He Aroka Urutā. Rural health provider perspectives of the COVID-19 vaccination rollout in rural Aotearoa New Zealand with a focus on Māori and Pasifika communities: a qualitative study

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ABSTRACT

Introduction. From a coronavirus disease (COVID-19) pandemic perspective, Aotearoa New Zealand (NZ) rural residents formed an at-risk population, and disparities between rural and urban COVID-19 vaccination coverage have been found. **Aim.** To gain insight into factors contributing to the urban–rural COVID-19 vaccination disparity by exploring NZ rural health providers' experiences of the vaccine rollout and pandemic response in rural Māori and Pasifika communities. **Methods.** Rural health providers at four sites participated in individual or focus group semi-structured interviews exploring their views of the COVID-19 vaccine rollout. Thematic analysis was undertaken using a framework-guided rapid analysis method. **Results.** Twenty interviews with 42 participants were conducted. Five themes were identified: Pre COVID-19 rural situation, fragile yet resilient; Centrally imposed structures, policies and solutions – urban-centric and Pakehā focused; Multiple logistical challenges – poor/no consideration of rural context in planning stages resulting in wasted resource and time; Taking ownership – rural providers found geographically tailored, culturally anchored and locally driven solutions; Future directions – sustained investment in rural health services, including funding long-term integrated (rather than 'by activity') health services, would ensure success in future vaccine rollouts and other health initiatives for rural communities. **Discussion.** In providing rural health provider perspectives from rural areas serving Māori and Pasifika communities during the NZ COVID-19 vaccine rollout, the importance of the rural context is highlighted. Findings provide a platform on which to build further research regarding models of rural health care to ensure services are designed for rural NZ contexts and capable of meeting the needs of diverse rural communities.

Keywords: COVID-19, equity, health services, health systems, Indigenous health, Māori health services, Pacific communities, primary health care, rural health.

Introduction

In Aotearoa New Zealand (NZ), people living in rural areas have worse health outcomes than those living in urban areas, and this is accentuated for Māori.[1–3] Literature addressing health outcomes of other underserved rural NZ groups, including Pasifika peoples, is scant.[4]

Rural health services in NZ are largely primary care or community-based, with highly varied service configurations and models of care. As in many other countries, NZ rural health services have suffered from a lack of investment with more than a decade of workforce shortages and erosion of services.[5,6] Rural Health national policy, advocacy, and academic progress have been slower in NZ than in comparable countries,[6–8] with the NZ Geographic Classification for Health a recent development.[9]

WHAT GAP THIS FILLS

What is already known: Disparities between rural and urban COVID-19 vaccination coverage both in New Zealand and globally have been demonstrated.

What this study adds: New Zealand rural health provider perspectives of the COVID-19 vaccination rollout provide insight into factors contributing to the urban–rural COVID-19 vaccination disparity. Findings emphasise the relevance of context in delivering health initiatives rurally, which should be geographically tailored, culturally anchored and locally driven.

From a coronavirus-19 (COVID-19) pandemic perspective, NZ rural residents formed an at-risk population as a result of age, ethnicity, socioeconomic status, and access to health care.[2] This inherent vulnerability was coupled with a rural vaccine rollout that, apart from early rapid uptake, was slower than in urban areas, with rural vaccination rates lagging behind urban rates.[10–12] Similar disparities between rural and urban COVID-19 vaccination coverage have been demonstrated internationally.[13,14]

New Zealand's COVID-19 vaccine rollout approach was centrally (Ministry of Health (MOH)) led, with a phased approach to vaccination including priority groups in age bands beginning in February 2021.[15,16] Although regional, community, and Māori perspectives on the COVID-19 pandemic response have been published,[17,18] to our knowledge, no national rural-specific perspectives have been reported.

The aim of this descriptive qualitative study was to explore rural health providers' experiences of the COVID-19 vaccine rollout and pandemic response in rural Māori and Pasifika communities, and thereby gain insight into factors contributing to the urban–rural COVID-19 vaccination disparity.

