2002). Creating methodological space: A literature review of Kaupapa Māori research. *Canadian Journal of Native Education*, 26(1), 30-43.

Pihama, L., Smith, K., Taki, M., Lee, J. (2004). *A literature review on kaupapa Māori and Māori education pedagogy*. The International Research Institute for Māori and Indigenous Education. Retrieved from http://akoaotearoa.ac.nz/download/ng/file/group-996/n3979--literature-review-on-kaupapa-mori-and-mori-education-pedagogy.pdf

Pihama, L., Tiakiwai, S.-J., & Southey, K. (Eds.). (2015). *Kaupapa rangahau: A reader. A collection of readings from the Kaupapa Rangahau workshops series*. (2nd ed.). Hamilton, New Zealand: Te Kotahi Research Institute. Retrieved from https://hdl.handle.net/10289/11738.

Pihama, L. (2021). Kaupapa Māori within the academy. In H. Tomlins-Jahnke, Styres, S., Lilley, S. Zinga D (Eds.), *Indigenous Education: New directions in Theory and Practice.* (pp. 63-82).The University of Alberta Press.

Pipi, K., Cram, F., Hawke, R., Hawke, S., Huriwai, TM., Mataki, T., Milne, M., Morgan, K., Tuhaka, H., Tuuta, C. (2004). A research framework ethic for studying Maori and iwi provider sucess. *Social Policy Journal of New Zealand*, (23), 141-153.

Pitama, S., Robertson, P., Cram, F., Gillies, M., Huria, T., Dallas-Katoa, W. (2007). Meihana Model: A clinical assessment framework. *New Zealand Journal of Psychology*, 36(3).

Podiatrist Board of New Zealand. (2015). *Ethical Codes and Standards of Conduct*. https://www.podiatristsboard.org.nz/Portals/0/pod%20docs/Ethical%20Codes%20_%20Stds%20of%20Conduct.%20updated%2012.2.2015.pdf?ver=2016-03-02-023926-250.

Podiatrist Board of New Zealand. (2017). *Continuing Professional Development Recertificaqtioin Policy*. https://podiatristsboard.org.nz/wp-content/uploads/2020/11/PBNZ-CPD-Recertification-Policy.-Nov-2020.pdf.

Podiatrist Board of New Zealand. (2018). *Workforce Data Comparison*. https://www.podiatristsboard.org.nz/Portals/.

Podiatrist Board of New Zealand. (2019). *Principles & Stnadards for the Practice of Podiatry in New Zealand (PSPPNZ).* https://www.podiatristsboard.org.nz/Portals/0/PSPPNZ.%20Podiatrists%20Bd%20Principles%20and%20Stds%20for%20the%20Practice%20of%20Podiatry%20in%20NZ.%20April%202019..pdf?ver=2019-04-30-120537-580.

Podiatrist Board of New Zealand. (2021). *Podiatrists Board Annual Report: 1st April 2020 - 31 March 2021*. https://podiatristsboard.org.nz/wp-content/uploads/2021/11/PBNZ-AnnRpt-2021.pdf.

Podiatrist Board of New Zealand. (2022a, January 19). *Ministry of Health – PBNZ Core Performance Standards Review Report*. https://podiatristsboard.org.nz/wp-content/uploads/2022/05/Podiatrists-Board-RA-Review-Report-Final-Jan19_22.pdf

Podiatrist Board of New Zealand (2022b). *Podaitrist Board Annual Report: 1 April 2021-31 March 2022*. https://podiatristsboard.org.nz/wp-content/uploads/2022/12/PBNZ-AnnRpt-2022.final-doc.pdf.

Poitras, M-E. T., Vaillancourt, V., Canapé, A., Boudreault, A, Bacon, K., Hatcher, S. (2022). Culturally safe interventions in primary care for the management of chronic diseases of urban Indigenous People: a scoping review. *Family Medicine and Community Health*, 10, 1-11. doi:10.1136/ fmch-2022-001606.

Polaschek, N. (1998). Cultural safety: a new concept in nursing people of different ethnicities. *Journal of Advanced Nursing*, 27, 454-457. https://doi.org/10.1046/j.1365-2648.1998.00547.x

Porritt, K., Gomersall, J., Lockwood, C. (2014). Study selection and critical appraisal. *JBI Systematic Reviews*, 114(6), 47-52.

Pricewaterhouse Coopers. (2020). *The Economic and Social Cost of Type 2 Diabetes. https://healthierlives.co.nz/wp-content/uploads/Economic-and-Social-Cost-of-Type-2-Diabetes-FINAL-REPORT.pdf.*

Rae, N. Came, H., Baker, M., McCreanor, T. (2022). A Critical Analysis of the Pae Ora (Healthy Futures) Bill. *New Zealand Medical Journal*, 135(1551), 106-111.

Rainie, S. C., Rodrigeuez-Lonebear, D., Martinez, A. (2017). *Policy Brief Data Governance for Native Nation Rebuilding Version 2*. The University of Arizona, Native Nations Institute. https://nni.arizona.edu/publications/policy-brief-data-governance-native-nation-rebuilding.

Rameka, L, Paul-Burke, K. (2015). Traditional Maori ways of knowing, being, and doing, to re-frame our realities and transform our worlds. *JSTOR Counterpoints*, 500, 261-271.

Reid, P., & Robson, B. (2007). *Understanding Health Inequities.Hauora:Māori Standards of Health IV - A study of the years 2000-2005.* Te Rōpū Rangahau Hauora a Eru Pōmare.

Ratima, M., Wikaire, E. (2021). Te Hiringa Hauora Research Framework: *Health promotion research at the interface of mātauranga Māori and Western Science.* Te Hiringa Hauora.

Rātima, T. M., Smith, J. P., Macfarlane, A. H., Riki, N. M., Jones, K-L. (2022). Ngā hau e whā of Tāwhirimātea: Culturally repsonsive teaching and learning for the teriary sector. Canterbury Unviersity Press. https://hdl.handle.net/10092/102736.

Reid, P., Paine, S. J., Te Ao, B., Willing, E., Wyeth, E., Vaithianathan, R. (2018). Estimating the economic costs of ethnic health inequities: protocol for a prevalence-based cost-of-illness study in New Zealand (2003-2014). *BMJ Open*, 8(6), e020763. https://doi.org/10.1136/bmjopen-2017-020763.

Reti, S. R., Feldman, H.J., Safron, C. (2011). Online access and literacy in Maori new Zealanders with diabetes. *Journal of Primary Health Care*, 3(3), 190-191.

Rith-Najarian, S., Branchard, C., Beaulieu, O., Gohdes, D., Simonson, G., & Mazze, R. (1998). Reducing lower-extremity amputations due to diabetes: application of the staged diabetes management approach in a primary care setting. *Journal of Family Practice*, *47*(2), 127-133.

Roberts, J. H., Sanders, T., Mann, K., Wass, V. (2010). Institutional marginalisation and student resistance: barriers to learning about culture, race and ethnicity. *Advances in Health Sciences Education*, 15(4), 559-571. http://dx.doi.org.ezproxy.aut.ac.nz/10.1007/s10459-010-9218-7.

Robinson, T. E., Kenealy, T., Garrett, M., Bramley, D., Drury, P. L., & Elley, C. R. (2016). Ethnicity and risk of lower limb amputation in people with Type 2 diabetes: a prospective cohort study. *Diabetic Medicine*, 33(1), 55-61. https://doi.org/https://doi.org/10.1111/dme.12807.

Robson, B., Purdie, G., Cram, F., & Simmonds, S. (2007). Age standardisation - an indigenous standard? *Emerging Themes in Epidemiology*, 4, 3. https://doi.org/10.1186/1742-7622-4-3.

Rogers, S. (2004). Culling bad apples, blowing whistles and the Health Practitioners Competence Assurance Act 2003 (NZ). *Journal of Law and Medicine*, 12(1), 119-33.

Rollerston, A., Doughty, R., Poppe, K. (2016). Integration of kaupapa Māori concepts in health research: a way forward for Māori cardiovascular health? *Journal of Primary Health Care*, 8(1).

Rutherford, P. (2007). *Are clinical characteristics predictive of non-traumatic lower extremity amputation in a diabetic population* [Master's thesis, Eastern Institute of Technology]. http://repository.digitalnz.org/system/uploads/record/attachment/649/are_clinical_characteristics_predictive_of_non-traumatic_lower_extremity_amputation_in_a_diabetic_population.pdf.

Rutter, C. M., May, F. P., Coronanado, G. D., Pujol, T. A., Thomas, E. G. Caberros, I. (2022). Racism is a modifiable risk factor: Relationship among race, ethnicity and colorectal cancer outcomes. *Gastroenterology*, 162(4), 1053-1055. https://doi.org/10.1053/j.gastro.2021.12.251

Sabatier, P. A. (1986). Top-down and Bottom-up Approaches to Implementation Research: A Critical Analysis and Suggested Synthesis. *Journal of Public Policy*, 6(1), 21-48.

Sánchez-Ríos, J. P., García-Klepzig, J. L., Manu, C., Ahluwalia, R., Lűderman, C., Meloni, M., Lacopi, E., Rodriguez-Saenz De Buruaga, V., Bouillet, B., Vouillarmet, J., Lázaro-Martínez, J. L., Van Acker, K. (2019). Referral of patients with diabetic foot ulcers in four European countries: patient follow-up after first GP visit. *Journal of Wound Care*, 28(8). https://doi.org/10.12968/jowc.2019.28.Sup8.S4.

Savigny, H. W., know your limits: cultural sexism in academia, Gender and Education, 26:7, 794-809, doi: 10.1080/09540253.2014.970977.

Schaper, N. C., van Netten, J. J., Apelqvist, J., Bus, S. A., Hinchliffe, R. L., Lipsky, B. A. *IWGF Practical guidelines on the prevetnion and management of diabetic foot disease.* International Working Group on the Diabetic Foot. https://iwgdfguidelines.org/wp-content/uploads/2019/05/01-IWGDF-practical-guidelines-2019.pdf

Schernthaner, G. (2010). Diabetes and Cardiovascular Disease: Is intensive glucose control beneficial or deadly? Lessons from ACCORD, ADVANCE, VADT, UKPDS, PROactive, and NICE-SUGAR. *Wiener Medizinische Wochenschrift*, 160(1-2),8-19. doi: 10.1007/s10354-010-0748-7.

Scott, H. M., Scott, W. G. (1994). Critical leg ischaemia in New Zealand: economic cost of amputation versus intravenous iloprost. *Pharmacoeconomics*, 6(2):149-54. doi: 10.2165/00019053-199406020-00007.

Searle, A., Gale, L., Campbell, R., Wetherell, M., Dawe, K., Drake, N., Dayan, C., Tarlton, J., Miles, J., Vedhara, K. (2008). Reducing the burden of chronic wounds: prevention and management of the diabetic foot in the context of clinical guidelines. *Journal of Health Service Research & Policy*, 13(3), 82-91. Doi:10.1258/jhsrp.2008.008011.

SenGupta, S., Hopson, R., Thompson-Robinson, M. (2004). Cultural competence in evaluation: An overview. *New Directions for Evaluation*, 102. https://doi.org/10.1002/ev.112

Sentell, T. L., Hyeong, J.A., Miyamura, J., Juarez, D.T. (2015). Cost burden of potentially preventable hospitalizations for cardiovascular disease and diabetes for Asian Americans, Pacific Islanders, and Whites in Hawai'i. *Journal of Health Care for the Poor & Underserved*, 26 (2, Supplement), 63-82. http://dx.doi.org.ezproxy.aut.ac.nz/10.1353/hpu.2015.0068.

Smith, G. H., (1990) Taha Maori: Pakeha Capture. In J. Codd, R. Harker and R. Nash (eds.), *Political Issues in New Zealand Education*, Dunmore Press Ltd. (pp.183-197).

Smith, G. (1997). *The development of Kaupapa: theory and praxis.* Unpublished PhD thesis: Education Department, University of Auckland, Auckland, New Zealand.

