UsersTCP

Hard-to-Reach Energy Users

Subtask 2: Case Study Analysis

AOTEAROA NEW ZEALAND

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Preface

This report was developed under the 'Users Technology Collaboration Programme (TCP) by the International Energy Agency (IEA) Task on Hard-to-Reach (HTR) Energy Users'. The Task aims to provide country participants with the opportunity to share and exchange successful approaches identifying and better engaging HTR energy users. Under the Task, HTR energy users are broadly defined as *'any energy user from the residential and non-residential sectors, who uses any type of energy or fuel, and who is typically either hard-to-reach physically, underserved, or hard to engage or motivate in behaviour change, energy efficiency and demand-side interventions*'.

Outcomes from the Task indicate that HTR energy users involve, for example, renters and landlords; low- and high-income households; the MUSH (municipalities, universities, schools, and hospitals) sector; small to medium enterprises / businesses (SMEs / SMBs); and people exposed to intersecting and compounding vulnerabilities based on factors such as age, race, gender, minority status, geographic, linguistic, technological or social isolation.

The case studies presented in this report aim to offer insights into programmes that aim to better engage HTR energy users in Aotearoa New Zealand. Particular attention is given to design, implementation and behaviour change aspects. Other country case studies developed under the Task also include: Canada, Italy, the Netherlands, Portugal, Sweden, the UK and the U.S.

We would like to thank all participating countries, their authors, and the interviewees who provided insights into their programmes targeting the HTR. I would like to particularly like to thank our National Experts and any national experts who undertook peer reviews.

All case studies can be found on the project's website.

Dr Sea Rotmann
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Users TCP by IEA Task on HTR Energy Users
Wellington, September 2021

Executive Summary

Aotearoa New Zealand (A-NZ) is particularly invested in examining and stamping out the drivers for energy hardship, as part of the broader focus on hard-to-reach (HTR) energy users. In addition, our government acknowledges the issues related to our highly underperforming housing stock, which causes inefficiencies and suffering, particularly in those *whānau* [families] living in vulnerable circumstances. This national focus on residential households and energy hardship meant that we could not find relevant SME case studies for A-NZ. However, we compare and contrast four case studies from different 'Behaviour Changer' perspectives here:

1. The *Healthy Homes Initiative* (HHI): a cross-government programme targeting rheumatic fever and other respiratory illnesses in specific vulnerable populations
2. The *EnergyMates* pilot: a utility-sector collaboration on using community 'Middle Actors' such as financial mentors and budget advisors to target specific vulnerable audiences
3. The *Well Homes* and *Warm Fuzzies* programmes: community sector-run programmes, one implementing the HHI in the Wellington Region, the other focusing on those vulnerable households that do not meet the criteria for the government programme.

We would like to acknowledge that living in energy hardship (largely identified by low-income) does not necessarily mean that a household is also hard-to-reach (HTR). However, as we will show with these case study analyses (CSAs), there are several intersectionalities that compound these households' vulnerabilities: many are renters, Māori or Pasifika, single or pregnant mothers, have very young children, overcrowded living conditions, poor housing stock, and underlying health conditions. As our in-depth literature review (Rotmann et al, 2020) has shown, the more compounding vulnerabilities there are, the more HTR households tend to become.

This selection of case studies describes the Aotearoa New Zealand experience of how to engage highly-vulnerable and HTR households from different perspectives: government, industry and the community sector. All interventions described here are supported by relevant research experts and were evaluated independently. We have drawn on interviews with programme managers and evaluators; websites; reports; media stories; and testimonials from participating households to inform these analyses. Each initiative has shown significant successes in targeting its specific audiences, and we have provided some constructive critiques and overall conclusions and recommendations.

This CSA will form a part of a wider *Cross-Country Case Study Comparison* (CCCSA) with seven other countries: Canada, Italy, the Netherlands, Portugal, Sweden, the UK and the U.S. Overall, we will examine, in-depth, over 20 international case studies of how to engage the HTR.

We have chosen a framework developed by our HTR Task Project Partners, the *See Change Institute* (Karlin et al, 2021), called '*The Building Blocks of Behaviour Change*' to guide this CCCSC. The ABCDE Building Blocks are based on examining, ex-post, the focus of each case study on:

A. *Audience* characteristics and clear descriptions of target audiences
B. *Behaviours* targeted with interventions
C. *Content* of messaging and engagement strategies
D. *Delivery* of messaging (timing, messengers and medium)
E. *Evaluation* of interventions (process, impact, output, narrative etc.)

Utilising an overarching analytical framework such as this facilitates comparing and contrasting diverse case studies, with different country contexts, audiences and engagement strategies. We have collected feedback from each CSA author into the usefulness of this methodology as part of our HTR Task research plan.

We hope you will enjoy reading this case study analysis and that you gain important insights into how Aotearoa New Zealand is tackling this important problem.

Glossary of Māori Names and Abbreviations

Aotearoa = New Zealand's Māori name (long white cloud)
AWHI = Auckland-Wide Healthy Homes Initiative
BC = behaviour change
BBoBC = Building Blocks of Behaviour Change (Karlin et al, 2021)
CCCSC = Cross-Country Case Study Comparison (Mundaca et al, in prep)
CEN = Community Energy Network
CSA = Case Study Analysis
CSC = Community Services Card
DHB = District Health Board
EE = Energy Efficiency
EECA = Energy Efficiency and Conservation Authority
EM = EnergyMate Pilot
EPR = Electricity Price Review (MBIE, 2019)
ERANZ = Electricity Retailers Association of New Zealand
He Kainga Oranga = Housing & Health Research Programme, University of Otago
Kai = Food
Kāinga Ora = Housing New Zealand
HEEP = Household Energy End-Use Programme
HHI = Healthy Housing Initiative Programme
HPA (HH) = Healthy Performance Advisor Training (Healthy Homes: Making Energy Work for Whānau)
HTR = hard-to-reach
Hui = Gathering
IEA = International Energy Agency
Iwi = Tribe
Kaupapa = Principle, policy
Korero = Discussion, talk
Mahi = Work
Mana = Respect, influence
Māori = indigenous inhabitants of Aotearoa
MBIE = Ministry of Business, Innovation & Employment
MoH = Ministry of Housing
MSD = Ministry of Social Development
MRS = Minor Repair Service Programme
Oranga Tamariki = Child Services
Pākehā = white New Zealander
Pasifika = Pacific Islander
PM = Programme Manager
Rangatahi = Youth
RF / RFPP = Rheumatic Fever / Prevention Programme
RPH = Regional Public Health
SME / SMB = Small-Medium Enterprise / Business
ST = Sustainability Trust
Users TCP = Users-Centred Energy Systems Technology Collaboration Programme
WF = Warm Fuzzies Programme
WH = Well Homes Programme
Whakamā = Shame
Whānau = Family. Whānau is used in the report as a A-New Zealand reference to family in its many forms and does not refer to ethnicity
Whānau Ora = Family / Health (approach)
WoF = Warrant of Fitness (for homes)
WKH = Warmer Kiwi Homes Programme
WUNZ = Warm Up New Zealand (Heat Smart) Programme

Country background: Aotearoa New Zealand

Aotearoa New Zealand's (A-NZ) share of renewable energy generation (39.5% of the primary energy supply) is the third-highest in the OECD[1]. Transport accounts for about 40% of the total energy demand, and 20% of our Greenhouse Gas (GHG) emissions. At times of low renewables sourced generation (as was the case in 2019 and 2020 due to climatic conditions), non-renewable sources such as gas and coal are used to meet the shortfall between supply and demand. This decreased our share in renewable electricity from 84% in 2018 to 82.4% in 2019, and 80.8% in 2020. The A-NZ Government has recently passed the *Climate Change Response (Zero Carbon) Amendment Act* and set a target of net-zero carbon emissions by 2050 (except biogenic methane). Future demand for electricity will depend heavily on the path of decarbonisation and the extent of changes in electricity using technologies and supply technologies over the next 30 years.

In A-NZ, different stakeholders from different sectors - who we call 'Behaviour Changers' in this Task (see Rotmann, 2016) – focus on hard-to-reach (HTR) energy users, sometimes in close collaboration. They each bring different perspectives and approaches, but generally focus on the most vulnerable households, particularly those living in unhealthy and overcrowded housing conditions. More recently, 'energy hardship' in particular has become a primary focus[2], and many of the wide range of potential HTR audiences discussed in our comprehensive literature review are not directly addressed, here (Rotmann et al, 2020). For instance, there is limited funding and research on HTR audiences in the commercial sector, particularly SMEs (though one, now-defunct national SME case study led by the Government is described in Mourik & Rotmann, 2013). There is also limited focus on high-energy users, especially those on high incomes. Chapters 4, 6 and 8 in Rotmann et al (2020) provide insights into how numerous, hard-to-reach, and high in energy-saving potential these mostly-neglected audiences are, here and overseas.

In this A-NZ case study analysis (CSA), we focus on the primary audience target, **underserved Kiwi households living in energy hardship**. We will examine the major stakeholder perspectives working on reducing energy hardship, those Behaviour Changers from government ('the Decision-makers', see Rotmann [2016] for detailed descriptions of each group), industry ('the Providers'), and the community sector ('the Conscience'), who are also supported by various Middle Actors ('the Doers') and the academic and research community ('the Experts').

As discussed in depth in our literature review (Rotmann et al, 2020), living in energy hardship/burden/ poverty does not necessarily equate with an audience segment being automatically HTR. In fact, in many countries (e.g. the U.S. with its long-running *Low-Income Weatherization Assistance Programs*, see Bednar & Reames, 2020), those households known to live on low incomes are arguably easier to reach than many high-user/high-income households; small-to-medium businesses (97% of all businesses); or high-energy users in the commercial sector. In A-NZ, low-income households are also relatively easily identified by way of having a *Community Service Card*[3], and/or living in *Kāinga Ora* social housing[4], and/or in neighbourhoods with the lowest three socio-economic decile ratings for schools[5]. That said, being easily identified by various government agencies and services does not mean that they are not also potentially HTR when it comes to engaging them in energy efficiency (EE) and behaviour change (BC) initiatives. As described in depth in Rotmann et al (2020), the more intersectionalities of vulnerabilities (e.g. minority status, disability, social stigma, being a renter or living geographically-remote) an audience has, the more compounded their HTR status becomes. *This is at no fault of these audience segments*, but does entail more complexity for the Behaviour Changers tasked with engaging them.

[1] https://www.mbie.govt.nz/dmsdocument/11679-energy-in-new-zealand-2020
[2] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-hardship/
[3] https://www.workandincome.govt.nz/products/a-z-benefits/community-services-card.html#null
https://www.workandincome.govt.nz/products/a-z-benefits/community-services-card.html
[4] https://kaingaora.govt.nz/
[5] https://en.wikipedia.org/wiki/Socioeconomic_decile

The Different Behaviour Changers Focusing on HTR

This CSA examines four examples of HTR policies, programmes and pilots in A-NZ:

1. Government-led policy programme called *Healthy Homes Initiatives*[6] (HHIs)
2. Utility industry-led pilot called *Energy Mate*[7]
3. Community-led programmes called *Well Homes*[8] and *Warm Fuzzies*[9].

Each initiative focuses specifically on energy hardship in underserved and vulnerable households, but from several different Behaviour Changer perspectives. We aim to use this CSA to illustrate different approaches, methodologies, barriers and impacts when designing EE and behaviour change interventions focused on this HTR audience. Below, we describe the different Behaviour Changers[10] involved in the interventions described in this report:

The *Decision-makers* in Government

The main impetus behind government efforts to engage vulnerable and HTR energy users is improved health (e.g. *Healthy Homes Initiatives* (HHIs), see Allen + Clarke, 2018), as is equity (Ashby et al, 2020a & b). A-NZ has particularly low-quality housing stock, which disproportionately leads to poor health and wellbeing outcomes for the most vulnerable, including Māori and Pacific Island communities (e.g. Howden-Chapman & Tobias, 2000; O'Sullivan et al, 2013). Government insulation subsidy programmes led by the *Energy Efficiency and Conservation Authority* (EECA), e.g. *Warm Up New Zealand: Heat Smart* (WUNZ) or *Warmer Kiwi Homes*[11] (WKH), have also been less effective at reaching these groups as compared to other populations (see Telfar-Barnard et al, 2011), and young people living in cold housing are at high risk for energy hardship (O'Sullivan et al, 2017). As described by Mourik & Rotmann (2013), as well as the *International Energy Agency* (IEA, 2014), a big shift in policy thinking happened in A-NZ when the clear link was made between poor health outcomes and EE – and the macro-economic benefits insulation subsidies would bring (Grimes et al, 2011).

The Labour-Green-NZ First government, elected in 2017, started work towards addressing some of the systemic, underlying issues of energy poverty and poor housing, such as landlord-tenant split incentives (vulnerable energy users are predominantly renters in A-NZ, see Johnson et al, 2018) and the refusal of landlords to upgrade their rental properties voluntarily - nor even with subsidies, as those offered by EECA's *WUNZ* programme in 2017[12]. This ongoing issue was finally addressed by recent changes to the *Tenancy Act*[13], which enforces minimum insulation and (clean) heating standards on landlords. In addition, the government provides *Winter Energy Payments*[14] to beneficiaries and pensioners (which were doubled in Winter 2020 due to COVID-19), however, these have been criticised as both insufficient[15] and somewhat unfair as all pensioners receive them, regardless of wealth. Vulnerable households were also recognised as being underserved by their energy providers, as there were few utility programmes specific to these audiences, and they are often subject to higher pricing relative to their means, and relative to industrial and commercial

[6] https://www.health.govt.nz/our-work/preventative-health-wellness/healthy-homes-initiative
[7] https://www.energymate.nz/
[8] https://www.rph.org.nz/public-health-topics/housing-well-homes/
[9] https://sustaintrust.org.nz/blog/tag/Well+Homes+%2F+Warm+Fuzzies
[10] **Behaviour Changers** are "*those people, organisations or groups who are tasked with, and can affect the conditions for energy saving and efficiency behaviours in end users.*" (Rotmann, 2016)
[11] https://www.eeca.govt.nz/our-work/programmes-and-funding/efficient-homes/funding-for-heaters-and-insulation/
[12] https://www.nzherald.co.nz/bay-of-plenty-times/news/landlords-slow-to-take-up-governments-insulation-subsidy/
[13] https://www.tenancy.govt.nz/maintenance-and-inspections/insulation/compulsory-insulation/
[14] https://www.workandincome.govt.nz/products/a-z-benefits/winter-energy-payment.html
[15] https://www.rnz.co.nz/news/national/441420/government-s-winter-energy-payment-due-to-kick-in-but-it-s-still-not-enough-some-say

customers. This acknowledgement led to the government-led *Electricity Price Review*[16] (*EPR;* MBIE, 2019), which provided several recommendations that are currently underway, such as:

- Establish a consumer advocacy council
- Establish a cross-sector energy hardship group
- Define energy hardship and measures
- Build a network of community-level support services
- Prohibit prompt payment discounts
- Make arrangements for vulnerable and medically-dependent consumers
- Increase building energy efficiency
- Make various changes to electricity industry regulations
- Etc.