This article forms part of a larger study conducted alongside a quantitative analysis designed to quantify the speed and comprehensiveness of the vaccine rollout in rural and urban areas nationally and regionally, including for Māori and Pasifika people.[11,12]

Methods

Study setting

Geographical distance of small, often low-density populations, from urban centres where specialist and diagnostic resources are concentrated, is the starting point for understanding rural health.[19–22] Access to health services due to geographical isolation and health workforce shortages are recognised internationally as major rural health issues.[20,23,24] Rural health in this article refers to a specific area of clinical, academic, policy and advocacy work in healthcare provision, centred on the health experiences and outcomes of people living in rural areas. Features of rural health in NZ are shown in Table 1.

Table 1. Features of rural health in Aotearoa New Zealand.

Geography – physical environment
Geographic isolation from services
Small, low-density populations
Transport: poor road infrastructure, limited public transport
Connectivity: limited phone and internet networks
Vulnerability to climate events
Community
Community connectedness
Māori communities – tāngata whenua[A]
Pasifika communities – not well recognised
Other diverse communities
Community ownership
Health services
Mainly community-based/primary care, some hospital secondary care
Varied governance, funding, models of care: historically influenced
Integrated generalist approach
Small health professional teams
Wide service roles
Workforce shortages across all health professionals
Limited resources (eg diagnostics)
Policy and advocacy
First National Rural Health Strategy 2023[B]
National advocacy body, *Hauora Taiwhenua*, formation in 2022[C]
Fit-for purpose Rural–Urban Geographic Classification (GCH) 2022[D]
Emerging rural health academic discipline
Limited rural-specific health professional training pathways

[A]The Indigenous people of NZ.
[B]https://www.health.govt.nz/publication/rural-health-strategy.
[C]https://htrhn.org.nz/.
[D]https://blogs.otago.ac.nz/rural-urbannz/gch-maps/.

Site selection and engagement

Prior research knowledge of NZ rural areas, early findings from the quantitative analysis, as well as the research team's networks, were utilised to identify four geographical study sites within which varied healthcare providers operated. The study site characteristics are found in Table 2. Of the four sites represented, three were North Island- and one South Island-based.

Team members, who included rural-based researchers, utilised their existing relationships and connections to identify key contact persons and/or organisations at each potential site. A standard email provided information on research aims and an invitation to participate. Following a positive response, an initial discussion was arranged, which assisted the research team in gaining an understanding of the

Table 2.   Study sites characteristics.

	Site 1	Site 2	Site 3	Site 4
Location in NZ	North Island	North Island	North Island	South Island
Geographical size	1520 km^2	3165 km^2	3575 km^2	2913 km^2
DHB overseeing vaccine rollout	Northland Te Tai Tokerau	Bay of Plenty Hauora a Toi	Taranaki	Southern Te Waipounamu
Population[A]	5823	9126	22 483	20 210
Non-Māori: Non-Pacific (%)	32.7	35	75.4	89.9
Māori (%)	65.7	62.2	23.3	6.4
Pasifika (%)	1.6	2.8	1.3	3.7
Rurality GCH (%)[A]				
R1	–	71.9	42.6	92.2
R2	10.5	2.4	57.4	4.4
R3	89.5	25.7	–	3.3
NZ Dep quintile (%)[A]				
Q1	–	–	–	5.1
Q2	–	–	6.4	24.8
Q3	–	–	21.9	33.6
Q4	–	25	25.9	35
Q5	100	75	45.8	1.6

DHB, District Health Board; GCH, Geographic Classification for Health; NZ Dep, New Zealand Index of Deprivation; –, Not applicable.
[A]From https://gch-nz.shinyapps.io/covid_vaccine/. R3 is the most remote category.

locality and local healthcare delivery model, and to discuss the best approach to gathering information and identifying potential participants.

Qualitative interviews

Participant recruitment

Sampling was purposive with the aim of recruiting a broad span of healthcare providers involved in the COVID-19 vaccination rollout at each study site, including those involved across managerial, clinical, administrative and community support areas. Health providers were invited to participate in focus group or individual interviews. The research team was guided by local healthcare leaders in choosing the approach, whether in-person or virtual interviews or a combination of both.

Demographic information was collected from participants during the consent process.

Data collection

Semi-structured interviews were conducted between February and May 2023. The interview schedule (see Supplementary File S1) was developed with input from the entire research team and explored participants' views of the vaccine rollout in their locality, including their personal experience, how usual business was affected and suggestions regarding future vaccine rollouts.