Smith, L. T. (1996) *Kaupapa Maori Health Research. Hui Whakapiripiri – A Hui to Discuss Strategic Directions for Maori Health Research*, Hongoeka Marae, Wellington School of Medicine: Te Rangahau Hauora a Ery Pomare.

Smith, L. T. (1999). *Decolonising Methodologies: Research and Indigenous Peoples*. Zed Books. (p. 183).

Smith, G. (2003). *Kaupapa Maori Theory: Theorizing indigenous transformation of education & schooling*. [Paper Presentation]. Australian Association for Research in Education, Auckland, New Zealand. https://www.aare.edu.au/data/publications/2003/pih03342.pdf.

Smith, L. (2015). Kaupapa Māori research- Some Kaupapa Māori principles . In Pitama, L., S. Tiakiwai, & K. Southey (Eds.). *Kaupapa Rangahau A Reader: A Collection of Readings from the Kaupapa Maori Research Workshop Series* (pp. 46-52). Te Kotahi Research Institute.

Solomon, C., Van Rij, A. M., Barnett, R., Packer, S. G., & Lewis-Barnes, N. J. (1994). Amputations in the surgical budget. *New Zealand Medical Journal*, *107*(973), 70-80. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/8202289.

Sowman-Lund, S. (2021). *Letter on mātauranga Māori and science attracts more than 2000 signatories*. https://thespinoff.co.nz/politics/30-07-2021/live-updates-july-30-pay-talks-resume-as-nurses-reject-latest-offer/.

Stamper, K. (2019). *Why we confuse race and ethicity: a lexicographer's perspective*. Retrieved 3rd December, 2022 from https://consciousstyleguide.com/why-we-confuse-race-ethnicity-lexicographers-perspective/.

Statistics New Zealand (2021). *Te Kupenga*: 2018 (final). https://www.stats.govt.nz/information-releases/te-kupenga-2018-final-english/.

Statistics New Zealand (2022). *2018 Census QuickStats about Māori*.www.stats.govt.nz https://www.stats.govt.nz/tools/2018-census-ethnic-group-summaries/m%C4%81ori

Stewart, G. T. (2021). Defending science from what? *Educational Philosophy and Theory*, 1-4. https://doi.org/10.1080/00131857.2021.1966415.

Stoehr, F., Muller, L., Brady, A., Trilla, A., Mahringer-Kunz, A., Hahn, F., Duber, C., Becker, N., Worns, M. A., Chapiro, J., Hinrichs, J. B., Akata, D., Ellmann, S., Huisman, M., Koff, D., Brinkmann, S., Bamberg, F., Zimmermann, O., Traikova, N. I., Marquardt, J. U., Chang, D. H., Rengier, F., Auer, T. A., Emrich, T., Muehler, F., Schmidberger, H., Baessler, B., Dos Santos, D. P., & Kloeckner, R. (2021). How COVID-19 kick-started online learning in medical education-The DigiMed study. *PLOS One*, 16(9), e0257394. https://doi.org/10.1371/journal.pone.0257394.

Sumpio, B. E., Armstrong, D. G., Lavery, L.A., Andros, G. (2010). Society for Vascular Surgery; American Podiatric Medical Association. The role of interdisciplinary team approach in the management of the diabetic foot: a joint statement from the Society for Vascular Surgery and the American Podiatric Medical Association. *Journal of the American Podiatric Medical Association*, 100(4):309-311. doi: 10.7547/1000309. PMID: 20660885.

Taylor, E.V., Lalovic, A. & Thompson, S.C. (2019). Beyond enrolments: a systematic review exploring the factors affecting the retention of Aboriginal and Torres Strait Islander health students in the tertiary education system. *International Journal for Equity in Health*, 18, 136. https://doi.org/10.1186/s12939-019-1038-7.

Te Ahukaramū Charles Royal (2009). *Te Ngākau: He Wānanga i te Mātauranga*. 168, Learning Media.

Te Ara Paerangi. (2022, March). *A Tiriti-based Research, Science and Innonvaton System*. https://www.mbie.govt.nz.

Te Awakotuku, N. (1991). *He tikianga whakaaro Research ethics in the Maori community: A discussion paper.* Manatu Maori, Ministry of Maori Affairs.

Te Mana Raraunga (2017, April 10) *Te Mana Raraunga Māori Data Sovereignty Network.* https://www.temanararaunga.maori.nz/.

Te Puni Kökiri (2016, July). *The Whānau Ora Framework: Empowering whānau into the future*. https://www.tpk.govt.nz/en/nga-putea-me-nga-ratonga/whanau-ora/whanau-ora-kaupapa.

Te Puni Kokiri. (2022). *Whānau Ora Outcomes*. https://www.tpk.govt.nz/en/nga-putea-me-nga-ratonga/whanau-ora/whanau-ora-kaupapa.

Te Whatu Ora Health New Zealand Counties Manukau (2019, February 19). *Feet for Life clinic helps diabetic patients avoid amputation.* https://www.countiesmanukau.health.nz/news/feet-for-life-clinic-helps-diabetic-patients-avoid-amputation/.

Te Whatu Ora Health New Zealand. (2021). *Virtual Diabetes Register and web tool.* https://www.tewhatuora.govt.nz/our-health-system/data-and-statistics/virtual-diabetes-tool/.

Thomas, D.R. (2006). A general inductive approach for analysing qualitative evaluation data. *American Journal of Evaluation, 27*, 237-246. https://doi.org/10.1177/1098214005283748.

Thorne, S., Kirkham, S.R., O'Flynn-Magee K. (2004). The analytic challenge in Interpretive Description. *International Journal of Qualitative Methods*, 3,1, 1-11.

Thorne, S., Sandelowski, M. (2016). *Interpretive Description: Qualitative research for Applied Practice*. (2nd Ed.). Routledge.

Tomlins-Jahnke, H., Styres, S., Lilley, S. Zinga D. (2019). *Indigenous Education, New Directions in Theory and practice.* (p. 64). University of Alberta Press.

Treharne G.J., Richardson, A.C., Neha, T., Fanning, N., Janes, R., Hudson, B., Judd, A., Pitama, S., Stamp, L.K. (2018). Education Preferences of People with Gout: Exploring Differences between Indigenous and Nonindigenous Peoples from Rural and Urban Locations. *Arthritis Care Research (Hoboken)*, 70(2):260-267.

Tufanaru, C., Munn, Z., Aromataris, E. C., Campbell, J. M., Hopp, L. (2020). *Systematic reviews of effectiveness*, (Eds.). JBI Reviewer's Manual. DOI: 10.46658/JBIRM-17-03.

Tulley, S., Foster, A., van Putten, M., Urbancic-Rovan, V., Bakker, K. (2009). Diabetic foot care training in developing countries: Addressing the skills shortage. *Wounds International*, 12, 14-22.

Tsouros, A. D., Dowding, G., Thompson, J., Dooris, M. (1998). *Health promoting universities : concept, experience and framework for action*, (Eds). Agis D. Tsouros Retrieved from https://policycommons.net/artifacts/564105/health-promoting-universities/1542216/.

Unitied Nations General Assembly. United Nations Declaration on the Rights of Indigenous Peoples: resolution / adopted by the General Assembly, 2 October 2007, A/RES/61/295. Available from: https://www.refworld.org/docid/471355a82.html.

van Netten, J. J., Woodburn, J., Bus, S. A. (2020). The future for diabetic foot ulcer prevention: A paradigm shift from stratified healthcare towards personalized medicine. *Diabetes Metabolism Reserach and Reviews*, 36(S1). https://doi.org/10.1002/dmrr.3234.

Vass, A., & Adams, K. (2021). Educator perceptions on teaching Indigenous health: Racism, privilege and self-reflexivity. *Medicine and Education*, 55(2), 213-221. https://doi.org/10.1111/medu.14344.

Waitangi Tribunal. (2019). Hauora: Report on Stage One of the Health Services and Outcomes Kaupapa Inquiry (WAI 2575 Waitangi Tribunal Report). https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_152801817/Hauora%20W.pdf

Walker, J., Lovett, R., Kukutai, T., Jones, C., Henry, D. (2017). Indigenous health data and the path to healing. *The Lancet*, 390(4), 6-7.

Wanzer, D. L. (2021). What Is Evaluation?: Perspectives of How Evaluation Differs (or Not) From Research. *American Journal of Evaluation*, *42*(1), 28-46. https://doi.org/10.1177/1098214020920710.

Warbrick, I., Wilson, D., Boulton, A. (2016). Provider, father, and bro--Sedentary Māori men and their thoughts on physical activity. *International Journal for Equity in Health*, 4(15), 1-11. doi: 10.1186/s12939-016-0313-0.

Warbrick, I., H. Came., Dickson, A. (2019). The shame of fat shaming in public health: moving past racism to embrace indigenous solutions. *Public Health*, 176, 128-132. https://doi.org/10.1016/j.puhe.2018.08.013.

Welfare Expert Advisory Group. (2029). *Welfare system has failed to deliver for Māori.* https://www.weag.govt.nz/.

West, M., Chuter, V., Munteanu, S., & Hawke, F. (2017). Defining the gap: a systematic review of the difference in rates of diabetes-related foot complications in Aboriginal and Torres Strait Islander Australians and non-Indigenous Australians. *Journal of Foot and Ankle Research*, 10, 48. https://doi.org/10.1186/s13047-017-0230-5.

West, M., Sadler, S., Hawke, F., Munteanu, S. E., & Chuter, V. (2021). Effect of a culturally safe student placement on students' understanding of, and confidence with, providing culturally safe podiatry care. *Journal of Foot and Ankle Research*, 14(1), 9. https://doi.org/10.1186/s13047-021-00450-2.

Wikaire, E. I. (2015). *Data speaks: Predictors of success in tertiary education health study for Māori and Pacific students*. [Master’s thesis, Auckland University]. http://hdl.handle.net/2292/27046

Wilson, D., Mihahere-Hall, A., Sherwood, J. (2021). Using indigenous kaupapa M ori research methodology with constructivist grounded theory generating a theoretical explanation of indigenous womens. *Internationl Journal of Social Research Methodology*, 25(3), 379-394. https://doi.org/10.1080/13645579.2021.1897756.

Zambas, S. I., Dutch, S., & Gerrard, D. (2020, May 21). Factors influencing Maori student nurse retention and success: An integrative literature review. *Nurse Education Today*, 91, 104477. https://doi.org/10.1016/j.nedt.2020.104477.

APPENDICES

Appendix A: AUTEC Approval 20/10

AUT
TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology

D-88, Private Bag 92006, Auckland 1142, NZ

T: +64 9 921 9999 ext. 8316

E: ethics@aut.ac.nz

www.aut.ac.nz/researchethics

20 May 2020

Heather Came-Friar

Faculty of Health and Environmental Sciences

Dear Heather

Re Ethics Application: **20/10 Evaluation of podiatry services for Maori in Aotearoa**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 19 May 2023.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.

6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat

Auckland University of Technology Ethics Committee

Cc: belinda.ihaka@aut.ac.nz; Keith Rome

Appendix B: Timeline for Auckland Alert Levels and Research Implications

COVID-19 Timeline	**Alert Level**	**AUT/Tertiary Education Commission**	**Progress**
21st March, 2020	Level 2	*All research and related activities are allowed, provided public health control measures for TEOs are in place. This includes: Face-to-face research activities, including public events, personal interviews, and experiments involving human subjects.	
23rd March, 2020	Level 3	*All face-to-face research activities are not allowed, including public events, personal interviews, and experiments involving human subjects. These should be conducted remotely, where possible.	
25th March, 2020	Level 4	**We have ethical obligations as researchers to not place ourselves or our research participants and colleagues at risk. Because this is a difficult time for everybody the AUT Human Ethics Committee have made the decision to require all researchers (including postgraduate research candidates) to halt all data gathering which involves being near to people. This means any research techniques planned such as interviews, focus-groups, observations, and surveys which involve being in close proximity with people must be halted and deferred until further notice. Gathering and analysing data remotely or using secondary data (such as from databases) which is already approved under a formal AUTEC approval may continue. However, it is important that you consider the appropriateness of such data collection given the anxiety many people are feeling at present.	
27th April, 2020	Level 3		
13th May, 2020	Level 2		Research interrupted by COVID response by National Hauora Coalition, further request for research approval by National Hauora Coalition 19th May 2020 Research request form from National Hauora Coalition Thursday 21st May 2020. AUTEC application sent with request.