The *Providers* in the Utility Industry

In A-NZ, the utility industry is highly deregulated thanks to neoliberal policies in the 1980s, which arguably caused many of the structural inequalities and issues in our energy system (see Eusterfeldhaus & Barton, 2011) that the EPR is trying to address. It is important to assess HTR audiences through the lens of why service providers exclude, or provide inadequate services to, certain groups of consumers. There is a substantial body of literature that explores why service provision based on maximising profit inevitably leads to exclusion of certain groups (see Rotmann et al, 2020). An ethos of universal service provision is seen as leading to fewer opportunities for making profits or offering follow-up services for which to charge. In fact, there is often an underlying tension in privately-owned utilities' mandates, where maximising shareholder profits may be in direct conflict with (usually government or regulator-imposed) energy efficiency and conservation targets. Unless the government intervenes, it makes little sense from a profit-seeking perspective to design and roll out programmes targeting vulnerable energy users, who often are HTR by definition of their vulnerability (e.g. non-English speaking; remote; disabled), but also generally low energy users.

Other than supporting the EPR, in 2015, the electricity industry in A-NZ has formed a collective called the *Electricity Retailers Association of New Zealand* (*ERANZ*[17]), which is specifically focused on:

1. A competitive and efficient electricity market
2. Fairness and energy hardship
3. A low-carbon energy future.

ERANZ members supply about 90% of electricity to Kiwi households, and are thus uniquely placed to create change within the market. A new pilot initiative by ERANZ called *EnergyMate*, which is discussed in detail below, started in 2019 and tackles specifically those households at high risk of energy hardship. The initial pilot, expanded to eight regions in 2020, is now financially supported by the Government's *Support for Energy Education in Communities (SEEC) Programme* to expand into specifically Māori and Pasifika communities.

The *Conscience* in the Community

There are many community groups and trusts in A-NZ that provide the role of 'the Conscience' when it comes to addressing the social and environmental impacts of our energy system. They can take several forms, such as *iwi* [Māori social units, sometimes translated as 'tribes'], church groups, social enterprises or sustainability and energy efficiency trusts, which also operate under the *Community Energy Network*[18] (*CEN*) banner across Aotearoa. We will describe two programmes called *Well Homes* and *Warm Fuzzies* run by *the Sustainability Trust*[19], a major community trust and social enterprise in the capital Wellington, in more detail below.

[16] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-consultations-and-reviews/electricity-price/
[17] https://www.eranz.org.nz/
[18] https://www.communityenergy.org.nz/
[19] https://sustaintrust.org.nz/

The *Experts* in Science and Research

Several research consultants (such as this report's author who leads the HTR Task under which this research sits) and universities in A-NZ focus specifically on energy hardship and the connection with unhealthy housing, but none more so than *He Kainga Oranga*[20], the *Housing and Health Research Programme* by the University of Otago in Wellington. Their research on the connection between chronic respiratory diseases and housing (building on Howden-Chapman et al, 2007), has arguably impacted this country's focus on the health aspect of EE and housing more than any other. Research experts continue to work closely with government, industry and community groups to help design and evaluate programmes focused on energy hardship.

The *Middle Actors* in the Service Sector

'Middle Actors' (see Parag & Janda, 2014) can take several forms. Their main function, - as opposed to 'Intermediaries' who function solely as go-betweens - is to act with their own *agency* (the ability and willingness to make free choices) and *capacity* (the ability to enact those choices) to influence organisational decisions from the 'middle-out'. Yet, Parag & Janda (2014) also point out that Middle Actors are usually overlooked because policy makers tend to concentrate either on the big actors ('top') such as energy utilities, which have the capacity to make or influence many changes but often lack agency, or the millions of small energy consumers ('bottom'), which have the agency to decide on many changes but often lack the capacity to exercise them. In addition, they are often in better moral, financial, technical or social positions to enable and facilitate the action of other actors, with qualities such as trustworthiness, legitimacy, and ability to shape social norms and practices (ibid).

In many cases, Behaviour Changers can fulfil more than one of the roles described above. For example, at the *Sustainability Trust* in Wellington, the for-profit insulation and clean heating installation arm functions as a Middle Actor, whereas the social enterprise not-for-profit side functions more as the Conscience. The *Ministry of Business, Innovation and Employment* (MBIE) functions as a Decision-maker (setting national policy on energy hardship), a Provider (of research funding), and Conscience (the *Energy Hardship Expert Panel*). ERANZ members function both as a Provider (of electricity) and the Conscience, when they focus on reducing energy hardship in their customers.

Reasons for Energy Hardship in A-NZ

Like most relatively 'young' countries, Aotearoa New Zealand suffers from many artifacts of its colonial past. This continues to heavily burden the indigenous Māori people (e.g. Reid et al, 2017), and realisation is dawning that "*colonisation is bad for everyone*"[21], as it leads to issues with identity, intergenerational trauma, marginalisation, stigma, and is often expressed as racism, fearfulness and polarisation. Colonisation, neoliberalism and unfettered technological advances have all caused significant inequalities in financial, human, social and environmental capital (BERL, 2020).
A-NZ has shown one of the strongest increases in income inequality (measured by the Gini coefficient) between 1980-2000 in the world (OECD, 2011). Not only do the wealthiest 1% own three times as much as the poorest 50%, but once housing costs are taken into account, the lowest income earners now have less money to spend than 30 years ago (Rashbrooke, 2013). The impacts of the inefficiency generated from inequality are felt across all of society, for example in businesses who have a less-skilled workforce, the government needing to raise taxes to fund the costs of inequality, and the under-utilisation of human resources not only causing individual hardships but also leading to lost potential economic growth (Marriott & Sim, 2015).

Unfortunately, in A-NZ, many inequalities are still particularly pronounced between ethnic groups (ibid). People identifying as Māori or *Pasifika* [immigrants from the Pacific Islands] have double the poverty rates of *Pākehā* / whites (ibid), and are at higher risk of experiencing energy poverty (O'Sullivan et al, 2013). Among youth, Māori *rangatahi* [youth] are also at highest risk, followed by Pasifika youth (O'Sullivan et al, 2017). Poor health outcomes are particularly linked with measures of

[20] https://www.healthyhousing.org.nz/
[21] https://www.stuff.co.nz/national/119963541/why-colonisation-is-bad-for-everyone

inequality. For example, Signal et al (2007) showed that inequalities in health, and in the determinants of health, are pronounced and have been shown to be increasing in A-NZ. They include inequalities between ethnic groups, people of different socio-economic status, geographic inequalities, inequalities of gender, and inequalities experienced by people with disabilities. We will discuss specific impacts on different audience segments in more detail, below.

Defining Energy Hardship

Fuel, or energy poverty are some of the most commonly-used terms for low-income households living in vulnerable circumstances (see Rotmann et al, 2020 for a detailed discussion of terminologies). **Energy hardship** is a term more commonly-used in Australia and New Zealand (e.g. Willard et al, 2017; MBIE, 2019), and includes: "*...households that cannot afford to heat their homes adequately, or afford other basic energy services, for example, sufficient hot water. In some cases households may not be able to afford heating at all*" (Statistics NZ, 2017). The term energy hardship (as the opposite to 'energy wellbeing' or 'energy equity') is becoming predominant in government documents (Statistics NZ, 2017; MBIE, 2019), and a cross-sector expert group is currently working on defining and providing measures of it[22].

Audience Characteristics and Barriers

Statistics NZ (2017) found that around ⅓ of NZ households experienced one or more energy hardship indicators. In Aotearoa, there are around 682,500 people living in poverty (1 in 7 households), including around 220,000 children. Beneficiaries, children, Māori and Pasifika, and sole parents are more likely to be in poverty. One-quarter of New Zealand's low-income households spend more than 10% of their monthly income on energy (Eusterfeldhaus & Barton, 2011), and the 2015/16 *Household Economic Survey* showed that energy hardship indicators were more prevalent in low-income households, who were approximately twice as likely to experience difficulty paying a utility bill on time, and to experience cold and/or damp housing conditions. Below, we delve into some specific audience subsegments, which all of our case studies, more or less, are trying to engage with.

Indigenous Māori Population

- Māori make up close to 15% of the NZ population, yet continue to suffer the lowest levels of educational attainment, employment, income, health and housing relative to non-Māori (Humpage, 2005).
- Life expectancy in Māori is 9.5 years lower than non-Māori (Signal et al, 2007).
- Cornell (2005) showed that about 24% of Māori households had a disposable income of less than 60% of the median (A-NZ's measure of wealth) compared with 12% of its non-indigenous population (i.e. a 50% income gap).

Figure 1 shows the clear distinction between ethnicities in hardship rates in A-NZ.

[22] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-hardship/defining-energy-hardship/

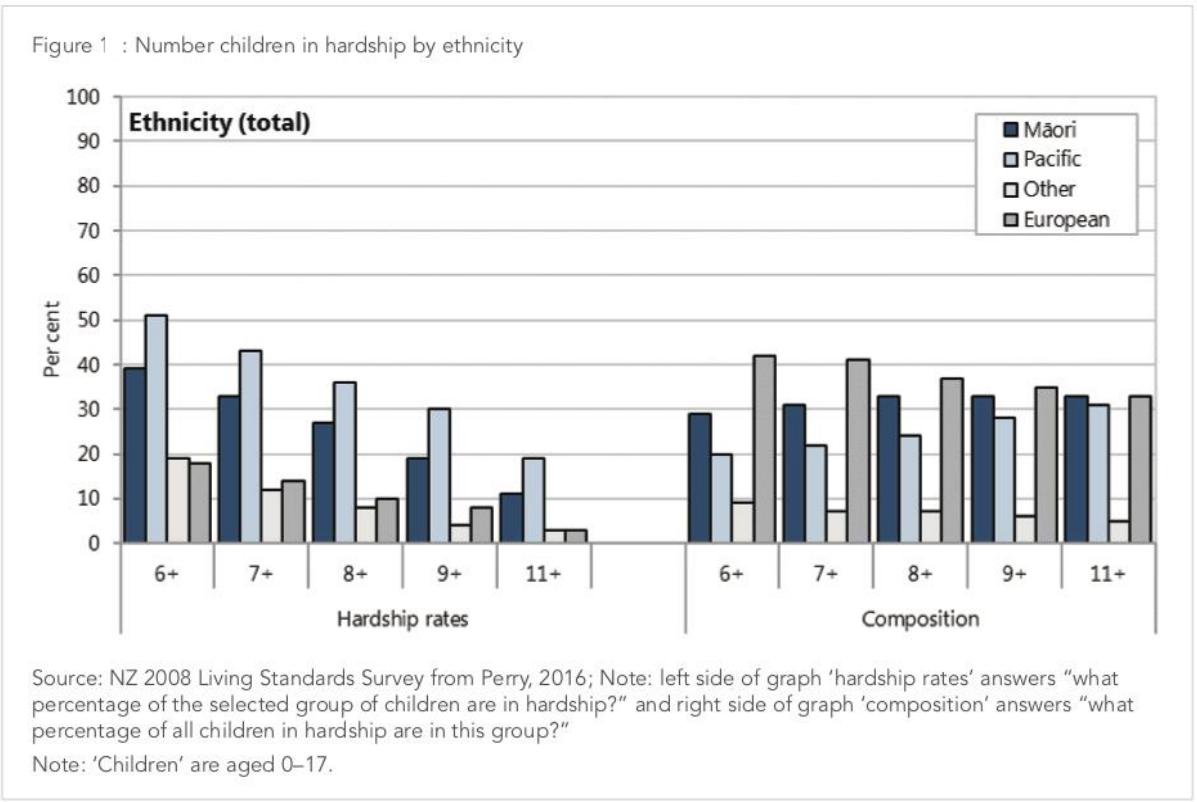


Figure 1: Number of NZ children in hardship by ethnicity (Source: McGuinness Institute, 2017).

Humpage (2005) showed that in attempting to address the relative disadvantage of Indigenous New Zealanders, government policy has traditionally applied a needs-based discourse to Māori. This conceptualises Māori as just one of many disadvantaged groups whose 'needs' can be met by activating equal citizenship rights. This needs-based discourse, which conceives indigenous culture as a major explanation for indigenous poverty and disparity, has legitimised state intervention into Māori communities under the pretence of 'helping' Māori peoples gain access to the kind of socio-economic status their non-Māori counterparts enjoy. Along with 'Māori well-being', *tino rangatiratanga* was the top outcome area mentioned by interview participants (ibid). Although literally meaning absolute chieftainship or full chiefly authority, *tino rangatiratanga* can be more broadly defined as the power to be self-determining. Humpage (2005) warns that Māori values and input should never be regarded as 'add-ons' to policy or programme design. Rather, appropriate Māori involvement should be sought right from the initial stages of planning through to the implementation stages of any government initiative for Māori. Major barriers to engaging Māori are ***whakamā*** ['shame'], **mistrust in authorities,** and **lack of cultural understanding** (Rotmann et al, 2020).

Immigrants

- In A-NZ more than 25% of people were born overseas (Statistics NZ, 2014).
- 2 in 5 people in the largest city, Auckland, are first-generation immigrants.
- Immigrants are also significantly older (the median age for people born overseas was 41.8 years, compared with 36.2 years for people born in Aotearoa).
- They are more likely to be multilingual (especially females, with 19.3% compared to 17.8% of males), and 2.2% of people did not speak any English (ibid).
- They are generally regarded as harder-to-reach, due to cultural differences and language barriers (see Ashby et al, 2020b).

