

# Critical reflection for researcher–community partnership effectiveness: the He Pikinga Waiora process evaluation tool guiding the implementation of chronic condition interventions in Indigenous communities

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**Abstract.** Critically reflecting on researcher–community partnerships is a key component in implementing chronic condition interventions in Indigenous communities. This paper draws on the results and learnings from a process evaluation that measures how well two research–community partnerships have followed the He Pikinga Waiora (HPW) Implementation Framework while co-designing chronic condition interventions in primary care. The HPW framework is centred on Indigenous self-determination and knowledge surrounded by community engagement, cultural centredness, systems thinking and integrated knowledge translation. The evaluation included in-depth interviews and online surveys with 10 team members. The findings demonstrate that the HPW framework was followed well, with strengths particularly in community engagement and relationship building. Areas for improvement included systems thinking and integrated knowledge translation to support sustainability of the interventions. The need for partnerships to use process evaluation results to support critical reflection is asserted, which helps build strong trust and synergy, power sharing and effective and sustainable implementation practices. It is concluded that the HPW framework is well suited to evaluating implementation of health interventions in primary care as it assists in the facilitation of better collaboration between researchers and Indigenous communities, and encourages the implementation team to reflect on power and privilege.

**Additional keywords:** community health: planning, healthcare disparities, Indigenous health services, planning techniques.

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## Introduction

Health inequities for chronic, non-communicable diseases between Māori and non-Māori in New Zealand (NZ) are persistent and compelling (Harris *et al.* 2012; Ministry of Health 2013), consistent with inequities faced by Indigenous people in other countries (Anderson *et al.* 2016). For example, 7.2% of Māori have diabetes compared with 5.1% of Pākehā (NZ European) (Ministry of Health 2015). Further, Māori have a 1.8-fold greater health burden than non-Māori and a 9-year lower average life expectancy (Ministry of Health 2013). Racism, along with unjust distribution of social determinants of health, are root causes of these inequities (Harris *et al.* 2012; Harris *et al.* 2015). Additionally, the lack of commitment by the New Zealand Government towards its obligations under Te Tiriti o Waitangi (The Treaty of Waitangi) is a fundamental driver of the unequal

distribution of the determinants of health and inaction in the face of need (Harris *et al.* 2015).

Health service researchers and community health researchers advocate participatory research approaches (e.g. community-based participatory research, CBPR) as being critical for developing health interventions that improve health equity (Wallerstein *et al.* 2018). In fact, systematic reviews and meta-analyses demonstrate the positive effects of participatory health research on health outcomes and health equity (Cyril *et al.* 2015; O'Mara-Eves *et al.* 2015). Two key explanatory factors for the success of participatory approaches are: (i) the commitment to build trusting and synergistic partnerships; and (ii) the transformation of power hierarchies through a critical-reflective process (Khodyakov *et al.* 2011; Jagosh *et al.* 2015; Wallerstein *et al.* 2018). This critical-reflective process is grounded in the

**What is known about the topic?**

- Health inequities between Māori (Indigenous people of New Zealand) and non-Māori are well documented. There has been underwhelming progress on actions required to eliminate health inequities for Māori.

**What does this paper add?**

- Critical reflection is important for ensuring that a collaboratively developed intervention remains true to its principles and to ensure that the partnership meets its long-term goals for improved health equity.

emancipatory philosophy of Paulo Freire; specifically focusing on listening, dialogue and action in an iterative cycle of collective reflection moving towards social justice (Freire 1970). The process is designed to centre Indigenous knowledge and promote power sharing.

Despite the evidence and theories guiding participatory research, not all participatory health interventions address systemic health service issues or even engage with health service providers. To promote transformational improvements in health service delivery for Indigenous communities, the He Pikinga Waiora (HPW) project began in 2016 with the aim of identifying what makes health interventions work for Māori communities. The research team partnered with two community health providers to explore the roles of ‘participatory research’, ‘kaupapa Māori’ (Māori principles) and ‘matauranga Māori’ (Māori knowledge) in the development of sustainable and effective evidence-based interventions to slow the progress of pre-diabetes to diabetes among Māori. With this in mind, the HPW project leaders formed partnerships with two Māori community health organisations: Te Kōhao Health and Poutiri Trust.