8th June, 2020	Level 1		
12th August, 2020	Level 3		
30th August, 2020	Level 2 (2.5)		
24th September, 2020	Level 2		
8th October, 2020	Level 1		Research application acknowledged by committee to be reviewed by subcommittee Wednesday 6th January 2021 Subcommittee seek further clarification Friday, 5th February, 2021
14th February, 2021	Level 3		
18th February, 2021	Level 2		
28th February, 2021	Level 3		
7th March, 2021	Level 2		
12th March, 2021	Level 1		Research Subcommittee advises conditional approval upon collaboration with their Executive research team, Thursday 1st April 2021 Meeting with Executive research team to review research aims and potential, May 12th, 2021 Meeting with research whanau June 2nd, 2021 Meeting with Mohio (IT) 24th June 2021 Focus group and electronic survey

			questions agreed 29th June 2021 AUTEC approval of electronic survey (Qualtrics) 15th July 2021(request final version to be sent) Research whanau catchup with Rachel Brown, Monday 2nd August 2021 confirm focus group locations, recruitment, facilitators Mohio request form for data approval sent 5th August 2021
17th August, 2021	Level 4	All face-to-face and lab-based research activities must stop (with the exception of activities supporting the government's response to COVID-19). Research meetings, workshops, conferences, etc. may continue online.	Thursday 26th August 2021 Mohio request for further data information Friday 27th August 2021 Qualtrics survey sent to AUTEC

Tertiary Education Organisation
Level 4 restrictions updated 26th August 2021
Level 2 & 3 restrictions updated 17th February 2021
Level 1 updated 17th November 2021

**AUT information from the Graduate Research Centre

Participants for this study lie within the "at-risk people" category as defined by the Tertiary Education Commission and are people at most risk of severe illness from COVID-19. The key determinant of COVID-19 becoming a severe illness is the existence of underlying medical conditions, especially if these conditions are not well controlled. Relevant conditions include serious respiratory disease, serious heart conditions, being over 70 years, or immunocompromised. No face-to-face contact with the focus groups can take place under Level 4 > level 2 restrictions.

Appendix C: Supervisor Agreement Form

FACULTY SUPERVISION AGREEMENT

This agreement is designed to be used by research students undertaking a 45/60/90/120/240/360 point research project, in their early discussion with their supervisors. Discussion of these issues will lay the foundations for a good working relationship. It is understood that different aspects may need to be renegotiated during the supervision process[4].

Student ID	0475131	**Name**	Belinda Ihaka
Programme	DHsc	**School/Dept.**	Taupua Waiora Centre for Māori Health Research
Research Project	Thesis	**Point value**	240
Commencement Date		**Expected Submission Date**	
Supervisors	**Primary** Heather Came-Friar	**Secondary** Keith Rome	
Research Title	Evaluation of Podiatry Services for Māori in Aotearoa		

ISSUES TO DISCUSS

- Timeframe - the enrolment duration of a 45/60 point practice project/practice research project/dissertation is usually **36 weeks (except the BHSc Hons standard pathway which is currently 16 weeks)**; the enrolment duration of a 90/120 thesis is **51 weeks** for full-time students and **2 x 51 weeks** for part-time students; the research timeframe of a 240 thesis (DHSc programme) is usually **2-3 years**; and the research timeframe of a 360 thesis (PhD programme) is usually **3-4 years** – for further details please refer to the **University Postgraduate Handbook**
- Understanding a 45/60/90/120/240/360 point research project and their differences
- Student/supervisor expectations of the supervision process
- Faculty/School expectations and resources
- Location - ☒ one of the Auckland based AUT campuses
  ☐ outside the wider Auckland area ☐ off-shore → **PGR25**

- External supervisor/advisor - ☒ Yes → **PGR22** ☐ No
- Ethics - ☒ Yes ☐ No

- Intellectual property rights
- Conflict of Interest - ☐ Yes ☒ No
- Clarification of practice project/practice research project/dissertation/thesis assessment
- Publishing from the research project - ☒ Yes → **Authorship Statement** ☐ No
- Time management, understanding leave of absence, extension and their differences
- Meetings and communication strategies

Schedule of Meetings

Date	Time	Place	Supervisor(s) Present With Student
14th March, 2019	1pm	North Campus	Keith Rome
14th May, 2019	10am	South Campus	Heather Came
28th May, 2019	8am	Skype	Keith, Heather

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[4] Whenever there is a change during the supervision process, please revisit this form and complete additional PGR forms if applicable and required.

30th May, 2019	2.45pm	Zoom	Oral presentation feedback; Belinda, Heather, Keith
17th June, 2019	TBA	Skype	Keith Rome; Heather

Schedule of proposed supervision meetings

Student	Belinda Ihaka	Signature	
Primary Supervisor	Heather Came-Friar	Signature	HCame-Friar
Secondary Supervisor	Professor Keith Rome	Signature	K. Rome
Additional Supervisor		Signature	
Mentor Supervisor		Signature	
Date	21st May, 2019		

Some Notes

AUT PG student handbook 2018 https://www.aut.ac.nz/being-a-student/starting-out/postgraduates/academic-information/postgraduate-handbook

A 360 point doctoral thesis is usually 60-80,000 to a max 100,000 excluding references.

Examples of completed doctorates https://aut.researchgateway.ac.nz/

Referencing we use APA 6th edition see http://library.aut.ac.nz/?a=275411
Andrew South from the library is our FHES librarian.
Note you can access some computer software such as Endnote free from AUT.

The student learning provides a plethora of academic support for postgraduate students one on one or through their courses https://www.aut.ac.nz/being-a-student/current-postgraduates/academic-information/academic-study-support-and-resources/postgraduate-seminars-and-workshops see also https://thesislink.aut.ac.nz/

Make sure you are on the mailing list for PG Express it holds lots of information about courses and resources for PG students.

AUTEC minds ethics https://www.aut.ac.nz/research/researchethics/forms and https://www.aut.ac.nz/research/researchethics/autec
There are drop in clinics held regularly around ethics and a dedicated Faculty contact person.

You might want to visit the Scholarship office http://www.aut.ac.nz/study-at-aut/fees-scholarships-and-finance/scholarships

If you find yourself in financial hardship there is small pockets of one-off funding to assist.

Here is the PG orientation guide which covers lots of the practicalities

All the relevant current PG forms are available at https://www.aut.ac.nz/being-a-student/current-postgraduates/academic-information/postgraduate-forms

This is the study guide for a Doctorate See https://dev.aut.ac.nz/__data/assets/pdf_file/0007/619720/PhD-Thesis-Guide-2018-July.pdf

There is a form for reimbursement of research expenses as a Doctoral student you will get $4000 once your PGR9 is approved. You need to provide receipts to secure this money and talk to Jing Boyd the administration manager.

Reimbursement of
PhD and Masters exp

Progress will be monitored formally and discussed via a progress report every April and October this is a PGR8 http://www.aut.ac.nz/being-a-student/current-postgraduates/academic-information/postgraduate-forms

Appendix D: National Hauora Coalition Research Request Form

Indicative Evaluation of Podiatry Services for Māori in Aotearoa

Introduction and Stakeholder Engagement

This work aims to determine the effectiveness of diabetes podiatry services in reducing lower limb amputation in Aotearoa. Kaupapa Māori evaluation will be used to evaluate the diabetes podiatry services delivered by Māori working within an organisation supporting Whānau ora concepts.

The findings from the evaluation will be used to:

1) Articulate the underlying philosophy of the National Hauora Coalition in who they are as Māori, their philosophy, and beliefs
2) Demonstrate to what extent the podiatry services meet the community needs, aspirations, and health outcomes for Māori through embracing indigenous health concepts.
3) Inform indigenous best practice for undergraduate and postgraduate podiatrists through legitimizing mātauranga Māori and hence normalizing tikanga practice.
4) Create a thesis for submission towards a higher degree (Doctor of Health Science).

Māori health providers delivering integrated services under the Whānau ora initiative do so for the overall health and wellbeing of their communities. The findings from this work can be used by National Hauora Coalition to report the effectiveness of integrating services to meet the needs of communities.

The following groups and individuals that will have interest in these findings:

1) The National Hauora Coalition and providers of Whānau Ora
2) Service providers – General practitioners', nurses, social workers, practice managers
3) Consumers of the diabetes podiatry services and their whānau
4) Diabetes podiatrists
5) Education providers
6) Policy makers

The study is to evaluate the effectiveness of the podiatry service to reduce lower limb amputations in Māori. The individuals and groups may be interested in how the podiatry service aligns with the National Hauora Coalition's approach to achieving positive health and social outcomes for the whānau; how Māori podiatrists, their patients and their whānau use tikanga practice to achieve positive outcomes; how the community disempowers deficit-based thinking; how Māori knowledge, values and processes are asserted to improve or create best indigenous practice.

Stakeholders will be invited to be part of the research whānau and will be involved in how participants will be recruited, how and where the data will be collected, and how the data will be presented. The research whānau will act as a governance group to ensure the connections between the research and researcher.

Table 1. Stakeholder Assessment and Engagement Plan

Stakeholder Name	**Interest or Perspective**	**Role in the Evaluation**
National Hauora Coalition – Research Whānau (5 – 6 people) e.g. kaumātua, CEO, general practitioners, practice managers, consumers	*Ensure the evaluation has meaningful outcomes for the organisation*	*Planning team, external reviewers*
Service providers – General practitioners', nurses, social workers, practice managers (10 people)	Participants	Focus group interviews
Consumers of the diabetes podiatry services and their whānau (10 people)	Participants	Focus group interviews
Māori podiatrists	Participants	*Online survey

*Due to the limited number of Māori podiatrists, a Kāranga will be sent out to existing networks using the same criteria for inclusion (must have provided podiatry services for a Māori Health Organisation).

Description of evaluation of diabetes podiatry services for Māori

Māori are at 65% greater risk of amputation compared to non-Māori, despite Māori ethnicity being a key priority for inclusion into funded podiatry services. Diabetes podiatry services have been operating under funding schemes for at least 10 years and have never been evaluated using effectiveness measures. There are no outcome data to support the effectiveness of the diabetes podiatry services in reducing lower limb amputations in Māori.

There is a need to evaluate *by Māori for Māori* diabetes services working under tikanga based practices and how these practices are effective in addressing amputation rates in Māori.

The inclusion criteria for the current study includes all community / whānau who are members of the National Hauora Coalition who identify as Māori and Māori podiatrists who are employed (current or past). Exclusion criteria includes people under the age of 18years.

The current study is in the planning stage, awaiting peer review (PGR9) and ethical approval (Mātauranga Māori Committee, AUTEC, and possibly HDEC).

I have funding allocated (as seen in budget below) but may require access to meeting rooms closest to a medical center that the National Hauora Coalition suggests as a rich source of sampling. I have access to classrooms at South and North campuses if necessary. I will need to access medical data relating to people who have accessed the podiatry service delivered by Māori podiatrists between 2013 – 2018 (see below):

Table 2. Quantitative data information

Service Data	**Demographic Data**
Number of patients with DM at location	Age
Number of patients referred to podiatrists	Sex
Number of patients referred to secondary podiatry services	Diabetes duration
Number of patients referred to other services (physiotherapy, orthotics, social services etc.)	Medications

Foot risk status	HbA1c (latest)
Did not attend appointments	Body Mass Index

I would like to meet with the research whānau at least every 3 months to receive feedback and advice regarding recruitment, data collection strategies, dissemination, and presentation of data. A timeline is outlined provided in a later section.