Pene et al (2009), in their research on Tokelauan immigrants to NZ also showed that, for migrants, extended family living is often an important cultural and economic strategy to facilitate their adaptation

to a new country. In the case of Pacific peoples in Aotearoa New Zealand, it also reflects the realities of the norm of lives in villages, where land is limited and owned collectively by families. Like the Pacific population as a whole, the Tokelauan population is relatively young: the median age is about half that of the total A-NZ population (19 years versus 36 years, see also Ashby et al, 2020b for average age comparison between our participating countries, where A-NZ is the youngest). Tokelauans have a level of extended-family living almost three times higher than that of any other ethnic group (37% compared to 10% for the total population), leading to crowding in often poor, energy-inefficient housing (ibid). There is strong evidence that crowding increases the risk of close-contact infections such as meningococcal disease, rheumatic fever, tuberculosis and skin disease (Baker et al, 2010). Major barriers to engaging immigrants are **language barriers**, **fear,** and **lack of cultural understanding** (Rotmann et al, 2020).

The Elderly and Infirm

- Around 4-7% of elderly are living in poverty and energy hardship, which is relatively low thanks to high ownership rates in mortgage-free houses, and *NZ Superannuation* (pension) as income support for all residents over 65[23].
- However, despite being asset-rich, over 60% of elderly Kiwis have no additional income and are thus highly vulnerable to rising housing, food, energy and transport costs.
- Again, the statistics are particularly troubling for elderly Māori[24].
- During the next 30 years, the proportion of people aged 60 or over in A-NZ will increase from 15.4% in 1996 to 25.3% in 2030 (Howden-Chapman et al, 1999).
- An ageing population will lead to an increase in single-person, predominantly-female households and an increasing proportion of people over the age of 80.
- One-person pensioner/retiree households have among the lowest incomes of any household type in A-NZ, with elderly women having significantly lower incomes than men (ibid).
- Using A-NZ data, Taylor et al (1994) found that 86.6% of the domestic hypothermia-related fatalities occurred in those over 65 years.

The risk of death by a respiratory infection can further increase if a person suffering from a chronic respiratory illness sleeps in a cold bedroom, leading to the 1600 excess winter deaths per year observed in A-NZ (e.g. Howden-Chapman, 2015). Disability associated with ageing increases the possibility of housing and health problems, which can lead to stress and costs to older people, their families, the community and the government (Howden-Chapman et al, 1999). Growing numbers of older people with dementia will also need particular housing assistance. Generally, people with chronic health issues often live in highly vulnerable circumstances, as their survival often depends on their ability to control the temperature in their homes, use an air conditioner to ease respiratory stress, refrigerate medicine, store and prepare food, and operate medical equipment. Major barriers to engaging the elderly and infirm are **access to technology, not wanting to be (perceived as) a burden, social isolation,** and **physical and mental disabilities** (Rotmann et al, 2020).

(Single) Families with Young Children

- Just under 20% of A-NZ families are single-parent families – generally mothers aged 25-50[25].
- According to *Statistics New Zealand*, between 2001 and 2021, single parent families are projected to increase from 31 to 38% of all families with dependent children.
- The child poverty rate in Aotearoa is high by OECD standards at 16.3%.
- But for children in single parent households this figure increases to 47% (Todd, 2008).
- Half of all single parent families rely on the *Sole Parent Support* as their only source of income - and the level of this income is set below the income poverty threshold.
- For single mothers, neither current benefit levels nor low wage work necessarily provides enough income to cover basic expenses or to raise their families out of poverty (ibid).

[23] https://nzccss.org.nz/work/older-people/poverty-and-older-people/
[24] https://borgenproject.org/elderly-poverty-in-new-zealand/
[25] https://www.birthright.org.nz/statistics-single-parent-families

- 33.6% of households that reported using no heating had dependent children (O'Sullivan et al, 2016).

Bhattacharya et al (2003) found that, whereas poor and rich households increased their energy bills during cold weather in the U.S., only the poor households reduced their food expenditures by roughly the same amount, leading to worse nutritional outcomes. McKague et al (2016) found similar accounts in A-NZ. Worse, the choices between food, medical bills, rent or heating, also leads to arguments over bills; increased domestic violence; a reduced ability to maintain social relations; feelings of shame and guilt; social isolation, including due to children being unable to engage in extracurricular activities; and time poverty spent on e.g. foraging for firewood (ibid). Major barriers to engagement for single-parent families are **competing life priorities, cost,** and **stigma** (Rotmann et al, 2020).

Renters

- Home ownership in Aotearoa has decreased dramatically over the last few decades, while housing rental costs have increased (Johnson et al, 2018).
- Statistics NZ (2018) estimates there were ~1.8 million NZ households at the end of June, up 1.4%, compared to June the year before. Of those, ~1.1 million, or 62%, owned their own homes, 34% rented their homes, and 4% lived in free accommodation, such as that provided by a relative.
- Renters were about twice as likely as homeowners to spend 40% or more of their household income on housing and utility costs (Statistics NZ, 2019).
- Rental housing has been found to be significantly harder to heat, mouldy, damp and below the WHO recommended 18^0C indoor temperatures, especially in winter (ibid).
- A study examining the practicality of introducing a *Warrant of Fitness* (WoF) scheme for rental houses showed that 94% of sampled houses failed at least one of the 31 criteria, with many of the houses having numerous defects (Bennett et al, 2016).
- People in rented properties, particularly those in the public-rental sector, are most likely to experience health problems related to housing (e.g. Howden-Chapman et al, 2011), and have higher death rates than people in owner-occupied households.
- In 1996, three-quarters of *Pākehā* lived in mortgage-free housing (vs only half of older Māori), and 87% (vs 70% in Māori) lived in owner-occupied housing. For older Pacific people, only 25% lived in mortgage-free housing, and 54% in accommodations which they owned.
- Housing rental costs have also increased significantly over the last decades, thus older Māori and Pacific people are likely to have been more economically affected than Pākeha.
- Many older homeowners in New Zealand are dependent on government pensions for day-to-day living expenses, leaving little left over to pay for repairs and modifications to housing, negatively affecting their energy bills and health (Howden-Chapman et al, 1999). This is a great illustration of **intersecting vulnerabilities** (e.g. ethnicity, age and rental status) compounding barriers, making these households harder-to-reach.

Kāinga Ora (the government's social housing provider) is the country's largest residential landlord, owning or managing more than 60,000 properties. Currently, there are too many homes in provincial areas and not enough homes in urban areas, where there is a higher level of social housing demand (Johnson et al, 2018). In the A-NZ renting population, between 1986 and 2013, the proportion of Māori renting state housing dropped by 29% (Johnson et al, 2018). As state housing has become less available, unaffordable and often inefficient rentals in the private market have become the only option available for many families. Children from tenant households are more mobile and are at greater risk of not succeeding at school (Johnson et al, 2018). In the current market there are few incentives for landlords to have fixed-term tenancy agreements longer than 12 months, which would preclude rent increases for the duration of the tenancy (unless otherwise agreed). This leaves most tenants with little security of tenure and no effective protection against biannual rent increases. It very often leads to one of the most-commonly mentioned barriers in renters - **fear and mistrust in landlords**, diminishing the chances they'll request housing improvements (e.g. Chisholm 2016) and of course, the **split incentive issue** (Rotmann et al, 2020).

Research both within and outside of A-NZ has pointed to the reluctance amongst private landlords to reinvest profit into improving the thermal performance and EE of their properties where there is no legal or regulatory requirement to do so (Ambrose, 2015; Barton, 2012; ACE, 2014). Ambrose & McCarthy (2019) address the topic of "*taming the masculine pioneers*" in a paper that reveals a shift in attitudes amongst landlords over a period of about 5 years, with many becoming more amenable to investing in insulation and low energy heat sources. This shift had ostensibly been driven by pressure from tenants who appeared to be departing from established cultural norms of under-heating ("*Put on another jacket you wuss*!", Cupples et al, 2007; Mourik & Rotmann, 2013) and instead were becoming intolerant of cold homes and high bills. The study highlighted how socio-cultural factors, such as growing expectations regarding warmth and comfort in the home, as those seen since the *Warm Up New Zealand* insulation subsidy programme started in 2007, can disrupt **established cultural norms** and economic rationales to bring about change (ibid).

The Homeless

- A 2013 Statistics NZ census concluded that around 41,000 New Zealanders are homeless, with 70% of the homeless population living in overcrowded conditions and 80% of them being transitionally homeless, with a further 15% being episodically homeless (leaving only 5% who are chronically homeless and sleeping rough or in shelters).
- 1% of the population was estimated to be severely housing deprived on census night 2018.
- 41,644 people were severely housing deprived.
- 3,522 people were without shelter (e.g. rough sleepers, improvised dwellings).
- 7,567 people were in temporary accommodation (e.g. night shelter, motel).
- 30,555 people were sharing accommodation (Temporary residents in a severely crowded private dwelling).

As discussed above, housing is a key determinant of health, justice and social development outcomes, and it directly affects economic and security (Pierse et al, 2019). It is therefore important to integrate approaches to addressing the complex needs of those experiencing chronic homelessness, with an emphasis on housing. The homeless are exposed to multiple, overlapping risk factors, such as facing barriers **in access to services, stigma,** and **discrimination**. In addition, there is a massive **gender inequality** among the homeless: In the UK, 67% of statutory / chronically homeless people are women and housing unaffordability is also closely linked with violence and abuse (WBG, 2020).

However, it is not just about 'rough sleeping' (i.e. sleeping without adequate shelter, often in the open air), which is the visible face of homelessness and only the tip of the iceberg. For every person sleeping rough on the streets, there are 12 households that are homeless (ibid) - i.e. they do not pay utility bills and cannot be easily found at an address, but they do need to use energy to survive. They are often in temporary accommodation provided by the Council, staying temporarily with friends and family or sofa-surfing. Women are the majority of those in these circumstances, and single mothers are overrepresented in homeless families (ibid). Aotearoa has unfortunately some of the most shocking statistics of domestic violence, being ranked worst in the OECD[26]. This again leads to many compounding vulnerabilities and overwhelming barriers such as **competing life priorities, fear, mistrust,** and **shame**, making these families almost impossibly hard-to-reach (Rotmann et al, 2020).

Socially stigmatised, illegitimised and criminalised

- There are more than 8000 patched gang members in A-NZ, with many more family members and other associates forming part of their households[27].
- The *Mongrel Mob* is A-NZ's largest gang, with over 1000 members who are predominantly Māori[28].

[26] https://nzfvc.org.nz/family-violence-statistics
[27] https://www.scoop.co.nz/stories/PA2105/S00150/more-than-8000-gang-members-in-new-zealand.htm
[28] https://teara.govt.nz/en/gangs

- Many gangs have links to Asian crime networks, and are engaged in smuggling drugs, arms and kidnapping.
- In 2018, 36% of all prisoners and 70% of Māori prisoners had gang connections. The majority of gang members in prison were there for drugs, violence or sexual violation.
- In 2008, 78% of identified clandestine laboratories manufacturing methamphetamine ("P") were connected to organised criminal groups dominated by gang members.
- A number of gangs also run legitimate, taxpaying businesses such as nightclubs, massage parlours, fishing operations and retail outlets, although they may be sometimes used to launder money made from illegal activities such as drug dealing.
- There are three main strategies for dealing with gangs: **prevention** (discouraging youths from joining gangs through effective parenting, early childhood education, school activity and after-school programmes), **intervention** (uses education, work opportunities, counselling and health services to move existing or fringe gang members away from crime), and **suppression** (policing and legislation).

The culture of gangs is complex and permits a network of relationships that members rely on for validation and social support. According to Tamatea (2015), it leads to "*a collective outlook that is explicitly oppositional and antisocial, threatens to subvert deterrence efforts and to facilitate ongoing offending by exposing individuals to violence and risky situations*. *New Zealand gangs are forms of community with norms, values, processes and practices that possess an internal logic that is understood by members*." Their very nature at the edge, or in **criminality** and **social stigma**, means that they are extremely **distrustful** of authorities, including social or welfare agencies (ibid). This is a similar issue with people who have been previously incarcerated (e.g. Lee et al, 2014), and drug addicts (Matsuzaki et al, 2018). Interviews with A-NZ HTR researchers, practitioners, and policy makers for this Task (see Ashby et al, 2020a and b) have brought up the issue of how difficult it is to access houses associated with gangs, drugs or other criminal activities because of this distrust.

Geographically remote

In Aotearoa, people living in rural areas with high urban influence had the highest median incomes and highest household expenditure of any profile area (Statistics NZ, 2002). They were thus consistently among the least deprived areas in every region. However, the more rural and remote households are some of the most vulnerable, in large part due to **poor access to transport** (Fitzgerald, 2012). The *NZ Transport Agency* found that rural areas that are comparatively transport poor areas are more remote, and have:

- Higher proportions of people aged 65 and over
- Higher proportions of Māori residents
- Lower levels of educational attainment
- Smaller household sizes
- Lower median household incomes
- Lower levels of access to telephones and to the internet.

Importantly, the rural areas with poor access to transport also have higher levels of socio-economic deprivation as measured by the *New Zealand Index of Deprivation*. Again, this highlights a **compounding intersectionality of various vulnerabilities**, making these households HTR.

Methodology

The overall methodology followed the co-designed CSA methodology and template (Rotmann et al, 2021). Our HTR Task follows a recently-developed research framework by See Change Institute, called 'The ABCDE Building Blocks of Behaviour Change' (BBoBC; Karlin et al, 2021). The ABCDE Building Blocks framework serves as a systemised and data-driven approach to designing, implementing, and evaluating behaviour change interventions, including for those aimed at HTR audiences. These Building Blocks include (see Figure 1 in Karlin et al, 2021):

- **A**udience: the pilot or programme's intended participants
- **B**ehaviour: the specific behaviour the programme intends participants to change
- **C**ontent: the programme strategy and approach
- **D**elivery: the mechanism and timing of the intervention (e.g. delivery may happen through door-to-door interactions or social media, etc.)
- **E**valuation: the way in which programme success is measured or otherwise assessed

Throughout the development of these case studies, it became clear that some of the building blocks applied more readily to these programme examples than others, as discussed in more detail in the General Discussion section of this document. As will become apparent in each case study, Content and Delivery are often closely linked. Given that certain content lends itself more readily to specific delivery channels, it can be a bit tricky to untangle which was content and which was delivery. The other building blocks, for the most part, proved more straightforward to apply to these concrete programme examples.

Methods of Data Collection for each CSA

The methodology to develop the case studies is simple, and is composed of the following elements (taken from Mundaca, 2021).