The project team co-designed the He Pikinga Waiora Implementation Framework (HPW framework) to guide the successful implementation of evidence-based health interventions for Indigenous communities (Oetzel *et al.* 2017). The HPW framework’s intention is to apply a holistic and collaborative approach to health research; one that ‘embraces collaborative efforts among community, academic, and other stakeholders who gather and use research and data to build on the strengths and priorities of the community for multilevel strategies to improve health and social equity’ (Wallerstein *et al.* 2018; p. 3). The HPW framework has Indigenous self-determination at its core, and four elements that are essential to implementation: community engagement, cultural centredness, systems thinking and integrated knowledge translation (Oetzel *et al.* 2017). Community engagement includes the shared decision-making and communication responsibilities between academic and community members and researchers. Cultural centredness emphasises the involvement of community members in defining and solving problems along with sharing resources for transformation. Systems thinking reflects holism, and the complexity and interrelatedness among various stakeholders related to a health issue. Integrated knowledge translation involves the engagement of end-users (people

implementing or using an intervention) throughout the research process to ensure ‘buy-in’.

Thus, HPW operates on the premise that making health interventions work for Indigenous communities requires their involvement from the outset, and throughout all phases of the implementation process including: problem definition, design, implementation and evaluation. To test the efficacy of the HPW framework, the two community partnerships were entrusted with co-designing and implementing an intervention that primarily focuses on reducing the progression of pre-diabetes to diabetes along with other related conditions (e.g. obesity and cardiovascular disease). The specific aim of this current study is to describe and report on the process evaluation conducted during the development of the interventions, as part of the critical-reflection process.

A process evaluation was conducted between December 2017 and January 2018 to get a sense of how well the research–community partnerships were performing according to the framework and to also guide changes to further phases of the project. During the time of the evaluation, the two community partnerships were finalising the details of their interventions before implementing them at the end of March 2018 and throughout the following year. This study shares the results of the process evaluation and discusses the changes made as a part of the reflection process and within the context of the extant literature.

**Methods***Setting the scene*

Since launching the HPW project in 2016, a considerable amount of time and resources were vested in planning, but most importantly forging relationships between researchers and Māori communities, and within each group. These included: (i) identifying potential research and community partners; (ii) building and widening a collaborative network; and (iii) developing and formalising respectful relationships.

*Research design*

This study utilised a case study approach using mixed-methods data collection (Yin 2014). Case study methodology is an approach for understanding the holistic elements affecting the development of a health intervention and is frequently used for process evaluation in participatory research projects (e.g. Israel *et al.* 2013; Wallerstein *et al.* 2018).

*Evaluation tool*

The HPW framework forms the basis of the process evaluation tool (see Box 1), which measures how well the research partners (both community and academic) and the partnership as a whole are following the framework while in the process of developing and implementing an intervention. There are 22 items for community engagement, 22 for cultural centredness, seven for systems thinking, six for integrated knowledge translation and five open-ended interview questions. The items for community engagement and cultural centredness come from scales with established psychometric properties from a study of 2000 CBPR partnerships in the USA (Oetzel *et al.* 2015). Similarly, the open-ended questions were developed in the same project. The systems thinking items were developed for this study based on systems

**Box 1. He Pikinga Waiora Evaluation Tool****COMMUNITY ENGAGEMENT***Readiness to change*

- (1) We are committed to implementing the intervention.
- (2) We are determined to implement the intervention.
- (3) We are motivated to implement the intervention.

*Commitment to community engagement*

- (4) This project builds on resources and strengths in the community.
- (5) This project emphasises what is important to the community (culture, environmental and social factors) that affect wellbeing.
- (6) This project views community engagement as a long-term process and a long-term commitment.

*Trust*

- (7) I trust the decisions others make about issues that are important to our project.
- (8) I can rely on the people that I work with on this project.

*Influence*

- (9) People in this partnership have confidence in one another.
- (10) Suggestions I make within this partnership are seriously considered.
- (11) I have influence over decisions that this partnership makes.
- (12) I am able to influence the work on this project.
- (13) My involvement influences the partnership to be more responsive to the community.