Interviews were a mix of individual and focus group, in-person and virtual. Focus group size ranged from two to six members. All interviews were recorded and auto transcribed using Zoom (2023, https://www.zoom.us/) or Otter.ai (2022, https://www.Otter.ai) transcription tools, except for one in which recording failed. To facilitate rapid analysis, notes were taken at the end of each interview. Interview playback listened for accuracy and a summary (memo) was completed for each interview. Average length of individual interviews was 52 min and for focus group interviews, it was 88 min.

Analysis

Thematic analysis was undertaken using a rapid qualitative analytic approach to allow for the timely evaluation and dissemination of research findings while maintaining methodological rigour.[25,26] A structured template was developed and used to categorise data according to each topic question in the interview schedule. Each interview memo and template were reviewed by at least two team members. With data collection complete, team members (led by TS) met in-person to identify and refine themes, and the relationships between them. Analyses were initially conducted separately for each study site, with data then integrated in the final phase. Member checking was undertaken at three sites. Further iterative team analysis to refine themes and to ensure whole-team consensus, was completed virtually.

The research team included experienced Māori and Pasifika researchers who were involved in all stages of the study including interpretation and analysis of data, and brought with them knowledge and application of Māori and Pasifika models of health and research methodologies such as talanoa and Kaupapa Māori research.[27–29]

Ethics

Ethics approval was granted by the University of Otago Human Ethics Committee D22/236.

Results

Twenty interviews (42 participants) were conducted representing health providers from the four sites. Twenty-four participants identified as Māori, six as Pasifika. Twenty-two participants represented a single site. Participant characteristics are shown in Table 3.

Five main themes were identified, which explained chronologically how participants perceived the rural COVID-19 vaccination rollout: (1) Pre-COVID-19 rural situation; (2) Centrally imposed structures, policies, and solutions; (3) Multiple logistical challenges; (4) Taking ownership;

Table 3. Participant characteristics.

	Total	Site 1	Site 2	Site 3	Site 4
Gender					
Female	37	19	7	4	7
Male	5	3	–	1	1
Ethnicity[A]					
NZ European/ Pakehā	11	7	1	1	2
NZ Māori	24	18	3	1	2
Pacific	6	2	–	–	4
Other	1	1	–	–	–
Unknown	6	–	3	3	–
Roles					
Management	11	5	2	1	3
Clinical	13	4	4	3	2
Admin	6	3	1	1	1
Support[B]	12	10	–	–	2
Interview type					
Focus group	10	5	2	2	1
Individual	10	0	3	1	6

Data are presented as number (n).
[A]Participants could self-identify as more than one ethnicity.
[B]Clinical support non-regulated – KMT (Kaimanaaki Tangata), COVID-19 Responders, COVID-19 Coordinators.

and (5) Future directions. These themes and their subthemes are described. Illustrative participant interview quotes (S1P1, S2P1, etc) are presented in Table 4.

Theme 1. Pre-COVID-19 rural situation

Rural health services under pressure but resilient

Rural health providers knew the fragility of rural health having experienced erosion of their services and worsening workforce shortages over many years. With the COVID-19 pandemic well underway as the vaccination rollout began, there was no surge capacity. Yet, resilience was evident for rural health providers who discussed strong community commitment, connectedness, and accustomed ways of working.

Some Māori health providers had long established Kaimanaaki Tangata (KMT) (Māori community worker) roles, to provide whānau support and navigation through the wider health system. In [site 4], despite a growing Pasifika community, there had been no consideration of, and no prior investment in, a rural Pasifika-focused health service approach.

Where rural health services were dependent on centralised national (MOH) and district (District Health Board (DHB)) organisations, established external relationships were generally reliant on one or two key people. Rapid staff turnover in these national and district-level organisations throughout the pandemic impeded these relationships.

Theme 2. Centrally imposed structures, policies, and solutions

An integrated, localised vaccination response was needed for rural communities, but centralised policy and processes were inflexible, urban-centric and Pākehā-focused. The rural context and its health services, particularly for Māori and Pasifika communities, had been poorly considered in the vaccine rollout design.

Poorly aligned and inequitable

For rural health providers, being more aligned to community than a centralised and hospital-led approach, continual adapting and pivoting to make centralised systems fit the community was familiar. Centrally imposed solutions, developed without adequate consultation (particularly with rural providers and community) resulted in poorly informed decisions, wasted resources and culturally incompetent vaccine delivery models.