First, the case studies were chosen based on the outcomes of previous activities undertaken by the Users TCP HTR Task. As indicated in the previous section, these activities aimed to identify and characterise HTR audiences in participating countries. To that end, a variety of data sources were used, including an international survey, interviews with experts and practitioners, and a literature review (for details, see Ashby et al, 2020a and b; Rotmann et al, 2020). We then reached out to our funders and other stakeholders to identify the most appropriate CSAs for A-NZ. This is where we decided to focus on the **residential sector** and specifically, **households in energy hardship** from three uniquely different Behaviour Changer perspectives, as this is the priority focus in Aotearoa, and few, if any relevant case studies could be identified from the commercial / SME sectors.

Therefore, the case studies focused on programmes or initiatives targeting the following audiences, in particular:

- The *Healthy Housing Initiative* (HHI) for a government perspective
- *EnergyMate* (EM) for a utility industry perspective
- *Well Homes* (WH) and *Warm Fuzzies* (WF) for a community-sector perspective.

HHIs have national coverage, EM is spreading past the initial 3 pilots across other Regions, and WH/WH are specific to the Wellington Region, where (online) interviews and data gathering took place.

From an analytical point of view, the approach adopted the BBoBC framework developed (for details see Karlin et al, 2021; and Rotmann et al, 2021). Data gathering was guided by an interview protocol that addressed each building block, and the set of questions can be found in Rotmann et al (2021).

Interviews (~90 minutes) supported data collection and provided a deeper understanding of the chosen cases. These were conducted by the author of this report and the following people were interviewed:

- *Prof Nevil Pierse*, Otago University, evaluator of HHI (18 May, 2021)
- *Gaylene Leaborn*, Ministry of Health, HHI programme manager (27 May, 2021)
- *Miranda Struthers*, EM programme manager (10 June, 2021)
- *Susanna Kelly*, evaluator of EM (2 July, 2021)
- *David Pierce, Giovanni Morales* and *Teresa Hall*, programme managers WH/WF (14 April, 2021).

Finally, the case studies were supported by a review of official documentation and related journal publications. This phase also included the analysis of information found on the websites of the four initiatives, and multiple (*ex-post*) evaluation reports and papers.

A-NZ Case Study 1: *Healthy Homes Initiative*

Background

According to the Ministry of Health (MoH) website, "*Healthy Homes Initiatives (HHIs) work with families, agencies and local partners to provide education and access to interventions which will create warm, dry and healthy homes*." They were initiated in 2013 and covered 11 district health boards (DHBs) with a high incidence of rheumatic fever. The *Auckland-wide Healthy Homes Initiative* (AWHI) was the first HHI set up by the MoH as part of the *Rheumatic Fever Prevention Programme* (RFPP) to reduce household crowding and the subsequent transmission of Group A *Streptococcus* (which can lead to rheumatic fever).

In 2016, the programme was expanded, partly due to its success, partly due to high needs of targeted families. It now focuses more broadly on providing warm, dry and healthy housing for:

- Pregnant women
- LI families with children aged between 0 and 5 who've been hospitalised with a specified housing-related condition
- Families with children also between 0 and 5 for whom at least two of the social investment risk-factors apply.

The housing stock in Aotearoa is woefully inefficient, with complex and extensive interconnections between energy insecurity and health (Jessels et al, 2019). The *Household Energy End-Use Project* (HEEP) found that Kiwi houses have very low indoor temperatures owing to persistent under-heating; commonly, only in living rooms on winter evenings does the temperature even come close to WHO's healthy indoor temperature range of 18 – 24°C / 64 - 75° Fahrenheit (Isaacs et al, 2010). Bedrooms are typically colder, central heating is uncommon, and often only a few rooms in the house are heated. Cold homes are also likely to be damp, leading to the growth of moulds and associated poor health and excess winter mortality, especially for people who are vulnerable owing to illness, disability or age (Howden-Chapman et al, 2007; 2015).

In addition to inadequate and unhealthy housing stock, A-NZ has one of the worst incidences of respiratory diseases, leading to shocking statistics such as[29]:

- Respiratory disease being our third most common cause of death.
- Respiratory disease is costing more than NZ$5.5 billion every year.
- One in six (over 700,000) Kiwis live with a respiratory condition.
- Respiratory disease accounts for one in eight of all hospital stays.
- More than half of the people admitted to hospital with a poverty-related condition are there because of a respiratory problem such as asthma, bronchiolitis, acute infection or pneumonia.
- People living in the most deprived households are admitted to hospital for respiratory illness over three times more often than people from the wealthiest areas.
- Across all age groups, hospitalisation rates are much higher for Pacific peoples (2.6 times higher) and Māori (2.1 times higher) than for other ethnic groups.

Baker et al (2010) showed that there were marked ethnic differences in the distribution of close-contact infectious diseases (CCID). CCID rates were highest in children less than 5 years, the next most vulnerable group was adults aged 70+. Respiratory hospitalisations made up roughly half of all CCIDs, something of particular concern in the age of COVID-19 (Baker et al, 2020). The incidence of Rheumatic Fever (RF) is particularly egregious in a 'first world' country such as Aotearoa. As one health Expert describes the underlying reasons for the HHI programme:

[29] https://www.healthnavigator.org.nz/health-a-z/r/respiratory-disease/

"*The Māori party wanted to focus on broad structural inequalities and causes for it. Disease is a huge indicator for inequality and the most unequal disease by ethnicity by far is rheumatic fever (RF) – it has a 70x higher rate in Pasifika children and 35-40x in Māori children compared to Pākeha. But it goes away when you raise living standards and improve housing! For example, it was endemic in the EU until WW2 after which they started big social housing projects that helped eradicate it."* [The other HHI interviewee also commented on the U.S. and Canada having mostly eradicated it, but there are still RF outbreaks in Australian Aboriginal communities].

"A big factor is crowding. If you're at risk of being overcrowded, you are at much higher risk of getting re-infected. One of the former government's Better Public Service *goals as an explicit gift to the Māori Party was reducing RF by 2/3. They did slightly reduce it, but then it went back up to 90%. Most of the money was spent trying to develop a vaccine, which is very much an 'ambulance at the bottom of the cliff' approach. And we still don't have a vaccine."*

HHIs Methodology

The HHI programme managers at the *Ministry of Health* (MoH) are helped by other government agencies (*MBIE, EECA, Ministry of Social Development, Kāinga Ora*), or Middle Actors in the community (e.g. *iwi*) to identify eligible families, with the aim to carry out a comprehensive housing assessment by certified Home Energy Performance (HPA) Advisors, and devise individualised action plans to help create warmer, drier, healthier homes. HHIs also help families to get the home improvements they need to create a better living environment, especially for their children, and to reduce the impacts of *structural* (too many people living in a house) and *functional* (too many people sleeping in the same bedroom) crowding (TSI, 2016).

EE interventions given to these families include help with accessing (subsidised or free) insulation, curtains, beds, bedding, minor repairs, floor coverings, ventilation, heating sources, entitlement assessments through *Work and Income*, support with power bills, and finding alternative accommodation as needed. The MoH also has a selection of government resources and energy-saving tips (in videos in several languages) available on their website[30] for creating and maintaining warm, dry, healthy homes. Figure 3 shows a diagram of the HHI process.

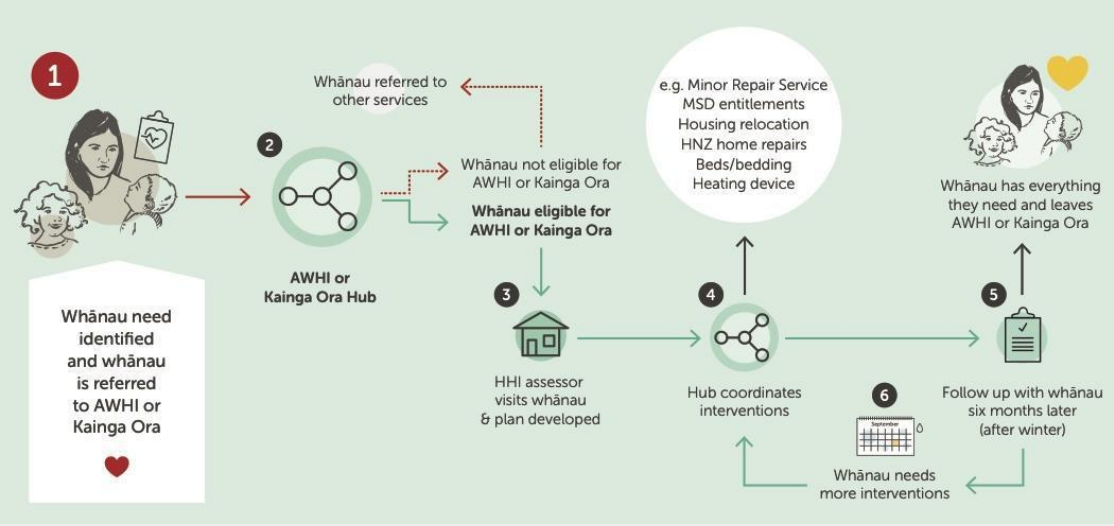


Figure 3: HHI process (Source: TSI, 2018)

In addition, the initial co-design process in Auckland (TSI: AWHI, 2016; 2018) used *Journey Mapping* (for an example see Figure 4) and *ideation* workshops to gain greater insights into audience characteristics, needs, pain points and workarounds.

[30] https://www.health.govt.nz/your-health/healthy-living/warmer-drier-homes

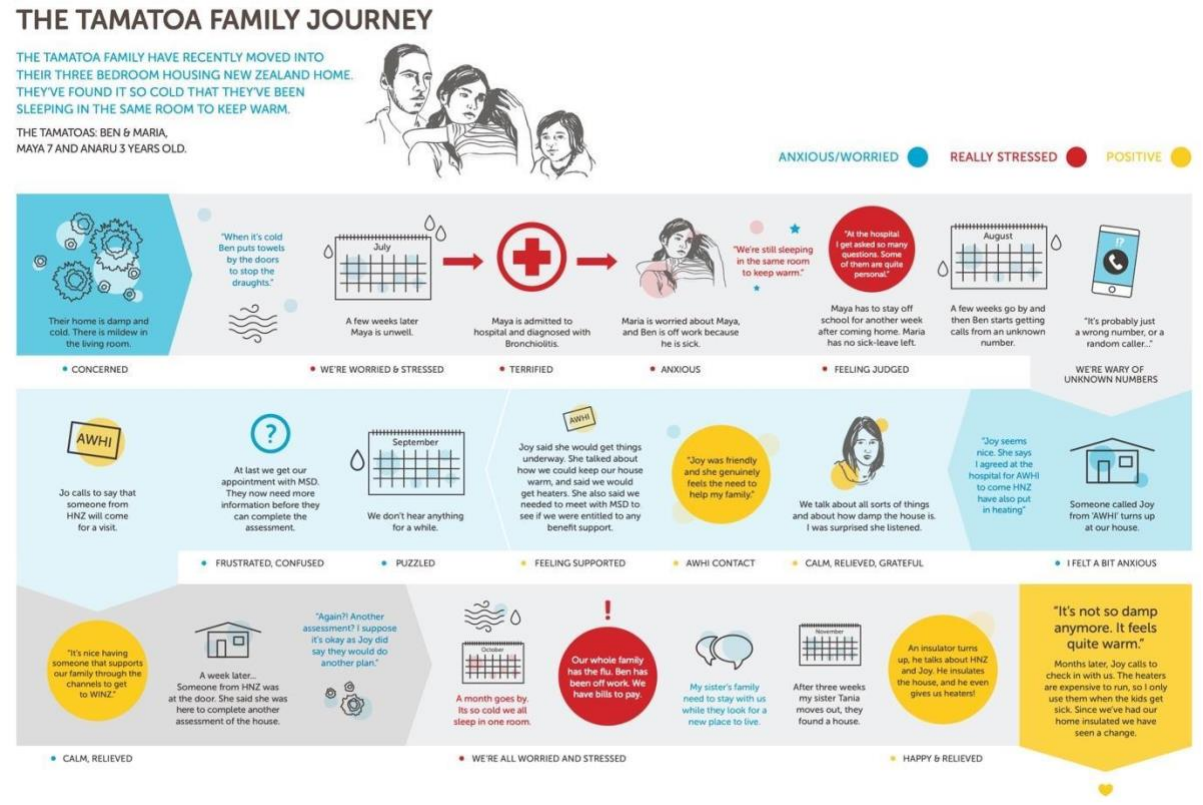


Figure 4: Example of Journey Mapping (Source: TSI, 2016)

(Shared) Objectives

A surveillance sector review on rheumatic fever in A-NZ was a seminal publication to inform the initial priority target of HHIs (Oliver et al, 2014). The target audience was later expanded, based on further stakeholder input. A particular strength of the HHIs, pointed out by both interviewees and in evaluation reports, is the strong focus on *co-design* from the start. The initial HHI programme was developed in South Auckland, one of the country's most ethnically-diverse and poor areas (TSI, 2016; 2018). Co-design is a user-centred approach that focuses on people's experiences and insights to generate new perspectives and solutions (similar to the *Discover Phase* in the BBoBC process, see Karlin et al, 2021) and fast experimentation (prototyping) and learning by doing (similar to the *Design Phase* in our process). Figure 5 shows a diagram of the HHI co-design process.

In late 2015, the HHI co-design team began by listening to the lived experience of whānau ('family') and frontline workers through empathy interviews that use open-ended questions to elicit stories about specific experiences that help uncover unacknowledged needs. They then developed the findings into key insights and ideas (prototypes), which they shared with stakeholders from the health, housing, social enterprise, community, government, and local government sectors at a stakeholder workshop. Prototypes generated at this workshop were further refined for testing in the field. The co-design process is iterative so the first ideas tested resulted in additional ideas being tested. The key insights from the whole process actually affected how other HHIs were set up and how *Kāinga Ora* was established. The strong emphasis on empathy and understanding their audience led to insightful knowledge about audience characteristics, including (some) psychographics and barriers.