There will be two separate focus group meetings with semi-structured questions relating to the diabetes podiatry service. Timing for each group will be flexible to allow for whakawhanaungatanga / introductions. Quantitative data will be analyzed to demonstrate minimal data collection at the primary level. Demographic data will be gathered from consumers of the podiatry service to represent the community the diabetes podiatry service serves.

Evaluation Design

Stakeholder Needs

The findings could be used by the National Hauora Coalition to:

- Demonstrate how the diabetes podiatry service supports the members of the community
- Demonstrate how the diabetes podiatry service supports the goals of the National Hauora Coalition
- Highlight the effect of the diabetes podiatry service in meeting outputs and outcomes.

Key evaluation questions:

As there was no prior planning of evaluating the diabetes service in Aotearoa, the following questions require further development with the research whānau.

- How does the diabetes podiatry service 'fit' within the cultural values and beliefs of the organisation?
- How has the partnership between the diabetes podiatry service and the stakeholders been collaborative?
- How is the diabetes podiatry service able to navigate Māori to other health services?
- What can the diabetes podiatry service learn from a Whānau ora approach to health?
- What is the connection between the podiatry service and the community it serves?
- How does the podiatry service embed mātauranga Māori concepts into practice?

Data Collection Methods

Focus group interviews will be used to gather data about the diabetes podiatry service. Information about participation for this work can be advertised through email networks (Māori podiatrists), flyers in waiting rooms and word-of-mouth. Participants will need to sign a consent form which will advise them of their ability to withdraw from the study at any time. Quantitative data will need to be extracted by the data statistician at the National Hauora Coalition. This data will be unidentified aggregated data. The participants will check their own transcripts if kōrero is Te reo Māori, to ensure translation to Te reo Pakeha is a close fit. The research whānau will check the final analysis of data for sensitivity issues that may need to be presented differently.

The data collection instruments (semi-structured questions, type of quantitative data selected) will need further discussion with the research whānau. The process embraces kaupapa Māori principles.

Table 3. Evaluation Questions and Associated Data Collection Methods

Evaluation Question	***Data Collection Method***	***Source of Data***
What is the effectiveness of diabetes podiatry services delivered by Māori for Māori?	*Focus group interviews*	*Service Providers* *Consumers*
	Online Survey	*Podiatrists*
	Podiatry service data and patient demographics	*Patient management system*

Data Analysis and Interpretation

Analysis

The following are outputs and outcomes of the evaluation. These can be agreed upon by the research whānau:

Table 4. Outputs and Outcomes

Outputs	***Outcomes***
Delivered presentations to staff and stakeholders	Number of diabetes podiatry services offered
Supported knowledge transfer about foot risk status by the diabetes podiatry service	Number of people seen by diabetes podiatry service
Supported tikanga practice encouraged by the diabetes podiatry service to promote self-management of foot risk status	Retention of people using the diabetes podiatry services
Improved foot risk status during the time of the diabetes podiatry service	Risk level: Lower limb status Number of people referred to other services Number of people referred to secondary podiatry services

Use and Communication of Evaluation Findings

Programme evaluation is the collection of information about the 'value' of a programme. Evaluation can assist with reviewing the achievement of objectives and identify strategies to increase the likelihood of success. It can also help to ensure that a programme actually does what is intended; and answers the key question, "is this the best way of doing things" (as cited in Moewaka-Barnes, 2009, p. 9).

The findings can be used by the National Hauora Coalition to:

- Provide outcome data for funders.
- Demonstrate connections with the diabetes podiatry service and the community
- Plan for future services

Communication

The presentation of dissemination will be through various forms as agreed by the research whānau during various scheduled meetings. Written feedback will be provided to the participants, the research whānau and plans to disseminate these findings through Hui, newsletter, email, publications, and national/international conferences. The research process will create an opportunity to reach higher-level organisations and interest to generate change in policy and practice guidelines. All dissemination will include reference to the National Hauora Coalition and research whānau. Possible areas to publish include high quality peer-reviewed journals such as Diabetes Care, and Diabetes Clinical Research & Reviews, Health and Social Sciences and indigenous specific journals.

Evaluation Management

Evaluation Team

The primary researcher will essentially manage and implement the evaluation. As this is kaupapa Māori based research, tikanga principles will be followed:

1) Kāranga - Permission for the participants to be part of the evaluation process (informed consent and information pertaining to their role and expectations)
2) Mihimihi (including whakawhanaungatanga) – discussion / interview process
3) Hakari – connections / sharing

Although the primary researcher is Māori, *he iti mohio mō Te reo Māori*, and therefore guidance from the research whānau regarding the principles outlined above are necessary.

Table 5. Roles and Responsibilities of the Evaluation Team Members

Individual	***Title or Role***	***Responsibilities***
Belinda Ihaka	Primary Researcher	The principal researcher recognises first and foremost the collaboration between themselves, the stakeholders; research whānau and participants and acknowledges their support and guidance in this evaluation. AUT ethical principles for ethical conduct of the researcher also requires the researcher to acknowledge:

		Informed and voluntary consent; Respect for rights of privacy and confidentiality; Minimisation of risk; Truthfulness, including limitation of deception; Social and cultural sensitivity, including commitment to te Tiriti o Waitangi; Research adequacy; Avoidance of conflict of interest; Respect for vulnerability of some participants; Respect for property (including University property and intellectual property rights). *As this work is aimed toward a higher degree, it is important to note that the applicant for AUT ethical approval is Dr Heather Came.
Any member associated with the National Hauora Coalition	Research whānau	The research whānau are at the heart of this research as they are the connection between the community, the iwi provider and podiatrists who provide diabetes podiatry services. The research whānau will be made up of five to six people and consist of any members of the NHC (practice managers, policy makers, and kaumātua), to ensure the collective goal of the research is to benefit Māori, and aligned to Te Ara Tika framework.
Dr Heather Came Associate Professor Keith Rome	DHSc Supervisors	Ensure the following is in accordance with AUT guidelines for Doctoral students: Understand Intellectual property rights; Clarify any Conflict of Interest; Clarification of practice project/practice research project/dissertation/thesis assessment; Time management, understanding leave of absence, extension, and their differences; Provide assistance with the processes and procedures necessary in conducting a research project; Provide feedback relating to the research.

Data Collection Management

Table 2 identifies the type of data that will be collected from the National Hauroa Coalition. This data will report descriptively.

The kōrero from the two focus groups and online survey will be analyzed using an inductive approach which is used in evaluation to establish links between the research objectives and the findings.

The primary researcher will be responsible for conducting the focus group interviews; however the data analysis unit for the National Hauora Coalition will be responsible for extracting the quantitative data for the primary researcher to analyze and present.

Data Analysis Management and Interpretation

Data (recordings, transcripts) will be stored in isolation in the researcher's locked filing cabinet at AUT University (MH level 3). This will be separate to all other study information (consent forms) which will be stored at another site at AUT (AA level 1) according to AUTEC processes. As this is health related information, the data will be stored for at least 10 years. Consultation with the research whānau is required to plan for the final destruction of the information.

The research whānau is essential in this evaluation and act as a governance group who will also decide how the information will be presented. Regular meetings with the research whānau (at least every 3 months) are necessary. It is anticipated that the first meeting be face-to-face at a venue central to the whānau once they are confirmed. Further meetings be through Skype / Zoom; and subsequent communications through email. Table 6 outlines the reporting plan.

Table 6. Communication and Reporting Plan

Purpose of Communication	***Possible Formats***	***Timing/Dates***	***Notes***
Include in decision making about evaluation design/activities	*Face-to-face meetings; Skype; Zoom; email*	*Every 3 months*	
Inform about specific upcoming evaluation activities	*email*	*As necessary*	
Keep informed about progress of the evaluation	*email*	*As necessary*	
Present initial/interim findings	*email*	*Prior to write up July – Nov 2020*	
Present complete/final findings	*Face-to-face*	*Nov 2021*	
Document the evaluation and its findings	*Pdf, Word, soft-copy binding; Hui, Conference proceedings, publications.*	*From Nov 2021 onwards*	

Timeline

The table below demonstrates the anticipated timelines for the current work. There may be sequencing issues which may arise due to ethic committee timelines and recruitment for the work.

Table 7. Timeline for completion of activities

	Mar-June 2018	*July – Nov 2018*	*Mar – June 2019*	*July – Nov 2019*	*Mar – June 2020*	*July – Nov 2020*	*Mar – June 2021*	*July – Nov 2021*
Methodology		■	■	■				
Identification of research whānau			■	■				
Meetings with research whānau			■	■	■	■	■	■

DHSc Oral Presentation			🟧					
PGR9 approval			🟧					
Ethics Approval (AUTEC)				🟧				
Matauranga Māori Ethics Committee				🟧				
Locality approval				🟧				
Recruitment					🟧			
Data collection					🟧			
Data analysis						🟧		
Write up						🟧	🟧	🟧
Supervisor review, final edits							🟧	🟧

Evaluation Budget

The table below outlines the budget for this evaluation which is the responsibility of the researcher and will be sourced from post-graduate funding and external funding opportunities.

Table 8. Budget for current work

Resource	Cost	Funding
Printing and Photocopying (Participant information sheets, Consent forms)	$50	AUT postgraduate fees
Koha for meeting rooms (@$200 per hour x 3 hours)	$600	HRC/NZSSD
Koha (30 participants @$50pp)	$1500	HRC/NZSSD
Travel to locations	$50	AUT postgraduate fees
Refreshments at focus group locations	$150	HRC/NZSSD
Proofreading and editing services (@$45 per hour x 8 hours)	$360	AUT postgraduate fees
Thesis photocopying and binding (5 hard binding @$60)	$350	AUT postgraduate fees
Publication fees	$1500	HRC/NZSSD
Total	**$4560**	

Wrapping Up

- At the end of the evaluation, the research whānau and the National Hauora Coalition will be acknowledged in formal communications including publications (written and oral) and in educational materials.
- Consultation with the research whānau is required to plan for the final destruction of the information (consent forms, transcripts, audio recordings). These processes ensure that under Te Tiriti o Waitangi obligations, partnership, protection, and participation of Māori tikanga are respected and upheld

Appendix E: AUTEC Approval following e-Survey changes

AUT
TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

15 July 2021

Heather Came-Friar

Faculty of Health and Environmental Sciences

Dear Heather

Ethics Application: 20/10 Evaluation of podiatry services for Maori in Aotearoa

Thank you for submitting your application for ethical review. We are pleased to advise that a subcommittee of the Auckland University of Technology Ethics Committee (AUTEC) approved your application for an amendment on 14 July 2021, subject to the following condition:

1. Provision of the finalised survey questions in the formatting that participants will see.

Please provide us with a response to the point raised in this condition, indicating either how you have satisfied this point or are proposing an alternative approach. AUTEC also requires copies of any altered documents, such as Information Sheets, surveys etc. You are not required to resubmit the application form again. Any changes to responses in the form required by the committee in their conditions may be included in a supporting memorandum.

Please note that the Committee is always willing to discuss with applicants the points that have been made. There may be information that has not been made available to the Committee, or aspects of the research may not have been fully understood.

Once your response is received and confirmed as satisfying the subcommittee's point, you will be notified of the full approval of your ethics application. Full approval is not effective until the condition has been met. Data collection may not commence until full approval has been confirmed. If this condition is not met within six months, your application may be closed and a new application will be required if you wish to continue with this research.

To enable us to provide you with efficient service, we ask that you use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

We look forward to hearing from you,

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat

Auckland University of Technology Ethics Committee

Cc: belinda.ihaka@aut.ac.nz; keith.rome@outlook.com

Appendix F: Information Form

Participant Information Sheet

Date Information Sheet Produced:

3rd March 2022

Project Title

Evaluation of Podiatry Services for Māori in Aotearoa.

An Invitation / Kāranga

Ko Tawhitirahi te maunga, Ko Te Awapoka te awa, Ko Parengarenga te moana, Ko Te Aupōuri tōku iwi, Nō Te Kao ahau, Ko Belinda Ihaka tōku ingoa, Nō reira, tēnā koutou!