Despite MOH rhetoric regarding reaching vulnerable populations, it was participants' experience that in the emerging situation, equity was not considered a priority.

Urban-centric guidance and processes

Rural health providers described being 'bombarded' with rapidly changing, and often contradictory information. They

Table 4. Themes and illustrative quotes.

Pre-COVID-19 rural situation

'We were a team that was very stretched …we were trying to deliver the normal clinical services within a very constrained environment where the staffing hadn't really grown at that point' (S1P3).

'We had lots of things embedded in our community before COVID so we could activate them. Yeah. That's important, you know, and we had a community that trusts us' (S2P6).

'I was attending national fono (meeting of Pasifika organisations) …and all the other providers from right around the whole country. And there was only always only like one or two of us from the South. No one rural, but us' (S4P1).

Centrally imposed structures, policies, and solutions

'You have to kind of bundle things up together using the same resources across different initiatives. It was the only way that made sense here… but it didn't fit the way that it was conceived centrally because someone was put in charge of the vaccination [aspect] so there was resource and a program around the vaccination, and that became one strand of it [the COVID response], and so we had to engage with that. But then there was another strand that was around the testing, and another strand around the SIQ response etc. So these [components] were all 'separate departments.' But they come back together on the ground out in small rural places. And we didn't have a single contact point, we had to dedicate time to engaging with all of them' (S1P3).

'The initial (DHB) response was that they were going to send out a bus and they were going to pick everybody up [in the [small rural area] and drive them all to [regional town 1.5 hr drive away]…to get vaccinated there, which is not very logical during COVID…and all oldies. We're trying to keep them away from each other and we're social distancing on a bus!?? Yeah. so that wasn't really going to work…' (S2P6).

'The *first* vaccination centres, in [region] were set up in [town] and so that was a big reflection and commentary particularly from the Māori providers about: "…you're setting up the centre in the wealthiest and the most populated area? What about the: 'where was the best place to start?'" So there was a bit of a to-and fro-ing with the DHB at the time around- 'Here we go again. You're putting the resources in the wrong place as a starting point' (S1P6).

'The DHB and [PHO] were really paranoid and we were extra careful. We were always careful but after that it was more so. You just had to document everything in CIR –so that they could see we were doing our due diligence' (S4P7).

Multiple logistical challenges

'We had laptops, but because we were in the middle of [remote area] we had no wifi, or anything. So we only did as much as we could - doing the paperwork as in pen, paper, and at the end of the day, we all came back here, log everything in….' (S1P11).

'The day before [a clinic] they'd [vaccinators] contact me and say, my sign in doesn't work. So now I have to go and get them reauthorized through the DHB. Then they have to redo their password with CIR on the phone so like it was such a palaver – and also was often not during working hours of the DHB' (S4P6).

'Whether it was going to the river, going to the home.… if we had to do them, stay late, as they were going past on their trucks. Have a session for the truckies, have a session for the, [seasonal] workers, whatever. Yeah. To accommodate everybody… And that was the key' (S2P6).

'… We just didn't have staff. Yeah. We'd have all those sort of holdups, and cancellations and then, you know, someone would be going to work in [name of clinic] you find out, no, you're needed on the van and you've got to take up and just go, drop what you're doing and go and do this other job' (S1P9).

Taking ownership

'The strength came from within the team, within ourselves and our way of making things work. You know, we had to improvise. We had to think on our feet and make it work' (S1P15).

'There were blocks. Things like: 'you're not a certified site, so therefore you can't hold the vaccines', but the vaccines would have to get delivered to somewhere else and then come here. But then there was not enough time for us to administer them, because you only had five hours [before cold chain expiry]. So, if they didn't come [directly] here, we couldn't even get them here [in time]. You know, we would have had to use a helicopter to get them here, and then we would have had half an hour to give them. So, we had to become a certified site. No one knew really what it meant to be a site. They just knew we couldn't be because we were little. And we weren't in a hospital. But we knew we could' (S2P6).

'I got hold of [name]… and they put us on to [name]… who came down and put us through wānanga and certified us to be registered to vaccinate. As we did that workshop, we realized that…let's make a wraparound approach to it. So, we got trained to be vaccinators. And then we mobilized. We registered with all the other things that you have to do to be certified and safe' (S3P1).