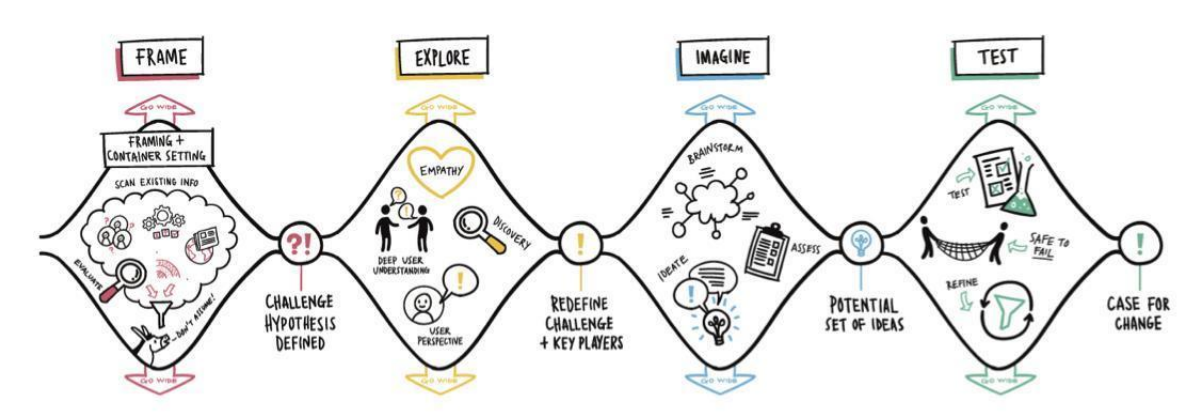


Figure 5: The HHI Co-Design Process (Source: TSI, 2018)

Audience

Definition and characterisation of the target audience

One of the primary reasons for the great success[31] of this programme is the strong focus on in-depth understanding and empathising with their target audience. A significant amount of time and effort was spent on this building block, including by multi-stakeholder and audience engagement, prototyping and reiterating co-design of interventions based on qualitative feedback and data.

Results of the Audience definition work

AUDIENCE DEMOGRAPHICS

Figure 6 shows the target audience demographics. The iterative co-design and prototyping process with strong multiple stakeholder engagement further helped define these target audiences.

The main identifiers were income, being a citizen or permanent resident, and leaving near a District Health Board (DHB) catchment area. The criteria for being eligible centred around crowded living conditions, and certain respiratory illnesses found in young children or pregnant and/or new mothers. Certain risk factors, such as low educational qualifications or previous history of domestic abuse were also taken into account.

[31] https://www.health.govt.nz/news-media/news-items/new-research-shows-healthy-homes-initiatives-reaching-those-most-need

Figure 6: Target audience demographics of HHIs (Source: TSI, 2018: Appendix 1).

AUDIENCE PSYCHOGRAPHICS, BARRIERS AND NEEDS

This programme excels at 'empathy interviews' and listening to both target audience and Middle Actors supporting these whānau. This led to insights such as (TSI, 2018):

- Whānau wanting to be self-reliant, with many having tried to improve their living space before joining AWHI (**self-efficacy, identity**)
- Struggling with overcrowding (e.g. sharing sleeping space), and wanting to provide for their extended families but also needing space (**family politics, guilt**)
- *Kāinga Ora* public housing is regarded as a better option than private rentals, due to lower cost, higher quality and greater ease of dealing with a government landlord (**infrastructure, trust**)
- Some interventions, such as heaters, are perceived as too costly to run, and are thus not used (**behavioural and financial barrier**)
- Some whānau resenting being asked the same personal questions again and again by different agencies or Middle Actors (**mistrust, privacy concerns, stigma**)
- AWHI advocacy was necessary to help whānau navigate the complex social support services (**bureaucracy, competing life priorities, capacity**)
- Some HHI assessors go above and beyond to support whānau, thus being judged much more positively than other government agencies (**trust, empathy**)
- The landlord's role was crucial in minor repair services and tenant and landlord relationships are inextricably linked. Not all private landlords are reticent to help or improve their rental stock, some are not being told there is a sick child in the home or do not know the connection between housing and health (**education, fear, mistrust**)
- Maintenance and repair was usually the onus of the landlord, but when tenants were responsible for damage, they were sometimes reticent to let their landlords know (**fear**).

- When landlords refused to listen to requests for repair, tenants could feel they were not deserving of better homes or services (**inadequacy, resignation**)
- Healthy homes literacy needs to be improved across the population, including in HPAs (**education, information, knowledge**)
- HHIs are part of a complex and long journey many whānau are on, with many government agencies and other actors being involved and clear communication and sharing of data and information not always being adequate (**communication, data sharing**)
- Trusted Middle Actors such as public health or school nurses are often seen as much more trustful than e.g. Council staff or social workers (**trust**)
- Even though most whānau already knew key components of keeping their homes healthy, the cost of power was often a barrier to uptake for certain behaviours such as using heaters or mechanical ventilation systems (**cost**).

It needs to be pointed out here that our Expert interviewee strongly rejected the notion that these audiences were HTR:

"92% have a power connection but they have trouble paying their electricity bills. They are definitely underserved though. If someone asks repeatedly for help, it's a bit rich to call them HTR. They often have high interaction with electricity services and utilities."

The HHI Programme Manager (PM) also did not like the terminology but said all of them were hard-to-engage in how they used energy - she gave several examples particularly around heating behaviours, where interventions such as vouchers or provision of clean heaters failed as many households limit their use of heating:

"*Families don't use the heaters they're given efficiently, then they get stung with big bills. Some were given* Globugs *by their utilities. It's basically Prepay – households were charged an arm and a leg for the units and then the utilities got slapped for that. But families liked them because they helped manage their bills. That's also why they're wedded to the stupid un-flued gas heaters*[32].

All whānau are in that category, so I disagree that they're not HTR. It's about engaging them, and they don't understand their power bill. We deviate all over the show with our interventions, whatever is important to the whānau. Providing the technology doesn't work, ongoing education and behaviour change is really important. These people lead really complex lives, and our frontline staff often work with them for years to get it right."

Behaviours

Several 'behaviours' (in the very broad sense we regard them in this Task[33]) were addressed by the HHI interventions, some with different audiences (e.g. some were directed at landlords, and some at vulnerable whānau). They also differed by regions and in relation to individual circumstances and needs. General behaviours that were addressed (with examples of engagement strategies) were:

[32] https://www.health.govt.nz/your-health/healthy-living/environmental-health/household-items-and-electronics/unflued-gas-heaters

[33] **Energy behaviour** refers to "*all human actions that affect the way that fuels and carriers (electricity, gas, petroleum, coal etc.) are used to achieve desired services, including the acquisition or disposal of energy-related technologies and materials, the ways in which they are used, and the mental processes that relate to these actions*" (Rotmann & Mourik, 2013).

Behaviour change thus refers to "*any changes in said human actions which may be directly or indirectly influenced by a variety of interventions (e.g. legislation, regulation, incentives, subsidies, information campaigns, peer pressure, infrastructural changes etc.) aimed at achieving specific behaviour change outcomes*" (ibid).

- *Educating whānau around energy hardship and unhealthy living conditions*, e.g. via in-home visits or through community Middle Actors (overcoming **knowledge** and **trust** barriers and **cultural differences**).
- *Reducing mould and damp,* e.g. many specific behaviours addressed heating and ventilation. Bedding in particular was found to be a major issue – with a large number of interventions centred around mouldy and damp mattresses (overcoming **poor housing conditions, cost**).
- *Educating whānau on energy conservation*, e.g. by the energy-saving tip videos on the HHI website in different languages, or brochures and flyers left behind by frontline staff (overcoming **knowledge** and **language** barriers).
- *Enabling monthly bill* payments, e.g. via *Winter Energy Payments*; by changing service providers or payment plans; or providing vouchers (overcoming **financial** barriers).
- *Getting whānau to use provided heaters*, e.g. by providing power meters and vouchers (overcoming **knowledge** and **financial** barriers).
- *Improving communication with landlords*, e.g. via an introductory letter from the health services (dealing with landlords not being made aware of sick children or unhealthy conditions in their tenants' homes – due to **fear** or **mistrust**).
- *Repairing and retrofitting homes to improve unhealthy housing conditions,* e.g. by providing a one-stop-shop for landlords and whānau by joining up existing community and service providers and taking advantage of recycling and skills within a given community (overcoming **cost** and **inconvenience** barriers).
- *Enabling DIY repairs*, e.g. by providing a mobile fix truck to educate whānau living in private rentals how to fix unhealthy conditions themselves; or curtain sewing bees (overcoming landlord **split incentive** and **self-efficacy** barriers).
- *Educating installers and landlords to apply interventions correctly*; e.g. making sure curtains are full length (overcoming **knowledge** and **capacity** barriers).
- *Reducing functional crowding*; e.g. by improving bedrooms and heating systems (overcoming **financial** and **structural** barriers).

Not all of these behaviours were addressed in practice in all HHIs, and some of the engagement strategies were irrelevant or plainly wrong for some circumstances. For example, an important anecdote by the PM showed how EE professionals sometimes have difficulties understanding the actual issues and realities related to these, extremely-poor housing circumstances:

> "*Anytime anyone suggested to prioritise dehumidifiers, we had to stop them – it's such a bad idea in houses that have 6 air changes per hour! The problem there is leaks and draughts, not under-ventilation.*"

Figure 6 below shows the complexity of each individual intervention by describing one particular household example.

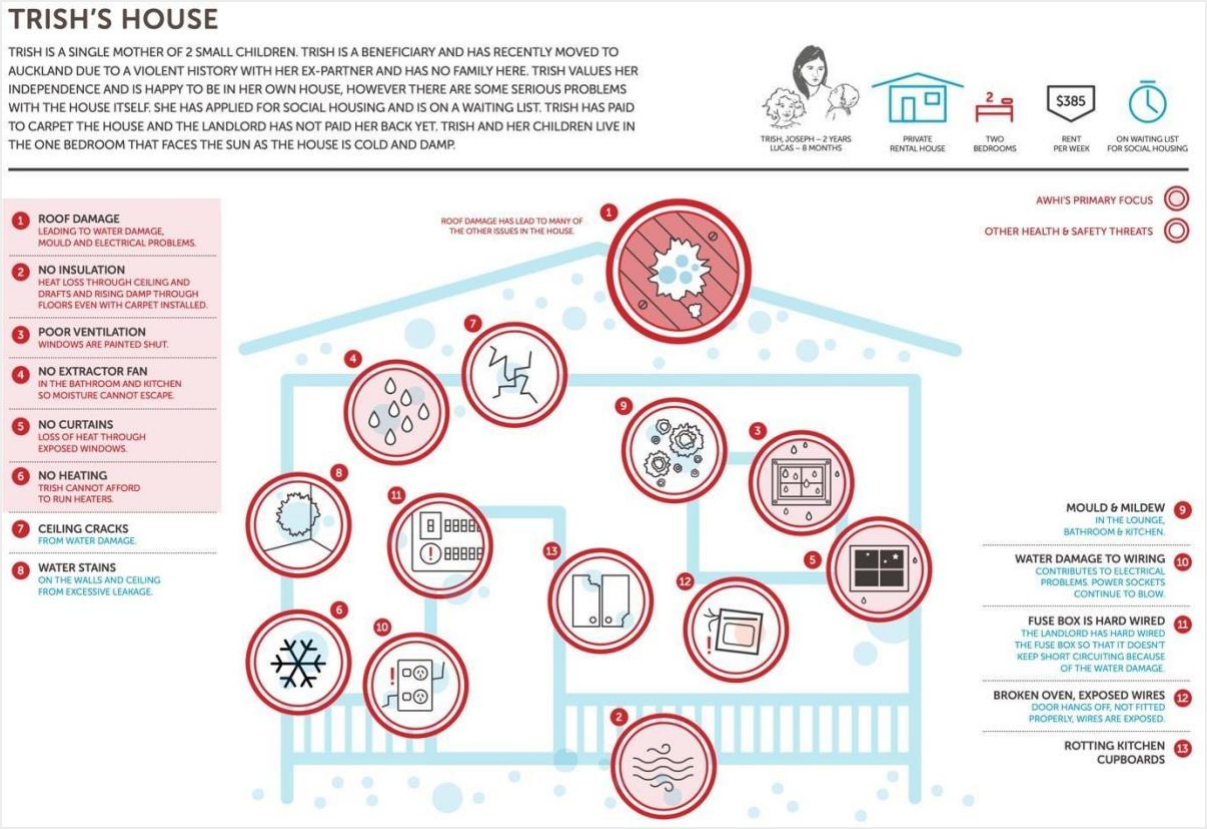


Figure 6: Example of one AWHI case in Trish's House (Source: TSI, 2016).

Content

Engagement strategy

A focus on co-design and prototyping were the primary drivers for the HHIs' engagement strategy and some specific ideas are discussed in the *Behaviour Building Block* section above. Since the initiation in 2013, the project team engaged many stakeholders in externally-facilitated co-design workshops. They also refined and tested prototypes, for example, in the Auckland pilot (TSI, 2018) they tested:

1. Landlord letter to improve communications.
2. *Minor Repair Service* (MRS) to undertake low cost and high impact minor repairs for private rentals and low-income homeowners.
3. Landlord liaison role (within the MRS) to strengthen the landlord's understanding and buy-in to improvements needed.
4. Working with *Auckland Council Compliance* and *MBIE Tenancy Compliance* and Investigations teams to test how to best ensure properties are brought up to standard.
5. Building capacity and capability within existing curtain banks to make them more effective and Auckland-wide curtain drives to boost the available stock.
6. *Home Performance Advisor* (HPA) training for HHI assessors – including simple and practical tips on making a home warmer and drier based on science and expertise.
7. Testing whether a power voucher and education would help whānau to heat their homes more in winter.
8. A locality-based empowerment model using peer-to-peer communication of home performance knowledge.
9. Leveraging other resources to support whānau such as *Healthy Rentals*.

Where successful, this was then shared with and rolled out to other regions and HHIs. This included important feedback such as (TSI, 2018): "*Through the co-design process, we have been able to test*

and document how current housing policy and legislation plays out in real life for vulnerable whānau. Testing with the MRS and the landlord liaison in particular, have shown that legislation change alone may not be enough to spur some landlords into making necessary changes. Early trends show that some landlords will 'need to be managed into compliance' with persistent advice and engagement."

The PM described the landlords **split incentive** barrier as particularly hard to overcome, and why it needed a specific engagement strategy:

"Landlords are much more amenable to having to change things than before – the worst of the worst are the big slumlords though! 30% of landlords are really good and make changes, 30% need guidance, and 30% do nothing and complain. With those still refusing we may need to involve MBIE's compliance arm. The worst thing with bad landlords, is that vulnerable whānau are forced to go into emergency housing because there are no adequate homes available! Our main objective is to do no harm and make sure no families are made homeless, but it sometimes is a trade-off.