*Partnership synergy*

- (14) We are able to develop goals that are widely understood and supported in this partnership.
- (15) We are able to recognise challenges and come up with good solutions.
- (16) We are able to respond to the needs and problems of your stakeholders or community as a whole.

*Shared control of resources*

- (17) Both community and academic partners hire personnel on the project.
- (18) Both community and academic partners decide how to share financial resources.
- (19) Both community and academic partners decide how to share in-kind resources.

**Items for Later Stages in the Partnership***Sustainability*

- (20) I am committed to sustaining our intervention.
- (21) This intervention is likely to continue forward after this funding is over.
- (22) In trying to sustain our partnership, we carefully evaluate funding opportunities to make sure they meet both community and academic partners' needs.

**CULTURAL CENTREDNESS***Community involvement/Agency in research*

- (1) Community partners are involved with background research.
- (2) Community partners are involved with choosing research methods.
- (3) Community partners are involved with interpreting study findings.
- (4) Community partners are involved with recruiting study participants.
- (5) Community partners are involved with implementing the intervention.
- (6) Community partners are involved with designing interview and/or survey questions.
- (7) Community partners are involved with writing reports and journal articles.
- (8) Community partners are involved with giving presentations at meetings and conferences.
- (9) Our partnership has discussions about our partnership's role in promoting strategies to address social and health equity.

*Reflexivity*

- (10) Our partnership evaluates together what we've done well and how we can improve our collaboration.
- (11) Our partnership reflects on issues of power and privilege within the partnership.
- (12) As a result of this project, community members have increased participation in the research process.

*(continued next page)*

**Box 1.** (continued)*Increased power*

- (13) As a result of my participation in this project, I can talk about the project in other settings such as a community or political meeting.
- (14) Community members can voice their opinions about research in front of researchers/clinical experts.
- (15) The partnership has diverse membership to work effectively towards its aims.

*Partnership capacity to create change*

- (16) The partnership has legitimacy and credibility to work effectively towards its aims.
- (17) The partnership has ability to bring people together for meetings and activities.
- (18) The partnership has connections to relevant stakeholders to work effectively towards its aims.
- (19) The project will likely result in policy or practice changes.
- (20) This project will likely improve the overall health status of individuals in the community.
- (21) This partnership will likely acquire additional resources to meet its aim.
- (22) This project will likely improve the overall environment in the community.

**SYSTEMS THINKING**

- (1) Participation in this project has helped you to recognise that there are many different points of view on pre-diabetes/diabetes and related conditions.
- (2) Participation in this project has helped you to gain a better idea about different influences on pre-diabetes/diabetes and related conditions.
- (3) Participation in this project has helped you to think more clearly about positive and possible changes.
- (4) Participation in this project has helped you to express your own 'cultural' viewpoint (i.e. as Māori, Pākehā, other ethnicity).
- (5) Participation in this project has helped you to see the complexity of the issues.
- (6) The intervention we are developing targets changes at multiple levels.
- (7) Participation in this project has helped you to see the complexity of the issues.

**INTEGRATED KNOWLEDGE TRANSLATION**

- (1) To what extent has the project involved the end knowledge users in the intervention and evaluation design?
- (2) To what extent are the knowledge users committed to considering application of the findings when they become available and is this application achievable in the particular practice, program and/or policy context?
- (3) To what extent will the project's findings be transferable to another practice, programs and/or policy contexts?
- (4) To what extent has the barriers and facilitators been considered for adoption in other contexts?
- (5) To what extent have the reasons needed for wider-scale adoption been considered?
- (6) To what extent have relevant stakeholders been included in the development of the intervention?

**Open-ended questions**

- (1) What do you think is working well in this project?
- (2) What do you think could be improved?
- (3) How well are we following the implementation framework in our work?
- (4) How well are the working relationships between the academics/researchers and the community?
- (5) How successful do you think this project will be?

thinking process evaluation by the Institute of Environmental Science and Research NZ. The integrated knowledge translation items were adapted from a guide developed by the Canadian Institutes for Health Research (CIHR) (2012). The process evaluation tool was developed through an iterative process with the research team, along with consultation with the HPW team's advisory board.