'We made it into a Tikanga response, which is different from a clinical response. It was putting the responsibility in many people's hands so that something made sense at the end of the day. When they come into your space you run it …with the tikanga with the protocols and everything. So that already makes people feel at home, they feel safe a little bit…included' (S1P2).

'The vibe that we had was good. We had music, we had laughter. We had TikTok sessions going. At other places, we (Pasifika) didn't feel welcome…As soon as you walk in, you feel welcome. You can hear laughter from outside while you are walking down the hallway. People felt calm and relaxed' (S4P4).

Future directions – Apopō

'We can't do that and be able to continue to offer these kinds of vaccination rollouts in the long term, or for whenever the next pandemic happens if (MOH) don't allow us to have long-term funding and build capacity' (S4P6).

'I think it is us having a trusting relationship with our funders where … they fund us because we're part of the service they want to see delivered. It can't be just tacked on as a little bit, it needs to be built into the health services. It's not about 'getting the measles vaccination rolled out', it's about having strong services' (S1P3).

were left to convert this 'guidance' to fit their context. Valuable staff time was spent travelling to access training located in towns and cities.

Many rural health providers, particularly those who were more remote, were delivering not just on vaccination, but the entire COVID-19 pandemic response. Separate response strands (eg vaccination, testing, supported isolation quarantine (SIQ)) each with their specific processes and protocols did not fit for small closely interconnected teams. For example, it made no sense for a team to travel out to a remote household or marae and address only the vaccination aspect when clinical care, testing and/or SIQ also needed attention.

Poorly supported, yet scrutinised

Rural health providers felt alone, disconnected, and uncertain on 'next steps'. With respective DHBs focusing on their central vaccination rollouts, there was scant consultation and lack of a collective plan.

In adapting guidance to make rural vaccination delivery workable, participants felt closely scrutinised. There was an expectation on rural services to do more, but without added resource to account for the context, including travelling long distances. The piecemeal nature of funding restricted anything but short-term planning and limited capacity building.

Theme 3. Multiple logistical challenges

Realities on the road

Complexities in vaccine delivery protocols, including cold-chain logistics, multiplied in the rural context. Although a multi-pronged delivery approach was needed, this was hindered by staff shortages and poor roading and infrastructure. Initially, regardless of vaccination volumes (eg 100, 20 or just 2) the same number of staff were needed. Thus, a large team was required to travel out from a central site where vaccines were stored to remote communities to administer perhaps just one or two vaccines, and this could take the whole day.

Participants described the reality on the road, including trying to record and draw up vaccines in the back of mobile clinics on unsealed roads and dealing with flooded rivers, all the while keeping to strict time limits for vaccine use.

The digital divide

Participants discussed assumptions made by central urban organisations regarding connectivity. Centralised COVID-19 vaccination-specific IT systems were initially unworkable and meaningful assistance was unavailable. Staff resorted to paper recordings on the road and at peripheral sites, which then had to be uploaded on their return, often working late into the evening.

The COVID-19 Immunisation Register (CIR) system required log-in registration that expired after a 2-week period. This was problematic in the context of a small workforce not solely focused on vaccinating. Staff would repeatedly get 'kicked out' of the system and be required to

re-register. Similarly, the national vaccination website and social media information regarding rural clinic locations and opening times were frequently inaccurate causing immense frustration for health providers and their communities.

Every single person mattered

Rural health providers all held the view that each vaccine given was 'one more than before,' and found individual solutions whenever needed, such as taking the vaccine out to just one person and ensuring flexible hours of operation. Well-intentioned large, urban-based organisations (including DHBs, PHOs (Primary Health Organisations) and Māori health providers) wanting to collaborate or assist with the rural vaccination rollout, did not always understand this concept. Arriving in remote areas expecting many people, they perceived the low numbers as an abysmal response to their efforts and resources and were subsequently reluctant to return.

Workforce shortages

As vaccinations ramped up, providers were under increasing pressure managing vaccination clinics, providing COVID-19-related clinical care, and trying to keep on top of 'business as usual'. Existing staff shortages escalated as staff themselves contracted COVID-19 and needed time off to isolate and recover. For a rural non-clinical organisation [in Site 4], becoming a vaccination provider meant everything, including workforce, needed to be built from scratch. Many staff faced difficult personal conflicts in being pulled away from their normal community work to vaccinate.