Kia ora, name is Belinda Ihaka. I am a registered Māori podiatrist from Te Aupōuri, and I work as a lecturer at AUT University in Auckland. I have a particular interest in diabetes, and have been involved in improving podiatry services for people with diabetes in Aotearoa for many years. I am particularly interested in how effective diabetes podiatry services are for Māori.

I would like to offer you an invitation to participate in this research, which will contribute towards attaining a higher degree (Doctor of Health Science). There has not been any evaluation of diabetes podiatry services, and this work can assist with reviewing the strengths of these services to improve health outcomes for Māori. Your participation in this research is entirely voluntary and you will be part of a focus group formed to evaluate these services. If you choose to withdraw from the study, or not to participate, you will not be disadvantaged in any way.

What is the purpose of this research?

This work seeks to use Kaupapa Māori evaluation to evaluate the diabetes podiatry services delivered by Māori working within an organisation supporting Whānau Ora concepts.

How was I identified and why am I being invited to participate in this research?

You are invited to participate in this research because you have received diabetes podiatry services; or you are a service provider who has worked with diabetes podiatry services. To be included in this research, we seek Māori who are employed by the National Hauora Coalition or if you are Māori and use diabetes podiatry services offered by the National Hauora Coalition (whānau are also included). We will exclude people under the age of 20 years; or people who have previously been managed by myself as a podiatrist; and people who do not identify as Māori.

How do I agree to participate in this research?

You can agree to be part of this research by completing the Written Consent Form attached. Once you have provided written consent, a videoconference form will be sent to you with details of when the focus group will take place, how to access it and an agenda. You will be asked when you join the videoconference to provide verbal consent which will be recorded. Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allow it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

What will happen in this research?

You will be included in one of two online focus groups. One focus group will be made up of people who are service providers; and one focus group will be made up of people who use diabetes podiatry services. Each online focus group will be conducted online via videoconferencing using Zoom. Each group will have up to 10 people. The focus groups will be coordinated by a facilitator and myself. The facilitator will sign a confidentiality agreement prior to the start of the study and will ask questions about the diabetes podiatry service. The information will be recorded so that it can be transcribed to describe general themes. The questions will be semi-structured, and I will be taking notes to generate new questions that may arise from our kōrero. As soon as this has been recorded, your participation in this study is complete

What are the discomforts and risks?

This research is intended to be strengths-based to celebrate mātauranga Māori.

How will these discomforts and risks be alleviated?

You do not need to answer any questions if you feel uncomfortable.

What are the benefits?

Benefits to the participants and the wider community:

- Celebrates the Whānau Ora approach to achieving positive health outcomes for Māori;
- Normalizes tikanga practices and mātauranga Māori;
- Disempowers deficit-based thinking to create space for best indigenous practice.

How will my privacy be protected?

Any data gathered will be anonymised, but people will know who you are in the Zoom.

You will be assigned a numerical code, so that your privacy is protected. Your identity will remain confidential after the completion of the group meeting; this information is presented in the Consent form. Statements that you have contributed to during the group discussion can only be identified by the numerical code which will be made available in future publications.

What are the costs of participating in this research?

It is likely that our kōrero may exceed an hour, to allow time for whakawhanaungatanga.

What opportunity do I have to consider this invitation?

You have two weeks to consider this invitation.

Will I receive feedback on the results of this research?

A brief summary of the findings will be posted out to you if you have ticked YES on the box in the Consent Form.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Heather Came-Friar, hcame@aut.ac.nz, +64 9 921 7799.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz* , 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Belinda Anne Ihaka

+64 9 921 9015

+64 27 227 1281

bihaka@aut.ac.nz

Project Supervisor Contact Details:

Dr Heather Came-Friar

+64 9 921 7799

hcame@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on 20th May, 2020 AUTEC Reference number *20/10 Evaluation of podiatry services for Māori in Aotearoa*.

The image above belongs to Belinda Ihaka and represents her journey throughout this process.

Appendix G: Consent Form

AUT
TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

Consent Form

For use when focus groups are involved.

Project title: Evaluation of Podiatry Services for Māori in Aotearoa

Project Supervisor: ***Dr Heather Friar-Came and Adjunct Professor Keith Rome***

Researcher: ***Belinda Ihaka***

○ I have read and understood the information provided about this research project in the Information Sheet dated dd 21st February, 2022.

○ I have had an opportunity to ask questions and to have them answered.

○ I understand that identity of my fellow participants and our discussions in the focus group is confidential to the group and I agree to keep this information confidential.

○ I understand that notes will be taken during the focus group, that it will be recorded on zoom and that it will also be audio-taped and transcribed.

○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.

○ I understand that if I withdraw from the study then, while it may not be possible to destroy all records of the focus group discussion of which I was part, I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.

○ I agree to take part in this research.

○ I wish to receive a summary of the research findings (please tick one): Yes○ No○

Participant's signature:

....……………………………………………………………

Participant's name:

....……………………………………………………………

Participant's Contact Details:

………………………………………………………………………………………..

…………………………………………………………………………………………..

…………………………………………………………………………………………..

…………………………………………………………………………………………..

Date:

Approved by the Auckland University of Technology Ethics Committee on20th May, 2020 AUTEC Reference number 20/10 Evaluation of podiatry services for Māori in Aotearoa

Note: The Participant should retain a copy of this form.

Oral Consent Protocol

Project title: *20/10 Evaluation of podiatry services for Māori in Aotearoa*

Project Supervisor: *Dr Heather Came*

Researcher: *Belinda Ihaka*

The participant joins the videoconference

○ Do you agree to my recording your consent to participate?

If they agree, then the record function will be activated, and they will be asked the following:

○ Have you read and understood the information provided about this research project in the Information Sheet dated 21st February 2022?

○ Do you have any questions about the research?

○ Do you understand that notes will be taken during the interviews and that the interview will also be audio-recorded and transcribed?

○ Do you understand that taking part in this study is voluntary (your choice) and that you may withdraw from the study at any time without being disadvantaged in any way.?

○ Do you understand that if you withdraw from the study then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used? However, once the findings have been produced, removal of your data may not be possible.

○ Do you agree to take part in this research?

○ Do you wish to receive a summary of the research findings? (please tick one): Yes○ No○

○ Do you want me to send you a copy of the audio recording for this consent? Yes○ No○

○ Please confirm you name and contact details

Participants Name :

....……………………………………………………

Participants Contact Details (if appropriate) :

………………………………………………………………………………………..

………………………………………………………………………………………..

………………………………………………………………………………………..

………………………………………………………………………………………..

I will now turn off the recording of the Consent and then will start a separate recording for the interview.

Approved by the Auckland University of Technology Ethics Committee on 21st February 2022 AUTEC Reference number 20/10 Evaluation of podiatry services for Māori in Aotearoa.

Note: The Participant should retain a copy of this form.

Appendix H: AUTEC Oral Consent for Focus Groups

TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

7 March 2022

Heather Came-Friar
Faculty of Health and Environmental Sciences

Dear Heather

Re: Ethics Application: **20/10 Evaluation of podiatry services for Maori in Aotearoa**

Thank you for providing responses to the conditions for the amendment to your ethics application.

The amendment to the data collection protocol (now online focus groups) has been approved.

Non-Standard Conditions of Approval

1. Please remove Kate O'Connor's name from the concerns section of the Information Sheet. Just leave the title 'Executive Secretary'.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study.

Standard Conditions of Approval.

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.
8. AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted. When the research is undertaken outside New Zealand, you need to meet all ethical, legal, and locality obligations or requirements for those jurisdictions.

Please quote the application number and title on all future correspondence related to this project.

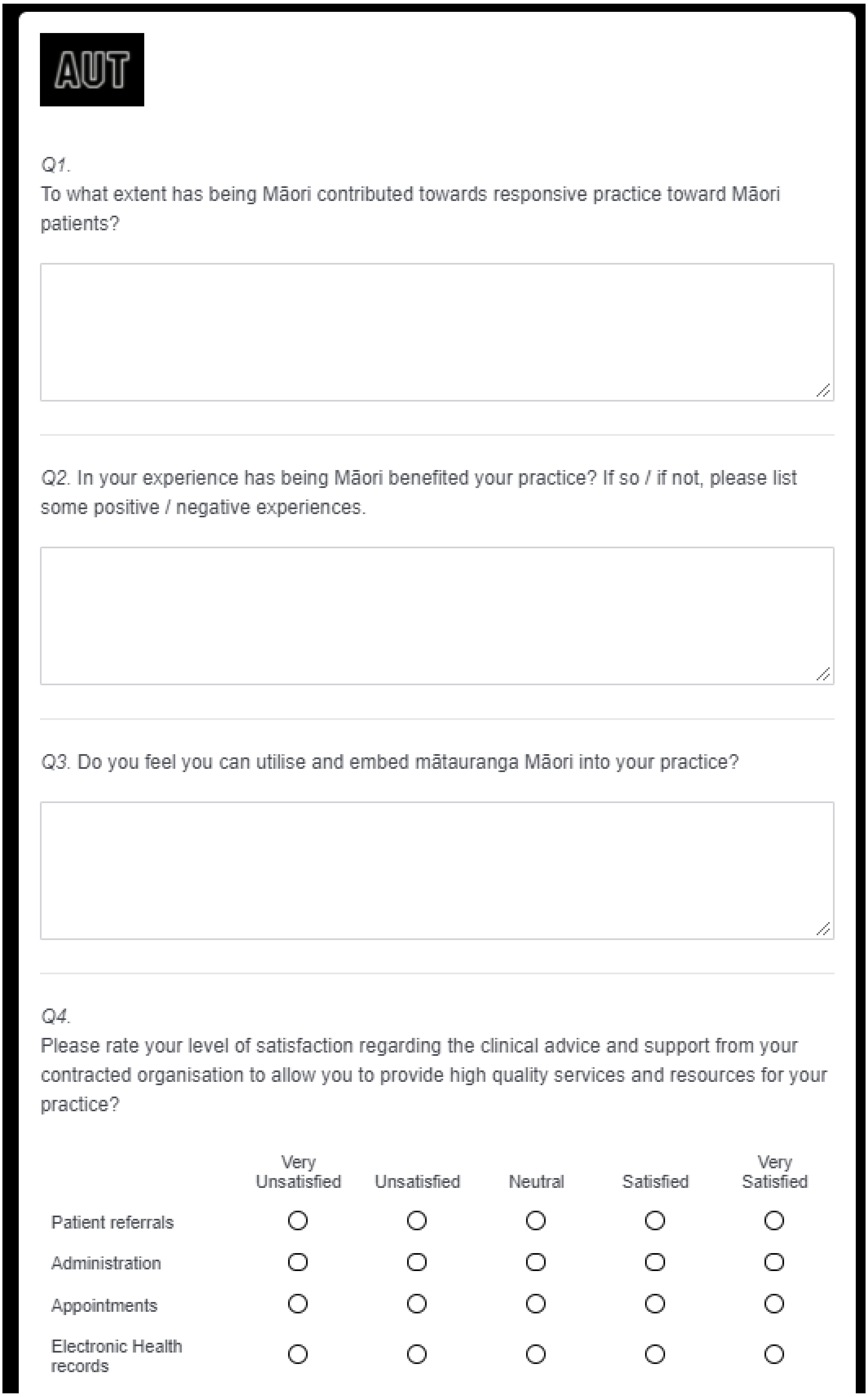
For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: belinda.ihaka@aut.ac.nz; keith.rome@outlook.com