*Administration*

The evaluation tool was administered in two parts by a member of the HPW core evaluation team (lead author of this paper) who was not directly involved in either project. First, participants were sent an online survey asking them to rate how they felt about each statement (item) using a Likert scale ranging from 1 (not at all) to 6 (complete extent). Second, members were then invited to answer five open-ended questions via telephone, video conference or in person. The interviews were audio/video

recorded and then transcribed. The interview questions invited members to express their impressions about the project and to state specific examples that illustrated elements of the HPW framework.

*Participants*

The participants included 10 team members, five from each project (eight in-depth interviews and nine surveys). The entire partnership included 18 members; two researchers (one the evaluator-lead author) and six members of an advisory board, who were not directly involved in the research projects and were not interviewed/surveyed. Participants included eight Māori, seven women, four academic researchers, three community researchers and three members from affiliated community providers. The academic research team consisted of two researchers, one health and social practitioner and one public health physician. The community group consisted of three

community researchers, one medical doctor, one community social work manager and one primary health organisation manager.

### Data analysis

The analysis involved rating the performance of the partnership, identifying areas of disagreement in perceptions and comparing responses between researchers and community. In analysing the online survey data, we examined the mean, mode and level of variability at three levels: (i) individual items; (ii) sub-category level (average of items in each sub-category of community engagement and cultural centredness); and (iii) broad category level (average of items in each category of community engagement, cultural centredness, systems thinking and integrated knowledge translation). Scores in the >4–6 range indicate high performance on the item or category. Scores in the 3–4 range indicate room for improvement, while scores in the 1–2 range demonstrate problematic areas. We used standard deviation in determining the level of variability within each sub-category.

Interview responses were analysed using framework analysis (Gale et al. 2013). We used the major categories of the HPW framework to organise the analysis and then identified specific themes within these categories. We also noted any specific references to elements or sub-categories of the HPW framework that were cited to be critical to implementation along with the overall success of the project.

### Ethics approval

Ethics approval was granted by The Waikato Management School Ethics Committee, The University of Waikato. This research was undertaken with appropriate informed consent of participants.

## Results

### Alignment to HPW Framework

The first aspect of the results is how the process evaluation demonstrates alignment with the HPW framework. The results from the survey are summarised in Table 1, with interview data integrated within the text. Both the researchers and community groups unanimously agreed that the partnership is following the HPW framework with some specific areas for improvement.

Community engagement was consistently expressed by both partnership groups as a core strength. Members rated the six sub-categories as high ( $M = 5$ ; i.e. very great extent), and most had relatively little variability. The willingness and motivation to change, and commitment to engage were strongly evident in the interactions between academic researchers and community organisations. Several important qualities were raised by the community groups about the researchers, including willingness to learn, respect, good communication and accessibility:

Well, I think there's a number of things that work together well, and I think they work together well because of the people who are facilitating some of the conversation. The first bit was the doctor and yourself coming here hoping to hear how we can do this differently in this type of community. That was always good, a willingness and attitude to bring in a refreshing change has come off the back of new learnings for everyone. I think that principle has given us a platform to talk to each other well [Community social work manager].

The 'how's' more important. Anyone can do the 'what' but the 'how' is a lot more important. You guys have had a really easy approach to engagement – respectful, understanding and take criticism really well, or critiquing and criticism, you take it on board really well [Community researcher 1].