So, we are working on changing the system, this programme is a System Changer. For example, we are supporting a revision of the Tenancy Act*, working with one of the biggest property managers in the country to address known problem landlords and properties, and talk to MBIE about compliance. Systems change affects the whole country – it's quite complex for frontline staff who run the HHIs to understand, but we are trying to help them know their important role in it."*

Another example for nation-wide, bottom-up systems change that HHIs created was provided:

*"*Te Rōpu Group *defines the themes and issues and is using their forum to broker national deals for interventions. E.g. someone in Northland got a link with* Variety [a children's charity], *and now it's a national programme where each HHI in the country is getting beds and bedding. Someone else got a link to* Discount Curtains*, and found that not all curtains were good standard curtains they could use. So, the company changed what they're bringing into the country – the whole supply chain changes! Someone at the Bay of Plenty got a link with* Bunnings [hardware retailer] *to run home repair workshops for HHI whānau. Now, we are trying to roll it out across the country."*

Another important aspect of the HHI engagement strategy was in relation to messaging up to funders, e.g. politicians. As the Expert interviewee noted:

"*Everything's presented with case studies to show it's part of a larger system. We have to be conscious of our audience e.g. a Treasury proposal is very heavy on numbers, whereas for politicians it's more about the stories. Client stories the most, but provider and community stories as well.*"

Messaging

The messaging of HHIs consists of several layers (described more in *Delivery* section below), although there is no overarching national messaging strategy or guideline, not even a logo. Behavioural science methods were not explicitly used to guide messaging, although prototyping with whānau and service providers did generate a lot of ideas and reiteration of message content and delivery.

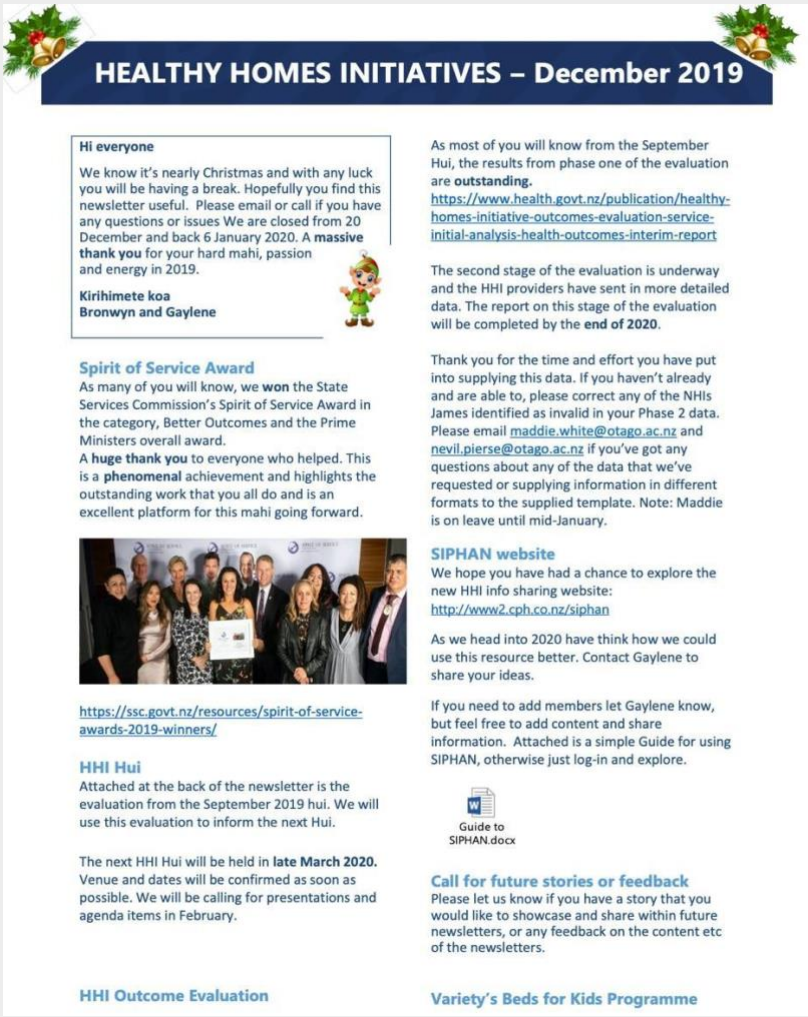
One of the main drivers of the programme was to educate and train frontline staff in energy hardship and the relationship between housing and respiratory health – in order to provide empathetic, appropriate messaging to vulnerable whānau. This was done by making them take *Home Performance Advice*[34] training, developed by an independent research consortium and run by an independent training provider. Now, a whānau-specific HPA training programme called *Healthy Homes: Making energy work for whānau*[35] has been developed. It views home energy advice through the lens of energy hardship and is specifically aimed at non-energy efficiency frontline staff and Middle Actors, such as public health nurses or community budget advisors.

[34] https://hpa.arlo.co/w/
[35] https://hpa.arlo.co/w/courses/8-healthy-homes-making-energy-work-for-wh%C4%81nau

Delivery

Delivery mechanisms

The specific delivery mechanisms utilised by HHI programme managers differ depending on the interventions, target audiences and Behaviour Changers involved. For example, the national programme is managed by the MoH HHI website, which includes links[36] to resources, such as energy-saving tip videos in different languages of priority whānau. Infrequent newsletters with success stories, feedback, evaluation results and support programmes go out to subscribers (see Figure 7). Some messages are aimed at specific audience segments, such as the landlord letters described above. Most delivery mechanisms differ by local HHI providers (see, e.g. the *Well Homes* case study, below), with some utilising social media such as Facebook pages and others relying mostly on peer-to-peer and face-to-face communication channels. The PM acknowledged that more work should be done using social media (seeing New Zealanders, including the vulnerable have quite high access to the internet[37]), and telling stories.



HEALTHY HOMES INITIATIVES – December 2019

Hi everyone

We know it's nearly Christmas and with any luck you will be having a break. Hopefully you find this newsletter useful. Please email or call if you have any questions or issues We are closed from 20 December and back 6 January 2020. A **massive thank you** for your hard mahi, passion and energy in 2019.

Kirihimete koa
Bronwyn and Gaylene

Spirit of Service Award

As many of you will know, we **won** the State Services Commission's Spirit of Service Award in the category, Better Outcomes and the Prime Ministers overall award.
A **huge thank you** to everyone who helped. This is a **phenomenal** achievement and highlights the outstanding work that you all do and is an excellent platform for this mahi going forward.

https://ssc.govt.nz/resources/spirit-of-service-awards-2019-winners/

HHI Hui

Attached at the back of the newsletter is the evaluation from the September 2019 hui. We will use this evaluation to inform the next Hui.

The next HHI Hui will be held in **late March 2020.** Venue and dates will be confirmed as soon as possible. We will be calling for presentations and agenda items in February.

HHI Outcome Evaluation

As most of you will know from the September Hui, the results from phase one of the evaluation are **outstanding.**
https://www.health.govt.nz/publication/healthy-homes-initiative-outcomes-evaluation-service-initial-analysis-health-outcomes-interim-report

The second stage of the evaluation is underway and the HHI providers have sent in more detailed data. The report on this stage of the evaluation will be completed by the **end of 2020.**

Thank you for the time and effort you have put into supplying this data. If you haven't already and are able to, please correct any of the NHIs James identified as invalid in your Phase 2 data. Please email maddie.white@otago.ac.nz and nevil.pierse@otago.ac.nz if you've got any questions about any of the data that we've requested or supplying information in different formats to the supplied template. Note: Maddie is on leave until mid-January.

SIPHAN website

We hope you have had a chance to explore the new HHI info sharing website:
http://www2.cph.co.nz/siphan

As we head into 2020 have think how we could use this resource better. Contact Gaylene to share your ideas.

If you need to add members let Gaylene know, but feel free to add content and share information. Attached is a simple Guide for using SIPHAN, otherwise just log-in and explore.

Guide to SIPHAN.docx

Call for future stories or feedback

Please let us know if you have a story that you would like to showcase and share within future newsletters, or any feedback on the content etc of the newsletters.

Variety's Beds for Kids Programme

Figure 7: Example HHI newsletter from Christmas 2019 (Source: MoH)

[36] https://www.health.govt.nz/your-health/healthy-living/warmer-drier-homes
[37] https://www.digital.govt.nz/dmsdocument/161~digital-inclusion-and-wellbeing-in-new-zealand/html#results-internet-access

Messengers

Overall, the main messengers utilised by HHIs are **trusted Middle Actors**, particularly from the community of target audiences (e.g. iwi, churches, social or community organisations); but also government support services such as health (e.g. public nurses, GPs) and social service (e.g. *Work and Income*[38]*, Whānau Ora*[39]*, Oranga Tamariki*[40]) providers; as well as insulation and other service providers (e.g. *Sustainability Trust, CEN*); private landlord associations and the public housing landlord *Kāinga Ora*. The huge success of this programme (see *Evaluation* building block section below) can be directly attributed to the wide and trans-sector stakeholder collaboration and the emphasis on empathic co-design to ensure diverse audience barriers and needs are addressed sensitively and directly – and from the bottom-up.

One good example of the importance of choosing the right medium and messenger was given by the health Expert:

> *"At one point we tried to ring everybody who was LI and hospitalised with a relevant disease – it wasn't terribly successful, but worth a shot. We didn't get many referrals as people were very reluctant to take a cold call. Mistrust of authorities was definitely a bit of a barrier there. So, we are trying to get data out of the silo in the health system – we need to let data go to Māori-led community providers who get MUCH better uptake of phone calls. We can use their trustiness and branding so whānau talk to someone they know and who knows them."*

The PM agreed with the importance of choosing the right messengers leading to the greatest uptake of EE and BC interventions:

> *"A social worker who's trained in HPA and has an informed opinion on their house and what's available to them is so important. All of the whānau are low-income and very resource-constrained. There is some choice of what they could do, but most people take most of the advice most of the time. If the right person is meeting you in your home, and is part of your community, that really works."*

Timing

Even though HHI interventions are rolled out year-round, most HHIs ramp their messaging up in the months before winter, to remind people that unhealthy housing conditions are compounded in wet, cold weather, and service providers are often busy during the winter months. Sometimes, specific holidays (e.g. the Christmas newsletter in Figure 7) drive message delivery as well.

Evaluation

Evaluation methodology, metrics and targets

Several evaluations of the HHIs have taken place already, and some were focused on specific regional programmes (e.g. TSI: AWHI, 2016; 2018). A major evaluation of the overall HHI programme by Allen + Clarke (2018) took a process/outcome approach, "*intending to enhance understanding of the expected process of change for households through their participation in the HHI: what is working, what isn't working, and why*." The authors collected qualitative data from interviews with Ministry officials, HHI leads and staff, landlords, partner agency representatives and referrers; focus groups with front line HHI staff; an e-diary activity during which assessors recorded their experiences and perceptions in their role working face-to-face with whānau; and in-depth interviews with clients of the HHI. These qualitative insights were supported by a review of key documents provided by the Ministry and analysis of statistical data related to HHI service provision. The evaluation focused on several measures: reach and referral pathways; innovation; effectiveness; immediate outcomes; and value for money. This evaluation was also called *narrative evaluation* by the interviewees:

> *"Narrative-based evaluation collected lots of data around who had interventions done, but also some subjective info on perceptions if they feel better after interventions including e.g. if they feel more*

[38] https://www.workandincome.govt.nz/
[39] https://www.health.govt.nz/our-work/populations/maori-health/whanau-ora-programme
[40] https://www.orangatamariki.govt.nz/

confident about approaching other social services. But long-term health outcome evaluation is also really important as it is most important to educate Treasury, who make the funding decisions. The next evaluation is therefore more about social wellbeing, education etc. to convince the funders that this is important work."

Another evaluation by Motu (Pierse et al, 2019) focused on quantitative data on *health outcomes* for the affected children. This work is currently being updated and expanded.

Results

The focus on **co-design and prototyping** is generally regarded as one of the main reasons why this programme was so effective, as measured by its KPIs (TSI, 2018). All interviewees agreed that the highly-collaborative multi-stakeholder engagement and "*true co-design, not just a catch-phrase!*" were largely responsible for the programme's success. As the PM describes:

"We have an escalation pathway with the aim to have a 'tight-loose-tight' approach – every community is different and the HHIs need to be community-driven. Of course, certain criteria have to be followed, seeing it is public money – like, they have to be low-income, someone in the household has to be a resident or citizen. But the way programmes are run is different in each region as they are truly driven by their community. 'Tight – loose – tight' means we have a tight contract and accountabilities with service provider Middle Actors, but the frontline staff don't direct how they deliver services, because MoH want frontline staff to be innovative with their community, and they are. If you hold it too tightly, they don't get that. It's not a cookie cutter model, which makes it different from other government-led programmes such as EECA's Warmer Kiwi Homes *insulation programme."*

However, one interviewee also mentioned that the results were mixed because the programme worked significantly better in smaller regions with more community cohesion, buy-in and support.

As the AWHI evaluation report (TSI, 2018) describes: "*We have learned by doing and made changes as needed. We have abandoned some ideas that did not work and returned to others, approaching them slightly differently. This has been done in a 'safer to try, safer to fail' environment. Safer because we begin testing with smaller numbers and do not expect everything to be perfect. In testing, we are always supporting the whānau and minimising risk through the process while balancing live testing. During the testing phase, the co-design team worked closely with many stakeholders*." However, TSI (2016) points out that "*Prototyping with families in complex situations has been difficult and time consuming. Every step must be weighed against implications for the families, which could be as serious as losing their home. It has also identified that some homes have significant deferred maintenance which needs to be addressed prior to any other interventions being completed, for example a home should not be insulated without fixing its leaking roof*."

The Allen + Clarke (2018) evaluation report agrees that the HHI programme is meeting expectations in **establishing referral pathways** to ensure the initiative reaches its priority population and particularly commands that "*HHIs have invested considerable effort to identify and make connections with health and social sector organisations that work with HHI priority populations, such as paediatricians, children's ward nurses, iwi and Pasifika health service staff, and public health nurses […] and achieved high confidence amongst these referrers in most regions, who demonstrated understanding of the HHI and a willingness to refer*." A minor flaw was that follow-up with, and feedback of outcomes to referrers was not regular and systematised in most regions, leading to some frustration among participants. In addition, as capacity of HHIs was under-utilised in most regions, "*there is potential to strengthen referral pathways to increase the number of referrals into the HHI, with most HHIs having had limited engagement with lead maternity carers (LMCs), primary care practices, and social workers*."