Appendix I: Electronic Online Survey



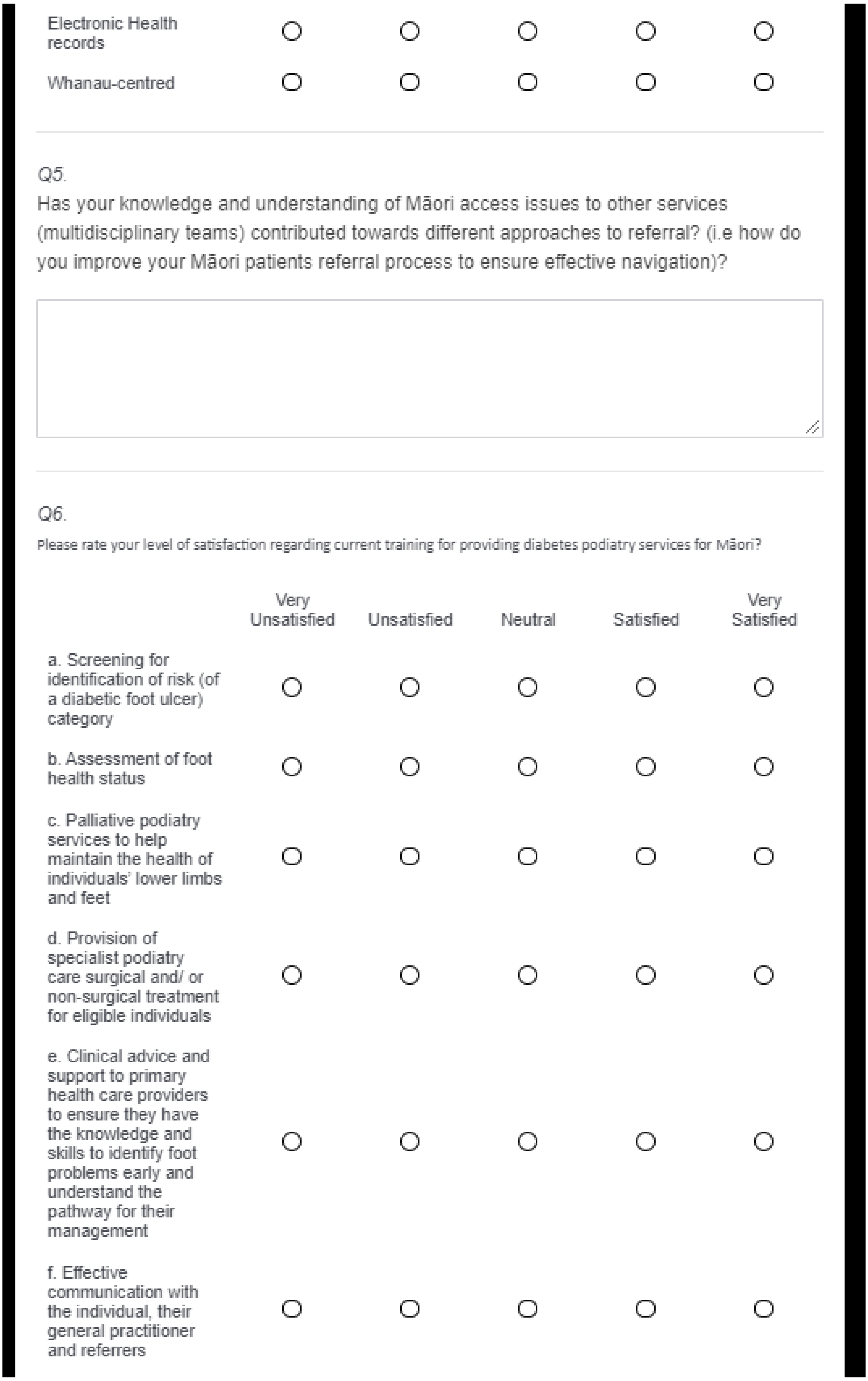
Q1.
To what extent has being Māori contributed towards responsive practice toward Māori patients?

Q2. In your experience has being Māori benefited your practice? If so / if not, please list some positive / negative experiences.

Q3. Do you feel you can utilise and embed mātauranga Māori into your practice?

Q4.
Please rate your level of satisfaction regarding the clinical advice and support from your contracted organisation to allow you to provide high quality services and resources for your practice?

	Very Unsatisfied	Unsatisfied	Neutral	Satisfied	Very Satisfied
Patient referrals	○	○	○	○	○
Administration	○	○	○	○	○
Appointments	○	○	○	○	○
Electronic Health records	○	○	○	○	○



Electronic Health records	○	○	○	○	○
Whanau-centred	○	○	○	○	○

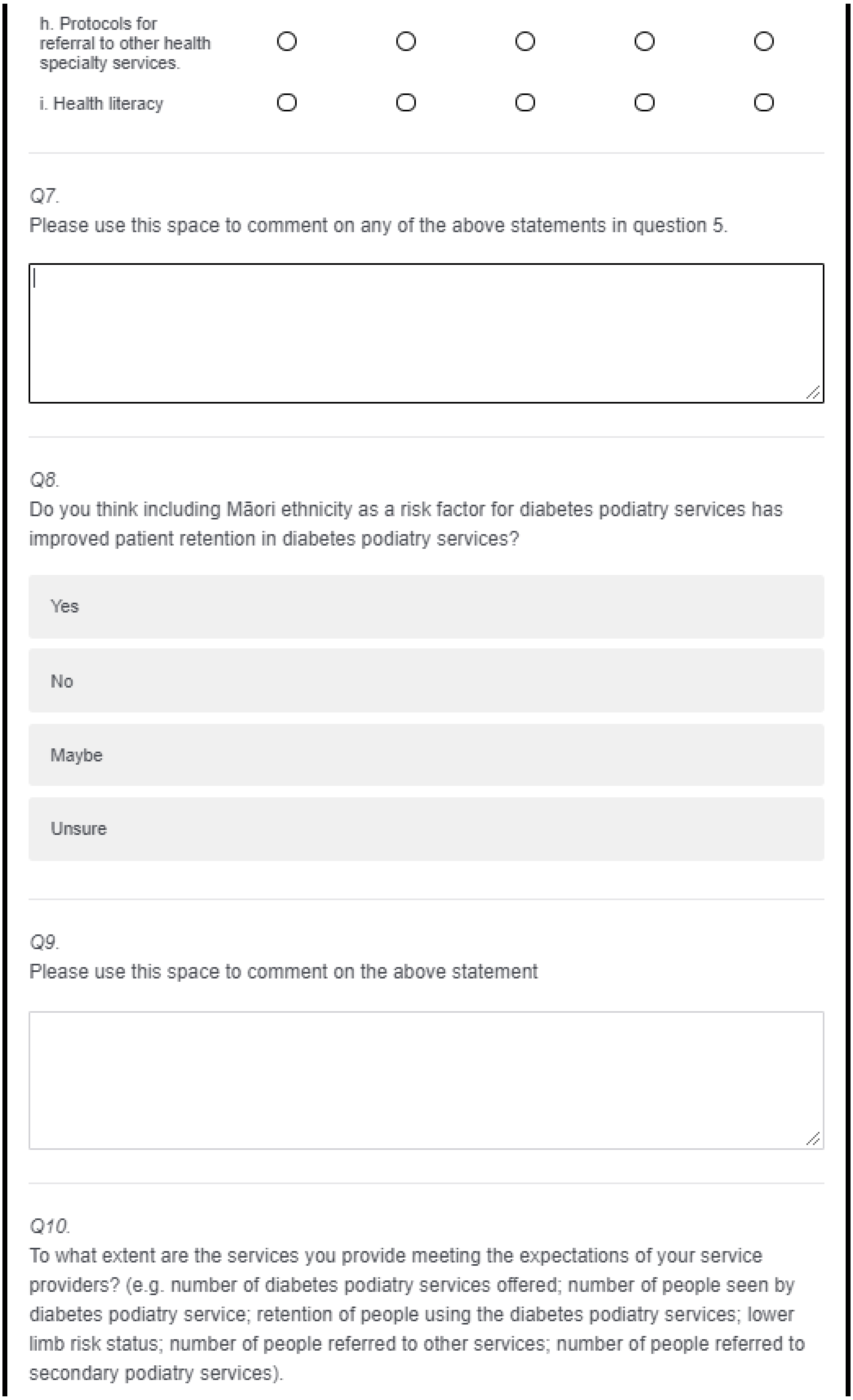
Q5.

Has your knowledge and understanding of Māori access issues to other services (multidisciplinary teams) contributed towards different approaches to referral? (i.e how do you improve your Māori patients referral process to ensure effective navigation)?

Q6.

Please rate your level of satisfaction regarding current training for providing diabetes podiatry services for Māori?

	Very Unsatisfied	Unsatisfied	Neutral	Satisfied	Very Satisfied
a. Screening for identification of risk (of a diabetic foot ulcer) category	○	○	○	○	○
b. Assessment of foot health status	○	○	○	○	○
c. Palliative podiatry services to help maintain the health of individuals' lower limbs and feet	○	○	○	○	○
d. Provision of specialist podiatry care surgical and/ or non-surgical treatment for eligible individuals	○	○	○	○	○
e. Clinical advice and support to primary health care providers to ensure they have the knowledge and skills to identify foot problems early and understand the pathway for their management	○	○	○	○	○
f. Effective communication with the individual, their general practitioner and referrers	○	○	○	○	○



h. Protocols for referral to other health specialty services.	○	○	○	○	○
i. Health literacy	○	○	○	○	○

Q7.

Please use this space to comment on any of the above statements in question 5.

Q8.

Do you think including Māori ethnicity as a risk factor for diabetes podiatry services has improved patient retention in diabetes podiatry services?

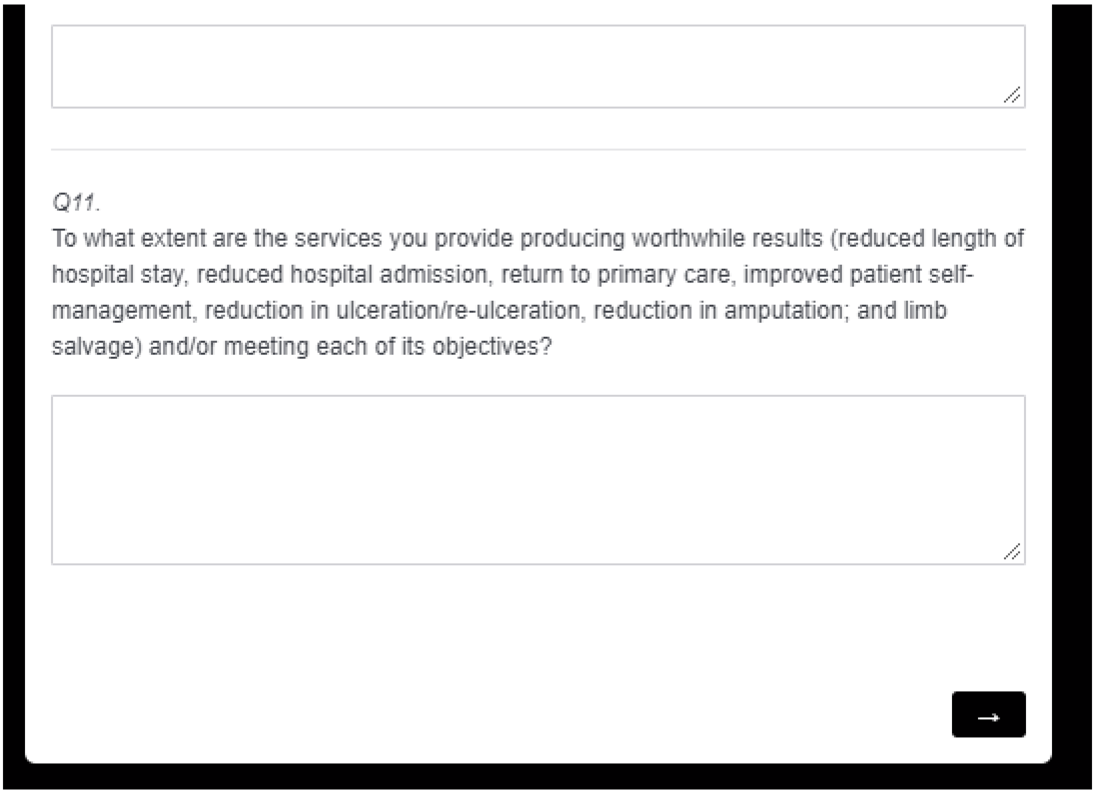
- Yes
- No
- Maybe
- Unsure

Q9.