**Table 1. Results summary by sub-category and partnership group/total**

He Pikinga Waiora element	Sub-category	Community			Researchers			Total		
		Mode	Mean	Standard deviation	Mode	Mean	Standard deviation	Mode	Mean	Standard deviation
Community engagement	Readiness to change	5	5.3	0.7	4	4.8	0.9	6	5.1	0.8
	Community engagement	6	5.3	0.9	5	5.2	0.4	5	5.3	0.7
	Trust	3 and 5	4.3	1.1	5	5.2	0.4	5	4.6	1.0
	Influence	5	4.8	0.9	5	4.6	1.2	5	4.7	1.0
	Synergy	5	4.5	0.7	4	4.6	0.8	5	4.5	0.8
	Shared control	3	4.3	1.2	4, 5, and 6	5	0.8	5	4.5	1.1
Cultural centredness	Sustainability	4	4.4	1.1	5	4.9	0.7	4 and 5	4.6	1.0
	Agency	3 and 5	3.8	1.2	6	4.8	1.3	4	4.2	1.4
	Reflexivity	5	4.4	1.0	3 and 6	4.4	1.3	3 and 5	4.4	1.1
	Power sharing	5	4.3	1.0	5 and 6	5.3	0.7	5	4.7	1.0
	Partnership capacity	5	4.8	0.4	5	5.3	0.6	5	5.0	0.6
	Community transformation	5	4.2	1.1	5	4.7	0.6	5	4.4	0.9
Systems thinking	Systems thinking	5	4.3	1.1	5	5.3	0.6	5	4.7	1.0
Integrated knowledge translation	Knowledge translation	5	4.7	0.7	6	4.8	1.1	5	4.7	0.9

Members rated the partnership as performing at a medium level under most categories of cultural centredness. One community researcher stated that the power-sharing arrangement between the researchers and the community organisations were a key factor that made the relationship work really well:

I think that the balance between people in the community and then the academic research team has been really good. It's allowed the research and the development of the intervention to really flow because even though sometimes our focuses may be different, it's always driving towards the same goal. That's something that I've found really good and has worked really well [Community researcher 2].

However, power sharing and agency in research also had differences of at least a point on the Likert scale between the academic and community researchers. Overall, the academic researchers rated both of these sub-categories a point higher than the community researchers. Thus, even though interviews displayed positive regard for power sharing, there is room for improvement. In fact, some of the community members rated low (i.e. not at all/small extent) in the specific areas of choosing research methods, interpreting study findings, interview and survey design, and presenting at meetings and conferences.

The members rated the partnership as high in both systems thinking and integrated knowledge translation ( $M = 4.7$ ). The public health physician, who works closely with one of the community groups, was able to articulate 'how' both systems thinking and integrated knowledge translation are incorporated into the design of the intervention:

Systems thinking, systems perspective. We totally do that. We totally are high level systems . . . So, our intervention, includes multiple causes, so poverty, food insecurity, environmental, obesogenic environment, and also systems, what's in the health care system - so there's no strong screening and referral pathways for pre-diabetes. Also, at the individual level and the whānau [extended family] level, causes there, and solutions in all of those places. . . Well, I'd say the solutions, originally, we had the individual, the whānau and the community as our solution, but after kind of working it through with [them] we added another level which is the [health and social] system. We've got now like a four-pronged intervention. It's kind of big and messy, working in this multi-layered zone with multiple perspectives. That's what I was talking about before. It's so big and complex and you could easily get totally lost going down rabbit holes. That's why it's good to have a framework and really good project management, otherwise you'd get lost pretty easy. [Public health physician].

We also note that the community researchers rated systems thinking a point lower than the academic researchers. In a debriefing meeting about the process evaluation, this was explained because the community members perceived a lot of systems constraints in implementing an innovative intervention and making it sustainable. Further systems thinking and integrated knowledge translation issues are noted in the next section.

#### *Perspectives for the future and potential success*

Overall, all members felt that the HPW project would be successful/sustainable, but stressed that much of it is dependent

on the funding and political contexts, and 'how' the intervention is implemented. A community member focussed on the major challenge of getting the funders on side:

What is the measure of success? I think one of its major challenges is going to be successful in the eyes of the funder, and that's always a challenge at the best of times but particularly in this because I think some of the outcomes and some of the things that will be the most successful about it will be things that the funder may not see that way. I guess it depends on that. I think it is a challenge [Medical doctor].

One academic researcher felt that it was important to see the project sustain itself beyond the funding period as an indicator of success:

The question for me that I have is sustainability beyond this year. The funding will end and what's going to happen? I'm not sure how optimistic I am about changing the DHBs [District Health Boards] mind. That's my biggest uncertainty. It's that long-term change that I'm not sure about. Are we really going to make a difference in health equity? I think we can improve [health for] the people who participate. I don't have any doubt about that. It's how to make it beyond this next year, that's the one I'm a little cautious about. I guess I'm cautiously optimistic [Academic researcher 1].