Both interviewees and the evaluation reports highlighted the **innovative** and often highly-creative practices of regional HHIs, and how well they addressed barriers to warm, dry and uncrowded homes commonly experienced by HHI clients. In addition, the MoH was commended by Allen + Clarke's (2018) evaluation in how well it managed to share and disseminate innovative practices between

regional HHI teams, and for "*creating broader system efficiencies through ensuring that the HHI is not replicating services that are already available within the community*." A major barrier was landlords remaining challenging to engage and resistant to making housing improvements – despite HHIs testing numerous initiatives to reduce the time spent negotiating with private landlords to consent to and/or finance the provision of interventions (ibid).

Effectiveness was also commended, particularly on the national level (e.g. the establishment of *Kāinga Ora* and *Healthy Housing Standards*). More variable successes were found on the local level, particularly around (lack of) communication of national decisions to the frontline staff (ibid). As much as the HHI is effective in delivering interventions that are directly within their control, such as key messages on creating a healthy home, beds and bedding, mould kits and heating sources (delivered within six months in over 65% of cases), interventions delivered by third parties, such as relocation to social or private/community housing, insulation, ventilation, and minor repairs, are delivered within six months in less than 50% of cases.

Allen + Clarke's (2018) evaluation also found some inequity in the supply of interventions between HHI regions, as there are fewer charitable organisations and philanthropic funds available to HHIs in dispersed and/or isolated geographies, and in areas experiencing higher than average levels of deprivation. In addition, despite most HHI staff being highly motivated, engaged and competent, some feared for their physical and/or emotional safety when engaging with highly-vulnerable whānau, in part due to insufficient Health & Safety structures. Overall, the vast majority of whānau who were interviewed or provided feedback on the HHI services found them to be highly effective.

Allen + Clarke's (2018) evaluation report highlighted that HHIs were exceeding expectations on how whānau perceived engagement and **immediate, desired outcomes**. The fact that most whānau reported highly positive interactions with HHI providers meant the barriers related to distrust of authorities were reduced when dealing with other frontline health or social support services. The majority of whānau surveyed **agreed that their homes became warmer, drier and healthier following HHI interventions**, even though some continued the practice of co-sleeping. The only issues remaining problematic 6 months after initial housing visits, were those interventions (particularly related to upgrades of the thermal envelope) meant to be provided by third parties.

Pierse et al (2019) evaluation of **health outcomes** in affected children showed that there were 160.78 fewer hospitalisations in the sample population (N = 1608) using only the year immediately following each referral intervention period. This could be extrapolated to 1,533 prevented hospitalisations overall, which were directly attributable to the programme (ibid). In addition, hospitalisations were 0.69 nights shorter in duration and $541 less costly, on average. There were also 990.17 fewer GP visits in the sample population and 9,443.28 prevented GP visits directly attributable to the programme. In addition, pharmaceutical dispensings were significantly reduced.

Finally, the HHI programme is also meeting its expectations with relation to **value for money**, with the evidence showing that "*HHI resources are mostly being spent fairly, well, and wisely; and funding invested is likely to have a positive effect on* whānau *health*" (Allen + Clarke, 2018). However, a big ongoing issue relates to vulnerable *whānau* requiring ongoing engagement. Persistent changes to knowledge and behaviours are most effectively achieved over the course of multiple contact points, which is challenging for HHI providers to deliver within the current per-family funding allocation (ibid).

Pierse et al (2019: Table 1) provide a specific breakdown of the **cost-benefits** of the HHI programme: "*In total, the HHI programme is expected to avert approximately $30 million in costs over a 3- year period. Using the programme cost of approximately $18.5 million, the expected return on investment would be realised in Year 2 of the programme. This analysis only includes the direct medical costs averted for the referral child and does not include other potential benefits. For example, it is expected that these children would be absent from school less often and that their parents would also be absent from work less often*."

Celebrating Success

The HHI has won several awards, such as three *Spirit of Service* awards[41]. The evaluation reports (TSI 2016; 2018; Allen + Clarke, 2018; Pierse et al, 2019) all provide testament to the many successful outcomes the programme has already achieved. Notably, all interviewees who provided insights for this CSA, spoke highly positively of this initiative, independent of the Behaviour Changer sector they represented. For example, the Expert said:

> "*HHI is government-led but it is the most community-led policy programme they have. It started in Auckland with* AWHI*, and EECA already had* WUNZ*, so there were lots of people in the space who were visiting houses with strong EE and health mandates. Even John Key* [A-NZ's former right-wing Prime Minister 2008-16] *held it out as one of his greatest achievements when he left office*."

This anecdote was supported by the Decision-maker in charge of the programme at MoH, who was similarly effusive about its impact and importance:

> *"Stories from the case studies and the impact the work is having really helped with convincing Ministers to keep funding it* [note: since the interviews the 2021 Budget delivered over $4b towards healthy and affordable housing, including $380m for Māori housing solutions]*. We even took politicians to visit 3 different whānau, one was a home owner, one lived in a rental, and one in a* Kāinga Ora [the public housing provider] *home - they were disgusted by that one! That really drove a lot of the political support. Also, Nevil's first evaluation* [Pierse et al, 2019] *showing the health impact was huge. The second one is underway and will be published soon.*
>
> *This programme is not stale at all, this initiative won't be over for a long time. I've been in health for my whole career – programmes often stay the same for 20 years, but not this one. I even got funding for an innovation specialist to look into where we can innovate more. I also found money to employ someone to work with each of the providers to work on workforce capability building and we have developed a standards book to go out into the field, we have sustainability champions in each of the providers, and measure each other's competency across providers. We are always looking at what's next. I feel really proud. This is an amazing programme."*

Conclusion

As shown by the public sector awards, the effusive comments by interviewees (and not just those directly involved in the programme), and the qualitative and quantitative data showing highly-positive outcomes and impacts on the target audience, the HHIs are arguably one of A-NZ's most successful government programmes.

Using the BBoBC framework (Karlin et al, 2021) to undertake this *ex-post* analysis showed that every one of the ABCDE building blocks was incorporated by the programme, with particular emphasis put on the *Why* (e.g. via the strong co-design process and multi-stakeholder involvement), and defining the *Audience* (e.g. via empathy interviews, journey mapping, and qualitative feedback and follow-ups post-intervention, as well as prototyping and small pilots) building blocks. *Evaluation* – impact, outcome and narrative – was also a particular strong point. Where the programme was a little less strong was in messaging (*Content* and *Delivery* building blocks), as outlined in the critiques below. However, as so much flexibility was given to local, trusted Middle Actors to design the most innovative and targeted solutions for their specific audiences, delivered face-to-face, the lack of a top-down coordinated messaging strategy is less of an issue.

Some critiques and future steps

Even though it was made clear that a national messaging strategy was largely unnecessary, as it was important that the regional and local providers could impart their own 'flavour' into their messaging, it was also mentioned by both interviewees that there was no budget at all for marketing (e.g. on social media), or designing and testing messaging better. This was supported by TSI (2016) calling for all

[41] https://www.health.govt.nz/news-media/news-items/ministry-health-wins-three-spirit-service-awards

HHI providers to develop a systematised approach to communication, and develop a detailed communications plan. Particularly, improving uptake of HHIs via self-referrals rather than through a clinician Middle Actor could be helped with more targeted social media posts.

An early evaluation report (TSI, 2016) made the recommendation to engage with national organisations such as the *New Zealand College of Midwives*, the *Royal New Zealand College of General Practitioners* and the *College of Nurses Aotearoa*, to raise awareness about the HHI. They suggest delivery mechanisms such as "*including information on newsletters, through an article in periodic journals or publications, or by presenting or having an information stand at conferences*."

Some Behaviour Changers were highlighted as being particularly HTR – for example, *Treasury*, the agency deciding on the national budget and funding of such projects (seeing they are mostly numbers-driven):

> *"Getting Treasury officials to read a qualitative or narrative report is hard. Bureaucracy doesn't have the ability to do the right thing easily. System change is hard."*

Paediatricians are also regarded as not quite as useful Middle Actors as they could be:

> "*We can't get paediatricians to ask patients about housing – there's such a high turnover of doctors, and low feedback to them from the Programme. They just don't see it, and these respiratory diseases impacted by poor housing are also not seen internationally as a problem. A lot of the doctors are trained overseas. High-level DHB strategies and Chairs there are also HTR but, thankfully, collapsing their structure* [recently announced] *will hopefully help them invest money into housing. Everyone is strapped for money so they are pretty siloed*."

There are still structural barriers to delivery, particularly the **limited supply of social housing**; lack of **quality, affordable, private rental housing**; and **landlord reluctance** to supply the required interventions. Most of the housing movement in the private rental market is dominated by low-income areas, and they usually move downwards in terms of housing stock they can afford to rent. The government's reluctance to create a *Capital Gains Tax* or raise interest rates for homeowners, is further compounding structural inequality[42] and impacting negatively on meeting our climate change goals[43]. This is an issue that needs to be urgently addressed in A-NZ if we want to improve national 'energy wellbeing'.

Some ethical concerns (particularly around privacy) have stopped more agency-wide data sharing using the *Integrated Data Infrastructure* (IDI) run by *Statistics NZ*, which will also enable a broader range of outcomes (social, as well as health) to be captured for the primary child referred, as well as other household members. These concerns are currently being worked through and follow-up data collection will hopefully show persistence in behaviour change and positive health outcomes. The next phase will extend this evaluation of outcomes to also include social benefits in addition to health benefits. Even though access to cross-governmental data is regarded as important by the health Expert in particular, both interviewees agreed that the most important objective of this programme was to do no harm to vulnerable whānau.

[42] https://www.wsws.org/en/articles/2020/12/29/hous-d29.html

[43] https://thespinoff.co.nz/business/29-06-2021/bernard-hickey-our-climate-goals-wont-be-met-as-long-as-capital-gains-trump-all/

A-NZ Case Study 2: *EnergyMate* Pilot

Background to the A-NZ electricity market

Neoliberal reforms, scaled up internationally in the 1980s, have caused significant impact on social, ecological and energy systems (especially via deregulation; e.g. Eusterfeldhaus & Barton, 2011; Hess, 2011). Because the changes resulting from neoliberal policies often had negative distributional impacts on the working class, the poor, the small-business sector (and the environment, ibid), neoliberalism is worth mentioning as an overarching barrier to servicing these energy users' needs – including from the utility perspective, where it is causing conflicting mandates.

It is important to assess HTR audiences through the lens of why service providers exclude, or provide inadequate services to, certain groups of consumers (Platform, 2014). Service provision based on maximising profit inevitably leads to the exclusion of certain groups. An ethos of universal service provision is seen as leading to fewer opportunities for making profits or offering follow-up services, for which to charge. In fact, there is often an underlying tension in privately-owned utilities' mandates, where maximising shareholder profits may be in direct conflict with (usually government or regulator-imposed) energy efficiency and conservation targets. This tension becomes even more paradoxical with government-owned 'gentailers' (generator – retailers), as are common in A-NZ. Unless the government intervenes, it makes little sense from a profit-seeking perspective to design and roll out programmes targeting vulnerable energy users, who often are HTR by definition of their vulnerability, but also generally low energy users.

As Thomas (2020) says: "*Utility shut-offs cost lives, people's health, and their dignity. Every year brings stories of people killed after their power is shut off* (often due to wildfires leading to power outages leading to heat stroke)." A tragic story in New Zealand in 2007 made international news[44], when a 44-year old *Pasifika* woman on an electric oxygen pump died within 2h of her utility's power shut-off for a NZ$168.40 (US$110) overdue bill. The *Electricity Commission* (now the *Electricity Authority*) issued new guidelines in July 2007 stating consumers who are dependent on electricity for critical medical support should state so to their electricity retailer and are not to be disconnected for non-payment. The *Association of Electricity Retailers New Zealand* (ERANZ), who supply around 90% of electricity to the A-NZ market focuses specifically on: creating a competitive and efficient electricity market; fairness and energy hardship; and a low-carbon energy future. Their *EnergyMate* pilot discussed here is one intervention driven by these three goals.

EnergyMate Methodology

EnergyMate (EM) is a partnership between electricity retailers, distribution (lines) companies, community organisations, and the Government. It aims to reduce energy hardship by providing in-home advice and support. It is delivered by financial mentors who are already based in the communities and are likely to have a connection with the recipients of the service. It has so-far provided in-home energy coaching and advice to over 500 *whānau* in 9 regions, helping them decrease bills and increase the warmth of their home by:

- Getting them on the best electricity plan
- Creating an action plan to become more energy efficient and to heat their home cheaply
- Referring them to services like budgeting support
- Giving them free EE technologies such as LED light bulbs.

EM coaching is being delivered by community-based financial mentors and budgeting advisors, who took the energy hardship training *Beacon Pathway* developed (with some input from the electricity industry), called *Home Performance Advisor - Healthy homes: Making energy work for whānau at home* (HPA HH). The pilot (now on its third expansion) targets those families in greatest need of

[44] https://www.theguardian.com/world/2007/may/31/international.mainsection5

assistance. All EM families live in high deprivation areas, most in rental accommodation (40% private rentals, 39% *Kāinga Ora*), and most *whānau* identified as Māori or Samoan. Over half had been referred to budget advisory services (Kelly, 2019).

EnergyMate's Outcomes Model
Kelly (2019) describes an outcomes model depicting a high-level theory of change that was developed for programme monitoring and evaluation to "*recognise the limits of the sphere of influence within the complexities of energy hardship*". EM's defined sphere of influence very specifically targets the ability of whānau to actively manage their in-home energy use and utility plan. This informed the project's problem definition and theory of intervention:

"Families and whānau in vulnerable circumstances experience disproportionate levels of energy hardship. This is exacerbated by low levels of energy literacy and financial literacy and can be helped through targeted in-home intervention and being on the most appropriate consumer plan."

The theory of change outlines how EM is understood to influence desired outcomes (*linking project outputs to positive change for whānau and retailers*). This outcomes model was tested and validated with local community-based social service providers, electricity retailers and ERANZ (Kelly, 2019; 2021).