Please use this space to comment on the above statement

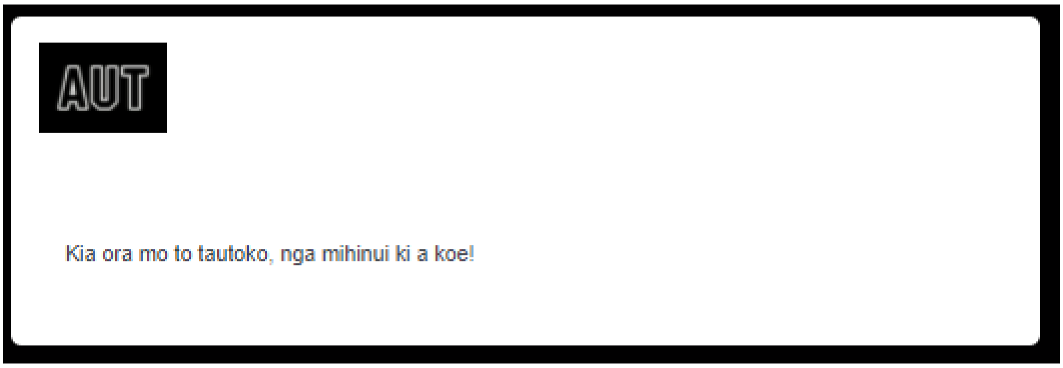
Q10.

To what extent are the services you provide meeting the expectations of your service providers? (e.g. number of diabetes podiatry services offered; number of people seen by diabetes podiatry service; retention of people using the diabetes podiatry services; lower limb risk status; number of people referred to other services; number of people referred to secondary podiatry services).



Q11.

To what extent are the services you provide producing worthwhile results (reduced length of hospital stay, reduced hospital admission, return to primary care, improved patient self-management, reduction in ulceration/re-ulceration, reduction in amputation; and limb salvage) and/or meeting each of its objectives?



Kia ora mo to tautoko, nga mihinui ki a koe!

Appendix J: Data Access Agreement Form

National Hauora Coalition Limited / Data Access Agreement **AUT/ BI – RR021**

National Hauora Coalition

Data Access Agreement TERMS AND CONDITIONS

Agreement number: BI_RR021

Applicant: Belinda Ihaka

Research Project: Evaluation of Podiatry Services

CONDITIONS OF AGREEMENT

THIS AGREEMENT is dated the 20 day September 2021

PARTIES

1. National Hauora Coalition Limited, located at AECOM House, Level 4, 8 Mahuhu Crescent, Auckland CBD, Auckland 1010

Postal Address: PO Box 104221, Lincoln North, Waitakere, Auckland 0654

2. Belinda Ihaka on behalf of Belinda Ihaka (applicant) Dr Heather Came-Friar; Adjunct Professor Keith Rome (Supervisors) and AUT

BACKGROUND

A. National Hauora Coalition Limited is a Primary Health Organisation ("NHC") offering Primary Health Care and Whānau Ora services to Māori and Non Māori high needs whānau throughout the North Island of New Zealand.

B. Belinda Ihaka, ("the Applicant"), is an established Researcher who has submitted as request to access NHC data for their Research Project ("Research Project") titled: Evaluation of Podiatry Services.

C. The NHC owns routinely collected data to fulfil our duties as a Primary Health Organisation ("NHC data"). NHC data includes personal and health information from individuals within their patient population and any information regarding NHC's organisational operations.

D. The NHC wishes to engage with the Applicant in a formal agreement that outlines the terms and conditions of data access, use, governance, storage and publishing.

E. The parties wish to record their agreement in writing.

1. About this agreement

1.1. This Agreement constitutes the entire Agreement between you and us for this Agreement's subject matter and supersedes all communications, negotiations, arrangements, and Agreements, whether oral or written, between you and us about the subject matter of this Agreement.

2. Interpretation

In this agreement;

2.1. "we", "us" and "our" means National Hauora Coalition;

2.2. “you” and “your” means the Applicant named in this agreement;

2.3. “both of us”, “each of us”, “either of us” and “neither of us” refers to the parties;

3. Description of the data

3.1. The following NHC data will be provided to the Applicant; anonymised data as per the data request form for the period 2013.1.1 to 2018.1.1, for Māori only:

- How many Māori with a diagnosis of DM (T1DM/T2DM) were enrolled in metro practice (only individuals enrolled with practices under Counties Manukau DHB and AKL DHB to be included)
    - Of this group, how many Māori were referred to a community podiatrist between 2014.11.25 – 2018.1.1 (In database the earliest podiatry related data dating back to 2014.11.25)

- Of this group, what was the age at the time of referral to a community podiatrist? (2014.11.25 – 2018.1.1, due to the earliest podiatry related data only dating back to 2014.11.25 in database)
- Of this group, what is the sex of the individual
- Of this group, what is the year of diagnosis (DM) by 2018.1.1 (average with standard deviation)
- Of this group, how many were prescribed any of the following medications (generic/brand name):
    - Metformin
    - Vildagliptin (Galvus®)
    - Vildagliptin + metformin (Galvumet®)
    - Empagliflozin (Jardiance®)
    - Empagliflozin + metformin (Jardiamet®)
    - Gliclazide (Glizide®)
    - Glipizide (Minidiab®)
    - Glibenclamide (Daonil®)
    - Acarbose (Glucobay®, Accarb®)
    - Insulin
- Of this group, what is the most recent (last 6 months by 2018.1.1) HbA1c (mmol/mol) (average with standard deviation). (HbA1c data between 2017.7.1 – 2017.12.31, only available for individuals who are enrolled with NHC during this period)
- Of this group, how many were referred to the hospital / secondary podiatrist (community podiatrist generated) (2014.11.25 – 2018.12.31, due to the earliest podiatry related data only dating back to 2014.11.25 in database)
- Of this group, how many were referred to other services (by the podiatrist) (2014.11.25 – 2018.12.31, due to the earliest podiatry related data only dating back to 2014.11.25 in database)
- Of this group, how many had: (2014.11.25 – 2018.1.1, due to the earliest podiatry related data only dating back to 2014.11.25 in database)
    - Low risk feet
    - Moderate risk feet
    - High risk feet
    - Active risk feet

  - Of this group, what is their latest Body mass Index (BMI) (within the last 3 years by 2018.12.31) (2015.1.1 – 2018.1.1, only available for individuals who are enrolled with NHC during this period)
  - Of this group, how many (who met the inclusion criteria) did not attend the podiatry appointments. (2014.11.25 – 2018.1.1, due to the earliest podiatry related data only dating back to 2014.11.25 in database)
  - Of this group, how many appointments / podiatry referrals were declined (did not meet podiatry inclusion) (2014.11.25 – 2018.1.1, due to the earliest podiatry related data only dating back to 2014.11.25 in database)

4. Purpose of data access

4.1. The Applicant wishes to access NHC data for the following purpose ("The Purpose"): to inform an evaluation of the effectiveness of diabetes podiatry services for Māori whānau, to determine the effectiveness of diabetes podiatry services in reducing lower limb amputation in Aotearoa. The purpose of the diabetes podiatry services evaluation is:

- To inform future approaches in diabetes podiatry management to include tikanga Māori in managing the lower limb of Māori; and
- To inform future planning of diabetes podiatry services that are centred on Whānau Ora

health practice.

5. Terms and Conditions

The Term of this Agreement is from 01 October 2021 to 31 October 2021 or upon completion of the Purpose, if later.

5.1. NHC Data access will not be granted until the appropriate ethical approval has been sought and approved (if applicable). Evidence of ethics approval must be provided to the NHC prior to data access being provided.

5.2. The Applicant must only use NHC Data for the Purpose and advise the NHC once the Purpose has been completed.

5.3. The Applicant must only provide access to NHC Data to internal members of the research team required to complete activities related to the Purpose.

5.4. The Applicant must not share NHC data with any persons external to the Research Project.

5.5. The Applicant must store all NHC data in a secure environment protected from access by any unauthorised person(s) and in compliance with the New Zealand Privacy Act 2020, Health Information Privacy Code 1994 and any other applicable New Zealand Legislation.

5.6. If the data accessed is associated with Māori, the NHC may assert Māori Data Governance

responsibilities if there are no culturally appropriate data governance structures in place for Māori.

5.7. Any written articles or publications (“Publications”) that are publicly available (including submissions to academic journals and technical reports) that incorporate or make reference to any NHC data must be submitted to NHC Rōpū Rangahau for review and approval at least 30 days prior to submission for publication.

5.8. The NHC Rōpū Rangahau reserves the right to make recommendations as to the form and content of any publications that incorporate or make reference to any NHC data. The Applicant may accept or decline recommendations made, however agreement must be made in writing between the Applicant and the NHC prior to publishing.

5.9. Publications must positively raise and promote the awareness and profile of the NHC.
Publications that

do not fulfil this criterion will not be granted approval from the NHC Rōpū Rangahau.

5.10. The Applicant must analyse, interpret, report and publish data in culturally appropriate and mana enhancing ways.

5.11. All publications should include suitably worded acknowledgment of National Hauora Coalition. Acknowledgments should include the following wording: *"We would like to acknowledge the National Hauora Coalition for their support and contribution to this research."*

5.12. All publicly facing presentations ("Presentations") that incorporate NHC data must include the NHC's Organisational Logo in (as a minimum) in the opening or closing Presentation slides.

5.13. NHC Data must be securely stored, managed and governed (this includes destruction of NHC data) in accordance with the latest National Ethical Standards for Health and Disability Research and Quality Improvement and any other applicable legislation.

5.14. NHC Data should be stored for a maximum of 10 years or the period granted from ethics approval, whichever is shorter. If your research requires holding the data beyond this period, please reapply for usage permission with the NHC Rōpū Rangahau and the relevant research or ethics bodies.

5.15. There may be associated costs for data extraction, cleaning and compounding carried out by the NHC. A formal Quote will be provided to the Applicant, which must be agreed in writing prior to data access being provided. The Applicant must provide payment within the timeframe stated in the subsequent Invoice.

6. Termination

6.1. In the event the Research Project places NHC in unintended reputational or contractual risk, the NHC will take the necessary steps to mitigate risk. This may include the immediate withdrawal of the NHC’s involvement with the Applicant, at any stage of the research process. The Applicant will be notified in writing in the event this occurs.

6.2. Upon giving or receiving a notice of termination, you must:

- Cease the performance of your obligations under this Agreement in accordance with the notice.
- Immediately do everything possible to mitigate all losses, arising from the termination contained in the notice.
- Remove reference to and destroy any NHC or Mōhio provided data as described by the termination notice.

6.3. We may immediately terminate this Agreement by notice to you if:

- You fail to fulfil or are in breach of any of your obligations under this Agreement.
- Another clause of this Agreement says we may terminate the Agreement under this clause.