A community researcher highlighted how volatile the political context can be and the potential effect that it can have on implementing an intervention and it being successful:

Well, there [are] too many factors because don't forget we're only at the infancy stage, we're crawling. I still think a critical factor is going to be general practice and this latest thing that's just happened with [the primary health organisation]. . . That's just a political environment, we can't control that [Community Researcher 1].

A primary health organisation manager believed that one of the proposed interventions was challenging because it required getting marginalised communities to participate in a lifestyle program and to also access services where they would normally feel shunned. However, she noted that the employment of a 'Kaiarahi' (Māori community champion) would be critical to linking communities with key services and hence, the intervention's success:

So, if you've got the right person in that role, I think that will be the success and I think that you've got that set up and you've got [our organisation] involved as well as a back-up in support of it, you know, I guess for me, all these steps are in place to make it successful. However, you're dealing with human people here that have been disenfranchised from their community and from help for a lot of them [Primary health organisation manager].

In summary, the participants in this study viewed that the future success of this project and the ability to make sustainable change would depend on convincing funders and responding to a changing political context.

### Critical reflection process

We shared the results of this process evaluation at project team meetings and had conversations to identify ways to improve our partnership. Some of the changes made include inviting community researchers to participate fully in survey design (e.g., health screening questionnaires), conference presentations, grant writing and funding applications. Further, we shifted resources and decision-making to the community groups for the implementation of the intervention. Finally, we increased systems thinking and integrated knowledge translation activities by specifically presenting a business case to potential funders to continue the projects beyond the research period.

### Discussion

The results show good alignment to the HPW framework (Oetzel *et al.* 2017), as members rated the partnership's overall performance as high, with a few areas for potential improvement. There were three sub-categories that had at least one point differences between community and academic researchers (with academic higher than community on all three): agency in research, power sharing and systems thinking. The major contribution of this study is to show the usefulness of the evaluation tool in relation to the HPW framework and offer key lessons learnt.

The first lesson learnt is that the performance ratings can be attributed to the groundwork and time needed to build relationships of trust. By the time of the process evaluation, the HPW project was in full operational mode having: secured funding, established a framework and formed strong relationships. These processes and outcomes required building and maintaining trust; an important aspect in strengthening partnership synergy and sustainability (Khodyakov *et al.* 2011; Jagosh *et al.* 2015; Oetzel *et al.* 2018). Further, trust requires active management throughout the course of a partnership, as certain events and challenges can create opportunities for mistrust (Lucero *et al.* 2018). Consistent interaction and critical reflection helps to create opportunities for understanding and allows for a foundation that can be relied on to help partnerships navigate the challenging times. They also help to overcome historical mistrust created through colonisation of Indigenous communities (Lucero *et al.* 2018).

Second, research teams working with Indigenous communities to improve primary care health services need to engage in the critical reflection process by conducting process evaluations during intervention development and post implementation. Such reflection is critical for helping the partnership to be reflexive and accountable about power relationships, and to also make adjustments to their processes, practices and intervention (Freire 1970; Dutta 2007; Wallerstein *et al.* 2018). Research teams could consider establishing milestones early in their project schedule to ensure alignment with principles guiding the research. However, this needs to be considered in light of how much focus should be on relationship/trust building during the initial stages of the project. To balance the demands of funding requirements and building relationships requires careful planning, realistic timeframes, contingency plans and continual critical reflection.

The third lesson learnt is that the research team needs to continue to advocate for resources on behalf of the community. One of the biggest challenges that Indigenous communities face is sustainability of interventions, particularly beyond the research funding period (Gibson *et al.* 2015). Advocacy aligns with the HPW framework's focus on systems thinking and integrated knowledge translation (Oetzel *et al.* 2017). This approach is consistent with a sustainability science perspective in that sustainable intervention development should be regarded as complex systems that target specific health programs and the needs and interests of key stakeholders (Gruen *et al.* 2008). Our interventions purposively acknowledge the complex systems, and yet there is need for improvement by integrating concrete activities to promote the importance of community-based projects to funders. Health intervention programs for Indigenous communities would be wise to integrate such ideas to address health needs, as addressing the social determinants of health in these communities takes time and sustained efforts (Baillie *et al.* 2007).