Rural health providers recognised early on the potential of training their unregulated staff as vaccinators to support the workforce shortfall. However, the initial rigid protocols set up by central organisations delayed progress in this area.

Theme 4. Taking ownership

A pivotal moment in the vaccination rollout came as rural health providers began to take charge, understanding that they were best positioned to do so and if they did not, their communities would miss out.

Community connectedness

Rural health providers went about actively removing barriers and opening opportunities wherever they could. They reset to a locally appropriate, culturally aligned approach, drawing on established ways of working. Through strong community relationships, formal and informal engagement with local leaders, and staff embedded in the communities they worked, rural health providers and communities were able to engage and mobilise.

Solutions, workarounds and opportunities

Becoming a certified vaccination site. Rural health providers challenged central assumptions regarding the

capability of small community health providers in rural sites, overcoming barriers to become certified vaccination sites.

Harnessing the unregulated workforce. Once national organisations started relaxing regulations around who could administer the COVID-19 vaccination, rural health providers rapidly found ways to upskill staff and community members. The ability to train unregulated health workers to administer vaccinations was a game-changer for rural health providers in running independent vaccination clinics.

A Kaupapa Māori/Pasifika/culturally-aligned response Individuals and whānau needed relationships of trust and faces they recognised when approaching vaccination areas, rather than being a name or number on a list. Rural health services wrapped a 'tikanga response,' a culturally safe approach around the clinical vaccine processes, thereby reducing anxiety and creating safe spaces for people to make decisions around vaccination.

External trusted relationships. Rural health providers called on their Māori and Pasifika health networks. External high-level (MOH) relationships through Pasifika networks were a key enabler in site 4 becoming a certified vaccine provider. Whereas in site 3, the collaboration with a large urban-based Māori provider from a different region provided training opportunities for unregulated workers to become certified vaccinators.

A Whānau-centred approach. For rural health providers, the age-based eligibility criteria not only thwarted the whānau-based approach they were trying to deliver by increasing local workload but was also racist. All sites increasingly disregarded the aged-based vaccination criteria.

Theme 5. Future directions

Investing in rural health services

Having built capacity during the COVID-19 pandemic, trained their unregulated workforce, and strengthened community and external collaborations, rural health providers called for central organisations (MOH, DHBs) to commit to long-term sustained investment in rural health services, starting with rural voices having representation at the highest decision-making levels.

It was the participants' view that successful rural vaccine rollouts should not be built on specific immunisation programmes, but rather on strong resilient rural health services. This fundamental principle they perceived as applying equally to any emergent health crisis. Strengthening rural health services was seen by participants to require recognition of the unique rural context (Table 1), as well as trusting partnerships between central health organisations, Māori and Pasifika networks and rural health providers.

Participants voiced that handing control to local rural health services and communities, as experts in their specific context, would avoid the failed 'one stop shop' approach and ensure responses were geographically tailored and culturally anchored.

Discussion

Summary of findings

Through interviews with rural health providers from rural areas serving Māori and Pasifika communities, this study furthers our understanding of the rural health landscape during the NZ COVID-19 vaccine rollout. Across varied geographies and models of care, common issues were identified.

Solutions for the rural vaccine rollout were developed without consideration of the rural context or effective engagement with rural health providers. Challenges multiplied on rural roads with geographical distance, small low-density populations, dire workforce shortages and limited infrastructure including phone and internet connectivity. Realising the misalignment with their context was hindering progress, rural health providers took ownership of the rollout, entrusting established ways of working and engaging their communities and external Māori or Pasifika networks, and as a result, innovative local solutions arose. However, despite demonstrating capability for rolling out a national initiative while continuing to operate their business as usual, no sustained investment in rural health services was forthcoming.

Comparison with existing literature

Established in their knowledge of their place and communities, rural health providers from an organisational perspective were agile, showed flexibility, built capacity and were rapidly responsive to their communities' needs, highlighting the known unique strengths and assets of rural health providers.[30,31]

The complexity and multifactorial nature of accessing health services in rural and remote settings shown in our findings, and the interaction between them, is internationally recognised.[32] Our study found three overarching factors influencing the vaccine rollout rurally: geographical tailoring, cultural anchoring, and local control. Our findings suggest the interaction between these three factors is as important as the role played by each single one.