7. Execution

Simon Royal

SIGNED for and on behalf of the
National Hauora Coalition Limited
by Simon Royal, Chief Executive

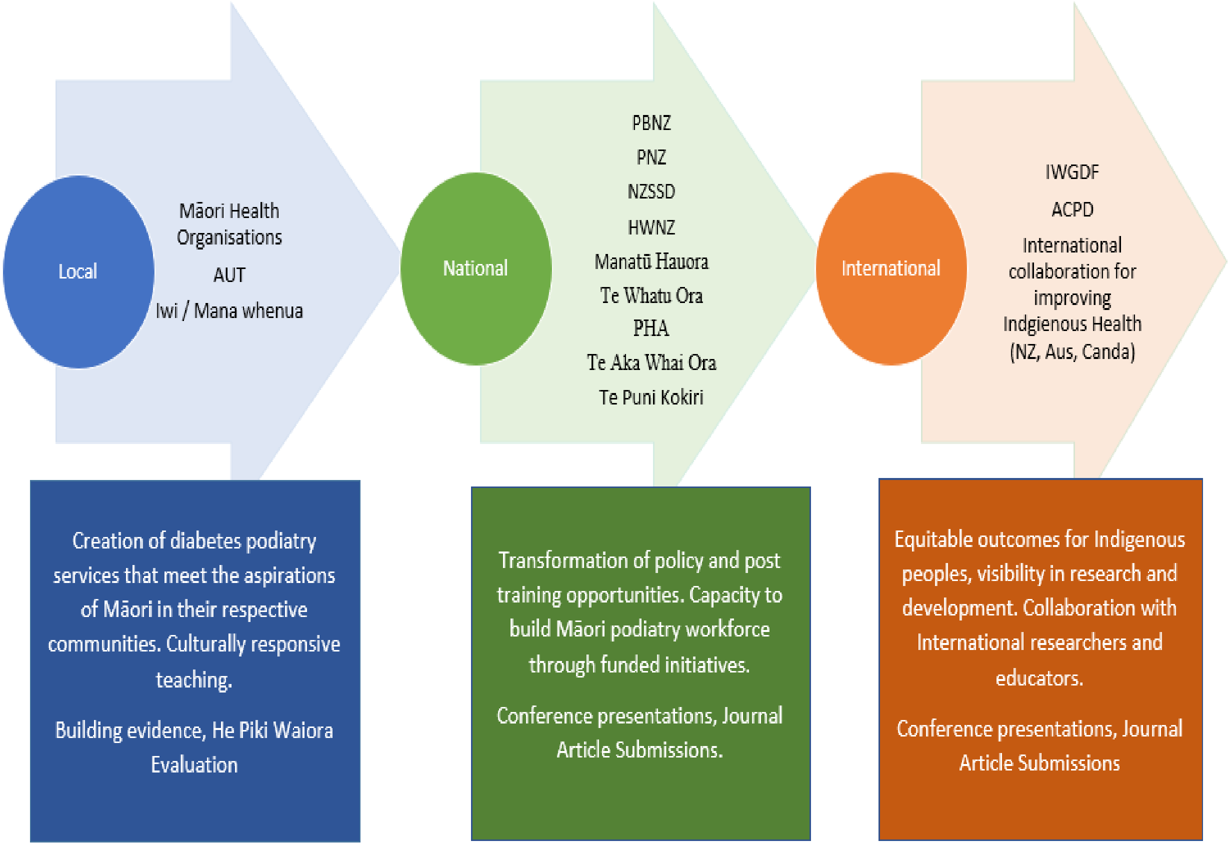
23/9/21
Date

Signed

SIGNED by	06/10/2021	
Belinda Ihaka, Lead Investigator, on behalf of the Research Project	Date	Signed

Evaluation of Podiatry Services

Appendix K: Dissemination Strategy



Local

Māori Health Organisations

AUT

Iwi / Mana whenua

National

PBNZ

PNZ

NZSSD

HWNZ

Manatū Hauora

Te Whatu Ora

PHA

Te Aka Whai Ora

Te Puni Kokiri

International

IWGDF

ACPD

International collaboration for improving Indgienous Health (NZ, Aus, Canda)

Creation of diabetes podiatry services that meet the aspirations of Māori in their respective communities. Culturally responsive teaching.

Building evidence, He Piki Waiora Evaluation

Transformation of policy and post training opportunities. Capacity to build Māori podiatry workforce through funded initiatives.

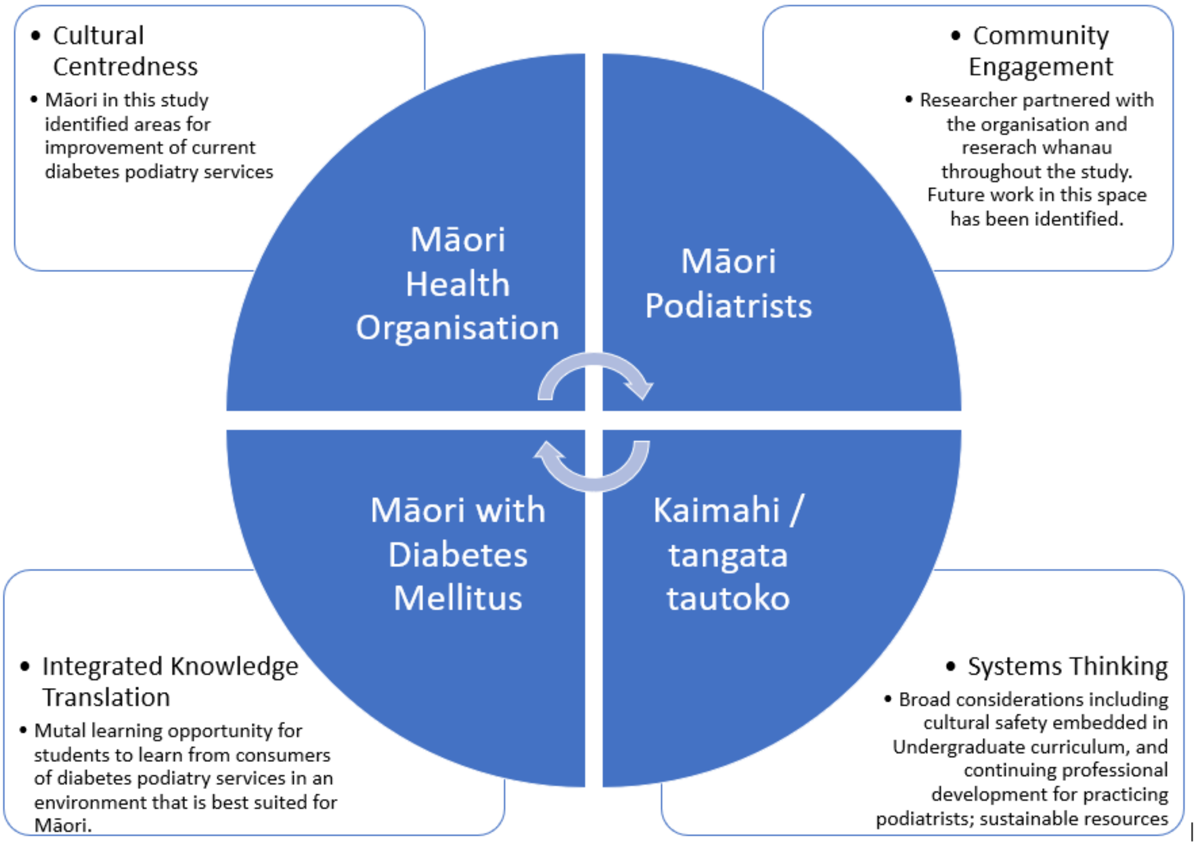
Conference presentations, Journal Article Submissions.

Equitable outcomes for Indigenous peoples, visibility in research and development. Collaboration with International researchers and educators.

Conference presentations, Journal Article Submissions

AUT, Auckland University of Technology; PBNZ, Podiatrist Board of New Zealand; PNZ, Podiatry New Zealand; NZSSD, New Zealand Society for the Study of Diabetes; HWNZ, Health Workforce New Zealand; PHA, Public Health Association; IWGDF, International Working Group on the Diabetic Foot; ACPD, Australasian Council of Podiatry Deans.

Appendix L: He Pikinga Waiora for Diabetes Podiatry Services



Appendix M: Invited Speaker Email

Sent: Friday, 16 September 2022 1:17 pm
To: Belinda Ihaka <belinda.ihaka@aut.ac.nz>
Cc: Rachel Brown <RachelB@nhc.maori.nz>
Subject: Support for student exposure to PHO

Kia ora Belinda,

Hope you are keeping well. We are going to be hosting the Hikitia te Ora (Certificate in Health Sciences, UoA) students in couple weeks time and as part of this we are hoping to show off what a PHO does in real-life (making the health system real, and provide some exposure to social determinants of health knowledge), and push students to reflect on their experience. We want to ensure students will be exposed to clinical and non-clinical roles and highlight the challenges of working in the health space, including why we need more Māori and Pacific in these roles and spaces.

We are going to be hosting the students at Otara Community Hall on September 30th and are wondering if you would like to support the day and either be a part of a panel (at 2pm) or support with a brief presentation (earlier in the day) about your amazing mahi?

I know this is a short-notice ask, and if you are interested, I can send a calendar invitation and placeholder, or can do a teams call or chat about the day more if you'd like more information,

Ngā mihi,

Melaney

National
Hauora Coalition
Supporting whānau to achieve hauora
Mana taurite, mana motuhake, mana whānau

Melaney Tkatch (she/her) | Research Implementation Lead, Service Delivery and Mōhio group

Please note: I work Monday, Thursday and Friday for Service Delivery and Tuesday/Wednesday for Mōhio and may be delayed in replying to your email outside of these days

Ph: +64 021 447 106

Tāmaki Makaurau: AECOM House | Level 4, 8 Māhuhu Crescent | Auckland 1010

Kirikiriroa: Level 4, 11 Garden Place | Hamilton 3204

www.nhc.maori.nz | Facebook | Twitter

The information in this e-mail is confidential and may be subject to legal privilege.

If you are not the intended recipient you must not read, use, or disseminate the information in this message. Please delete immediately.

Appendix N: Research Award

Kia ora Belinda,

On behalf of the School of Clinical Science Research Committee, I am pleased to advise that your summer studentship application with the project title “Cultural safety for Aotearoa New Zealand podiatrists: An indigenous Māori perspective” has been successful.

From here – we would like to make sure that a diverse range of student who self-identify as **Māori or Pasifika** have the opportunity to apply for these summer awards. As such, we will advertise the successful projects through a range of mechanisms including:

a. All the projects will be advertised via our AUT scholarships office between 3rd & 19th October 2022

b. We will invite Heads of Departments to distribute to relevant student cohorts if appropriate

c. You are welcome to advertise your project through whatever mechanisms are available to you

d. You may already have a student known to you that you would like to invite to apply

Students who are interested in applying for your project will be invited to make contact with you and to complete and submit the attached **Student Researcher Profile and Declaration Form.**
On the form, they will be invited to select one project they would like to be considered for. So, please make sure those students who are interested in applying have a copy the attached Student Researcher Profile and Declaration Form.

Student researchers must submit the **Student Researcher Profile and Declaration Form** by email to Julie Balloch at julie.balloch@aut.ac.nz by **1pm, 21 October**.

You will be forwarded all applications where a student has selected your project. You will then need to notify Julie by **1pm, 28 October** who your top three students are (in order of preference).
Julie will then contact the successful student/supervisor with the next step of instructions around SCH5 form completion and scholarships portal.

A reminder of the overall timeline is as follows:

~~Closing date for Project Leader applications~~	~~**1pm, Friday 09 September 2022**~~
Project Leaders notified of the decision	**Friday 30 Sept 2022**
Projects advertised to potential Student Researchers and Project Leaders meet with interested candidates and invite them to apply	**03 Oct – 19 Oct 2022**
Closing date for Student Researcher applications	**1pm, Friday 21 October 2022**
Project Leaders review Student Researcher applications and rank in order of preference	**1pm, Friday 28 October 2022**
Project Leaders notified of final student allocation	**Friday 04 November 2022**
Project Leader and Student Researcher complete the Student Research Profile and Declaration Form SCH5 form	**Friday 11 November 2022**
Evidence of unconditional Ethics approval for the proposed project due (where applicable)	**Friday 14 November 2022**
Award tenure - Full time research *(see point 4 below-TENURE)*	**Between 1 December 2022 and 24 February 2023**
Final report (Note: that the final stipend instalment is contingent on submission of this report. This is the final date for submission. However, you can submit sooner.)	**1pm, Friday 31 March 2023**

If you have any queries, please do not hesitate to contact me.

Congratulations and all the best for your project.

Ngā mihi

Julie

Julie Balloch
Postgraduate & Research Coordinator
School of Clinical Sciences
Auckland University of Technology
(My normal office hours are 7.30am-3.30pm)

P 09 921 9999 / Ext 7896 **E** julie.balloch@aut.ac.nz **W** aut.ac.nz

PG Forms/Resources: https://student.aut.ac.nz/postgraduate-research/pg-forms-policies-and-processes