This study is not without limitations. First, it provides evaluation of only two partnerships, and thus, further research is needed to determine if the evaluation tool is useful for others. Second, this study was conducted by a member of the partnership team and hence may reflect a positive bias towards the project. We attempted to mitigate that bias by having a team member not affiliated with either project team conduct the evaluation and provide honest feedback to the team.

### Conclusion

Taking primary health to the next level in Indigenous communities should include careful reflection on how intervention/research teams engage with communities as part of the implementation and evaluation process; that is, there should be as much focus on the 'how' as the 'what.'. The HPW implementation framework, along with its process evaluation tool, is an effective means for implementation teams to help guide participatory work for relationship building, trust and synergy along with larger system impact. It also helps teams to critically reflect on their performance but, most importantly, compels them to make adjustments where there are differing perspectives, particularly in a way that privileges the Indigenous community perspective. This process helps to ensure that research partnerships and implementation teams stay true to the principles guiding their work.

### Conflicts of interest

The authors declare that they have no conflicts of interest. The lead author plus five of the co-authors are Indigenous people from Aotearoa New Zealand. All of the authors are or have been active in either or all of the design, implementation and evaluation.

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### References

Anderson I, Robson B, Connolly M, Al-Yaman F, Bjertness E, King A, Tynan M, Madden R, Bang A, Coimbra CEA, Pesantes MA, Amigo H,