Although geographical access to health services (including financial access associated with travel) has been identified as the major issue for Rural Health internationally,[23] our findings emphasise the importance of other dimensions of access to health services when considering the NZ rural context, particularly the role of cultural factors or 'acceptability access'.[32,33] These findings concur with previous NZ research regarding the success of the COVID-19 overall

response in Māori and Pasifika communities, including the value of identity and relationships and by-Māori, for-Māori or by-Pasifika for-Pasifika approaches.[17,18,34,35]

For rural health providers in this study, incorporating Māori or Pasifika cultural values and principles into the COVID-19 vaccine rollout was paramount; their communities were more empowered taking a collective approach to managing the vaccine rollout. Our findings showed that established and trusted relationships and networks mattered. National and regional Māori and Pasifika networks, which are not defined or confined by urban–rural categories but rather span them, can facilitate progress for rural health providers, especially when relationships between central health system organisations (MOH and DHBs) and rural health providers falter.

Alongside cultural anchoring and geographical tailoring, the study findings draw attention to the importance of local control in rural vaccine delivery, which concurs with research findings of COVID-19 vaccine hesitancy in rural communities internationally.[36–38] Local ownership of health initiatives ensures people can access health services through a model they recognise and trust from individuals they know and can relate to, but it requires adequate support and resources from funding bodies and effective collaborations. Conversely, by-passing local health providers (eg with separated outreach programmes), can create more barriers and further disadvantage rural health providers and their communities.

The rural COVID-19 vaccine rollout relied on reprioritisation of care and redeployment and training of staff, with study findings emphasising the key role of community workers and the unregulated workforce. Our study concurs with previous research regarding the importance of retaining and valuing workforce/human resources in rural areas[23,26,39] and signals that an alternative approach to rural workforce shortages is needed.[6] Considering bottom-up community development approaches to strengthening the rural health workforce,[6,39] recognising and accepting that non-clinical groups can support national immunisation programmes and other health initiatives are solutions worthy of investment.

Our study highlights the importance of context in delivering health initiatives rurally. The smaller and more remote the community, the higher the importance of integrated health services requiring bundled rather than fragmented administrative and regulatory frameworks and resources. Bundling requires a move away from siloed funding for strands of activity to a whole-of-service, community-led approach. Sustained investment in rural health services will ensure that, not for just the next vaccination rollout, but any health initiative will succeed for rural communities.

Strengths and limitations

Participants represented diverse rural communities with different models of rural healthcare services. There was high Māori representation across the sites and perspectives came from management, clinical, administrative and

community support providers. The number of rural Pasifika communities in NZ is low; however, they are rapidly growing. A particular strength of this study was the inclusion of rural Pasifika voices.

Recruitment was variable across sites, with more than half of participants and the majority of Māori participants representing a single site; however, themes express the commonalities across sites with respect to rural vaccine delivery, which are likely to resonate with other NZ and international rural communities.

Implications for policy and practice

Rural proofing requires that health funders recognise and understand the rural health context and include rural representation at their highest decision-making level. As stated in NZ's Rural Health Strategy,[6] health policies and planning need to be designed to meet the specific needs of rural communities rather than expecting rural health providers to fit into urban-centric funding and service delivery approaches. Culturally safe models should be prioritised to ensure the needs of rural Māori and rural Pasifika people (as well as other priority groups) are addressed and met.

Sustained investment in rural health services and communities is paramount both in general and for successful national health initiatives going forward. Investment should include: adapting service delivery models to fit needs and realities of rural communities; building a rural-ready workforce; ensuring strong sustained partnerships through formalised relationships; strengthening rural infrastructure and connectivity; integrating tikanga and kaupapa Māori and Pasifika principles into mainstream response approaches; and funding long-term integrated (rather than 'by activity') health services. Further research is needed to inform models of rural health care to ensure rural health services are designed for rural NZ contexts and capable of meeting the needs of diverse rural communities.

Conclusion

Effective future vaccination rollouts (or any other health initiative) in rural areas should be geographically tailored, culturally anchored and locally driven. Achieving improved and equitable rural health outcomes, particularly for NZ's Māori and Pasifika communities, will require long-term sustained investment and an integrated approach to rural health services.

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