- Andronov S, Armien B, Obando DA, Axelsson P, Bhatti ZS, Bhutta ZA, Bjerregaard P, Bjertness MB, Briceno-Leon R, Broderstad AR, Bustos P, Chongsuvivatwong V, Chu J, Deji, Gouda J, Harikumar R, Htay TT, Htet AS, Izugbara C, Kamaka M, King M, Kodavanti MR, Lara M, Laxmaiah A, Lema C, Taborda AML, Liabsuetrakul T, Lobanov A, Melhus M, Meshram I, Miranda JJ, Mu TT, Nagalla B, Nimmathota A, Popov AI, Poveda AMP, Ram F, Reich H, Santos RV, Sein AA, Shekhar C, Sherpa LY, Skold P, Tano S, Tanywe A, Ugwu C, Ugwu F, Vapattanawong P, Wan X, Welch JR, Yang G, Yang Z, Yap L (2016) Indigenous and tribal peoples' health (the Lancet-Lowitja Institute global collaboration): a population study. *Lancet* **388**, 131–157. doi:10.1016/S0140-6736(16)00345-7
- Baillie RR, Si D, O'Donoghue L, Dowden M (2007) Indigenous health: effective and sustainable health services through continuous quality improvement. *The Medical Journal of Australia* **186**, 525–527.
- Canadian Institutes of Health Research (2012) Guide to knowledge translation planning at CIHR: integrated and end-of grant approaches. (Canadian Institutes of Health Research: Ottawa, Canada) Available at <http://www.cihr-irsc.gc.ca/e/45321.html> [Verified 30 January 2019]
- Cyril S, Smith BJ, Possamai-Inesedy A, Renzaho AM (2015) Exploring the role of community engagement in improving the health of disadvantaged populations: a systematic review. *Global Health Action* **8**, 29842. doi:10.3402/gha.v8.29842
- Dutta MJ (2007) Communicating about culture and health: theorizing culture-centered and cultural sensitivity approaches. *Communication Theory* **17**, 304–328. doi:10.1111/j.1468-2885.2007.00297.x
- Freire P (1970) 'Pedagogy of the Oppressed.' (Seabury Press: New York, NY, USA)
- Gale NK, Heath G, Cameron E, Rashid S, Redwood S (2013) Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology* **13**, 117. doi:10.1186/1471-2288-13-117
- Gibson O, Lisy K, Davy C, Aromataris E, Kite E, Lockwood C, Riitano D, McBride K, Brown A (2015) Enablers and barriers to the implementation of primary health care interventions for Indigenous people with chronic diseases: a systematic review. *Implementation Science; IS* **10**, 71. doi:10.1186/s13012-015-0261-x
- Gruen RL, Elliott JH, Nolan ML, Lawton PD, Parkhill A, McLaren CJ, Lavis JN (2008) Sustainability science: an integrated approach for health-programme planning. *Lancet* **372**, 1579–1589. doi:10.1016/S0140-6736(08)61659-1
- Harris R, Cormack D, Tobias M, Yeh LC, Talamaiavao 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* **102**, 1012–1019. doi:10.2105/AJPH.2011.300626
- Harris R, Cormack D, Stanley J, Rameka R (2015) Investigating the relationship between ethnic consciousness, racial discrimination and self-rated health in New Zealand. *PLoS One* **10**, e0117343. doi:10.1371/journal.pone.0117343
- Israel BA, Eng E, Schulz AJ, Parker E (Eds) (2013) 'Methods in Community-Based Participatory Research for Health, 2nd ed.' (Jossey-Bass: San Francisco, CA, USA)
- Jagosh J, Bush PL, Salsberg J, Macaulay AC, Greenhalgh T, Wong G, Cargo M, Green LW, Herbert CP, Pluye P (2015) A realist evaluation of community-based participatory research: partnership synergy, trust building and related ripple effects. *BMC Public Health* **15**, 725. doi:10.1186/s12889-015-1949-1
- Khodyakov D, Stockdale S, Jones F, Ohito E, Jones A, Lizaola E, Mango J (2011) An exploration of the effect of community engagement in research on perceived outcomes of partnered mental health services projects. *Society and Mental Health* **1**, 185–199. doi:10.1177/2156869311431613
- Lucero J, Wallerstein N, Duran B, Alegria M, Greene-Moton E, Israel B, Kastelic S, Magarati M, Oetzel J, Pearson C, Schulz A, Villegas M, White Hat ER (2018) Development of a mixed methods investigation of process and outcomes of community-based participatory research. *Journal of Mixed Methods Research* **12**, 55–74. doi:10.1177/1558689816633309
- Ministry of Health (2013) Health loss in New Zealand: a report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016. (Ministry of Health: Wellington, NZ) Available at <https://www.health.govt.nz/system/files/documents/publications/health-loss-in-new-zealand-1990-2013-aug16.pdf> [Verified 30 January 2019]
- Ministry of Health (2015) Annual Update of Key Results 2014/15: New Zealand Health Survey. (Ministry of Health: Wellington, NZ) Available at <http://www.health.govt.nz/publication/annual-update-key-results-2014-15-new-zealand-health-survey> [Verified 30 January 2019]
- O'Mara-Eves A, Brunton G, Oliver S, Kavanagh J, Jamal F, Thomas J (2015) The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis. *BMC Public Health* **15**, 129. doi:10.1186/s12889-015-1352-y
- Oetzel JG, Zhou C, Duran B, Pearson C, Magarati M, Lucero J, Wallerstein N, Villegas M (2015) Establishing the psychometric properties of constructs in a community-based participatory research conceptual model. *American Journal of Health Promotion* **29**, e188–e202. doi:10.4278/ajhp.130731-QUAN-398
- Oetzel J, Scott N, Hudson M, Masters-Awatere B, Rarere M, Foote J, Beaton A, Ehau T (2017) Implementation framework for chronic disease intervention effectiveness in Māori and other indigenous communities. *Globalization and Health* **13**, 69. doi:10.1186/s12992-017-0295-8
- Oetzel JG, Wallerstein N, Duran B, Villegas M, Sanchez-Youngman S, Nguyen T, Woo K, Wang J, Schulz A, Kaholokula JK, Israel B, Alegria M (2018) Impact of participatory health research: a test of the CBPR conceptual model. *BioMed Research International* **2018**, 7281405. doi:10.1155/2018/7281405
- Wallerstein N, Duran B, Oetzel J, Minkler M (Eds) (2018) 'Community-Based Participatory Research for Health: Advancing Social and Health Equity, 3rd ed.' (John Wiley and Sons: San Francisco, CA, USA)
- Yin RK (2014) 'Case Study Research: Design and Methods, 5th ed.' (Sage Publishing: Thousand Oaks, CA, USA)