The evaluator of the pilot synthesised it as follows:

> *"This pilot is a combination of education and practical support to connect vulnerable households with retailers and help them realise their agency and refer and connect them with other services such as curtain banks. At the heart is trying to figure out how energy hardship impacts people on the ground, on a day-to-day basis, and tailoring the intervention to be most effective in that space."*

The PM summed the pilot's overall objective up in one sentence:

> *"Families living in warm, healthy homes with affordable energy costs."*

(Shared) Objectives

The *Electricity Price Review* (MBIE, 2019) highlights energy hardship as an important policy area for the current Labour-Green government. Energy utilities and retailers also recognise the complexity of drivers behind energy hardship, as well as their role to mitigate and collaborate on the issue with other actors in government and the community. However, they are not always sure where to start. As the Programme Manager (PM) for EM states:

> "*Our industry didn't really know how to connect with the community side of things. Industry has the resources and holds the electricity customer, but it didn't know how to engage them if there were issues or they were unsupported. So, we used FinCap*[45] *and other trusted community actors to do the* mahi *(work), with the industry providing the initial funding."*

The third phase of the pilot has now been partially funded by the government. ERANZ, as a collective of A-NZ electricity utilities, wanted to lead cross-sectoral collaboration to address energy hardship in meaningful and pragmatic ways, such as through the pilot discussed here. In 2017, the ERANZ CEO and Board at the time wanted to specifically drive the industry forward to support customers who were struggling.

As part of this, ERANZ ran design thinking workshops with industry (*Providers*), researchers (*Experts*), government agencies (*Decision-makers*), and community trusts (*Conscience; Middle Actors*) to look at solutions for energy hardship. Five project ideas were worked up in a co-design workshop, and pitched to the ERANZ board. A small landscape analysis / programme review was

[45] https://www.fincap.org.nz/

undertaken, particularly looking at similar programmes overseas (the only one like it could be found in Bristol, UK). The PM was recruited from a community trust with strong knowledge of the in-home challenges utility customers were facing.

FinCap, a non-government organisation focused on financial capability and budgeting services, was also involved in the co-design. The pilot described here was seen as an easy solution to get trusted Middle Actors into homes struggling with bills. The training helped them get a specific focus on electricity and energy use. Other community actors who focus on housing and EE (such as those described in the next case studies, below) usually don't really have the time to focus on energy-saving behaviours (ESBs) and helping whānau understand their utility bills. The PM described it as follows:

> "*EnergyMate fills a piece of the puzzle that was missing from other government and community programmes, with a strong focus on energy needs and budgets. Financial mentors were chosen because energy poverty is part of wider poverty."*

Agreeing on the WHY (Objectives)

Taken from Kelly (2019), EM's primary objectives are to:

- Provide practical knowledge to *whānau* and increase their ability to actively manage their household's energy use and costs;
- Support *whānau* onto the most appropriate consumer plan and tariff for their current circumstances and connect them with their retailer;
- Connect *whānau* into relevant services as required (housing, budgeting, social services); and thus
- Decrease the impact of energy vulnerability on the ability of *whānau* to make their homes warmer and healthier.

These outcomes were sought through three key approaches:

- Partnering with local community-based budgeting providers to deliver a personalised in-home service. This approach was based on research (Burchell et al, 2015) demonstrating the effectiveness of personalised in-home energy support, as well as utilising local providers' networks and knowledge to connect effectively with communities.
- Combining energy literacy with budget support expertise to ensure electricity plans and tariffs work for *whānau* budgets. This approach avoids delivering energy literacy in isolation from the context of household income as a core factor of energy vulnerability.
- Collaborating with energy retailers to deliver a joined up EM service that can effectively broker between *whānau* and retailers to support a positive customer relationship and ensure whānau are on the most appropriate consumer plan and tariff for their current circumstances. This also means energy retailers' customer services are aware of the EM service and can respond effectively when contacted.

Audience

Definition and characterisation of the target audience

The PM summed the target audience up as follows:

> *"Low income people struggling to heat their homes or pay for their energy bills."*

When asked if they could also be regarded as HTR, she concurred and provided several reasons as barriers for these whānau:

> *"Yes, they're usually hard-to-reach because they don't want to confront these issues, they may feel* whakamā *(ashamed) about debt, the families who are in debt often have a lot of complex issues going on, and dealing with their energy company may not be on top of their priority list."*

AUDIENCE DEMOGRAPHICS

A variety of demographic data was collected in the pilot: house tenure, age, occupancy, number of bedrooms, ethnicity. There were some overlaps between households identified by all of the case studies discussed here. Eligible whānau were referred from community providers' own client base; HHI - where available; and from retailers (Kelly, 2021).

Eligibility for the EM service was limited to those with a community service card or living in high deprivation areas (see Rotmann et al, 2020). Some households were referred by community providers or the utilities as "*customers who could benefit from face-to-face targeted support directly into the EM service. These customers may have experienced some or all of the following: disconnection; prepayment meters; be in credit / debt cycles; under-heat their homes due to affordability; or have insufficient heating*" (Kelly, 2019; 2021).

Other than living in low-income communities, EM whānau were predominantly private renters (56%), often living in households of 4 or more people, being of Māori (64%) or Pasifika (12%) descent, and 63% of the participants households included children, and 12% had elderly whānau. The initial pilot relied on a lot of self-referrals (i.e. people who sought out budget advisors in their community). The second phase increased and reached from 3 to 8 locations around the country. The third phase (just funded by MBIE's *SEEC* funding[46]) will include a more targeted focus on iwi and Pasifika organisations to be MAs *"rather than just having a budget provider who waits for energy users to turn up in their office. When I asked the Pasifika provider to help us get 40 people from a community hui, they exclaimed 'Only 40? How can we only get so few?' – when so far we struggled to get 20 to turn up! If these providers are well connected to their communities, engagement will get so much easier."*

AUDIENCE PSYCHOGRAPHICS, BARRIERS AND NEEDS

The only specific audience 'psychographic' data that was collected was a (self-reported) improvement of energy literacy following the pilot, which led to feelings of empowerment. No attitudes, values, motivational or behavioural data was specifically collected. However, barriers and needs of households are quite well understood and were probed for during interviews with whānau, community providers and retailers.

Main barriers discovered by the pilot

Many EM whānau face significant housing and heating quality issues with inadequate insulation and curtains, inefficient heating sources, and concerns about mould. The large majority (79%) have a weekly electricity budget, but many still struggle to stay on top of payments (Kelly, 2019; 2021). 21% have experienced difficulty paying electricity bills in the previous 1-9 months and 7% 'always' do so. 8% have been disconnected in the previous six months. 24% were currently in debt to their current retailer, with the average amount owed $403 (ibid).

- **Financial barriers** were the most-commonly mentioned by whānau when asked about main factors preventing changes to keep homes warmer and drier (Kelly, 2019; 2021).
- Issues **contacting landlords**, often driven by **fears of unaffordable rent increases**.
- Getting other whānau members, especially children, to **turn off plugs** when not in use was highlighted as an issue.
- In some circumstances, occupants were not the named account holder for the electricity plan, which resulted in a **privacy barrier** when communicating with the electricity retailer.
- 60% of all whānau said their household's **electricity needs change often** (e.g. when extended whānau come to stay).
- **Functional overcrowding** was a serious issue – with 66% of homes having four or more occupants, and half had between 1-3 children under 12 years.

[46] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-hardship/support-for-energy-education-in-communities-programme/

- Almost 2/3 of EM homes had **draughts and gaps** in windows, and just under 1/3 required better **curtains** (Kelly, 2021).
- **Lack of efficient heating sources** was another significant issue for around half of the whānau (see Fig 8). It is shocking that almost 20% of them used either highly-inefficient (e.g. open fire) or even dangerous (e.g. unflued gas heaters, ovens!) heating sources, with 3% reporting no heating. This led to **dangerous mould** in 39% of the homes.
- In addition, **hot water** is an energy efficiency issue for many (Kelly, 2021). Shower flows were too swift for 18% of participants, with flow greater than ten litres per minute (and 5% of participants had flow greater than 20 litres per minute). Almost a quarter (24%) of participants reported running out of hot water (Figure 9).

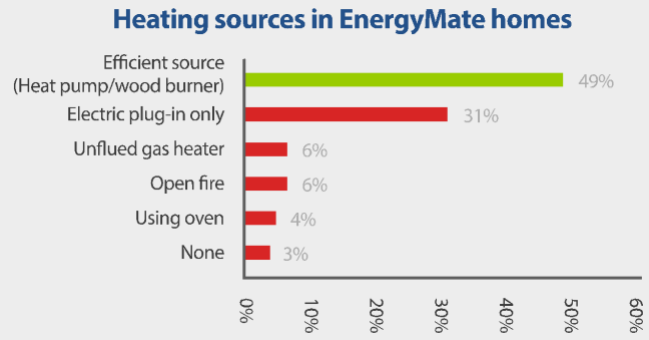


Figure 8: Heating sources in EM homes (Source: Kelly, 2019).

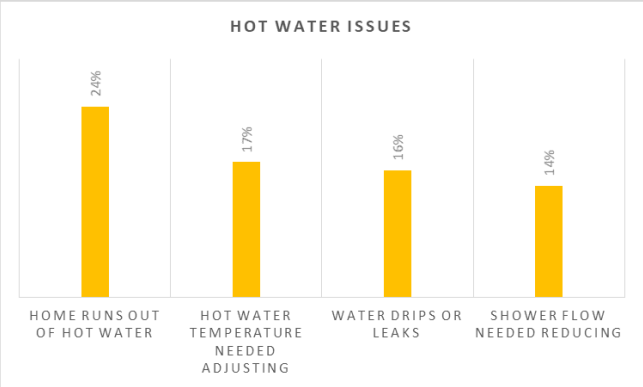


Figure 9: Hot water issues experienced by EM participants (Source: Kelly, 2021).

Quotes gathered from EM participants by Kelly (2021) highlight these issues:

"Before we got the better heater, we used the oven with the door open for heat, a lot of us older Māori and Samoans do this….our house is really, really cold in the winter, we take turns putting the heater in the bedrooms"

"I might end up sleeping in the lounge with the fire this winter"

"It's expensive being poor, you can't afford to upgrade your appliances, your lightbulbs, can't get online maybe, to learn about your options…if your financial history affects your credit check, this can mean you can't shop around, can't change power company, you're stuck with who you're with….[or you're on] prepay, most expensive option"

Despite these difficulties, some EM participants were not comfortable with the concept of energy hardship in relation to their situation (Kelly, 2021): "***Personal prioritisation and choice*** *was frequently highlighted by participants when making decisions about their power usage. For example, one participant noted she chose to 'light up the house' for security purposes, even though this cost more. For careful energy consumers, the end of prompt payment discounts was noted as a negative.*"

"I don't like to put it that way, energy hardship, because I don't like to think I'm hard up."

"I don't want to be in debt, that's my thing."

"If you're struggling financially, reducing energy use will only go so far."

On a positive note, **distrust in utilities** was not a major barrier – with most EM *whānau* viewing their retailers positively and being in relatively frequent contact with them. This positive stance is backed up by 56% of *whānau* stating they would turn to their electricity retailer first if they were experiencing difficulty paying electricity bills (28% would go first to family / friends or *Work and Income* (WINZ), see Kelly, 2019).

This is somewhat different to the general perception of especially large gentailers in A-NZ, who have recently received bad press for manipulating the market[47] and 'price gouging' both commercial[48] and residential[49] customers, as well as causing brown-outs affecting 20,000 households during a particularly harsh winter storm in August 2021[50]. However, as one article by an economics professor[51] outlined, not only are rising spot market prices during low lake levels not illegal, "*the companies have done exactly what we teach students in our economics principles courses; charge high prices when demand is high, a policy commensurate with profit maximizing, which is at the core of market based economies*. *Furthermore, on the face of it, what the electricity companies were doing is no different from the pricing practices of others* [like Air New Zealand]." They also add that "*the outrage over electricity prices shows that [this goes] beyond profit maximization and market economics, as people care deeply about fundamental fairness and companies that contravene those fairness norms do so at their own peril.*" There is also a mostly unacknowledged tension in A-NZ, with the major shareholder of the 'big 5' gentailers who generate and supply 95% of electricity being the government, which is also in charge of reducing their societal and environmental impacts.

Kelly (2021) described how EM *"has made a big difference for a smaller number of whānau who needed help to engage with retailers. Most participants were confirmed to be on the most appropriate tariff and were comfortable getting in touch with their retailer."*

"I would like the power companies to give customers a break, like a power shout….[if I got one] I would have a bath! And turn on the heater for a cold night"

Behaviours

During home visits, clear prioritised actions emerged for whānau which were developed into action plans (see Figure 10, below).

Some specific example behaviours were given by Kelly (2019):

Reducing energy/appliance use:

1. Swap light bulbs for energy efficient LED bulbs (85% were found to have taken this up, see Kelly, 2021)
2. Switch off plugs (including standby function) when not in use (most commonly-remembered action mentioned in 6-month follow-up, ibid)
3. Boil less water in kettle (61% changed this behaviour noted in a 6-month follow-up, ibid)

[47] https://www.rnz.co.nz/news/business/420160/meridian-spilled-water-to-hike-electricity-prices-authority-ruling
[48] https://www.rnz.co.nz/news/business/445347/businesses-face-six-figure-power-bill-increases
[49] https://www.consumer.org.nz/articles/the-chill-of-rising-power-prices
[50] https://www.nzherald.co.nz/nz/widespread-power-outage-in-the-middle-of-winter-thousands-affected/LVKE32TOWMPVTPE76HM7P4U4G4/
[51] https://cdn.auckland.ac.nz/assets/business/about/our-research/research-groups/public-policy-group/price-gouging.pdf

Hot water:

4. Wrapping hot water cylinders and lagging pipes
5. Reduce shower flow and shorten shower time (45%, ibid)
6. Fix dripping taps and leaks

Keeping heat in:

7. Ensure heater is appropriately-sized for room
8. Fix draughts
9. Set thermostat to 18-20 degrees.

Post-visit data (eight week follow up and evaluation interviews more than six months later) indicates participants are retaining energy use knowledge and continuing to act on efficiency tips and support (Kelly, 2021).

Kelly (2021) also showed that at least 60% of participating whānau were referred onto other services: budget services (22%); Healthy Homes (11%); and curtain banks (13%). Most referrals had been actioned within eight weeks (55%).

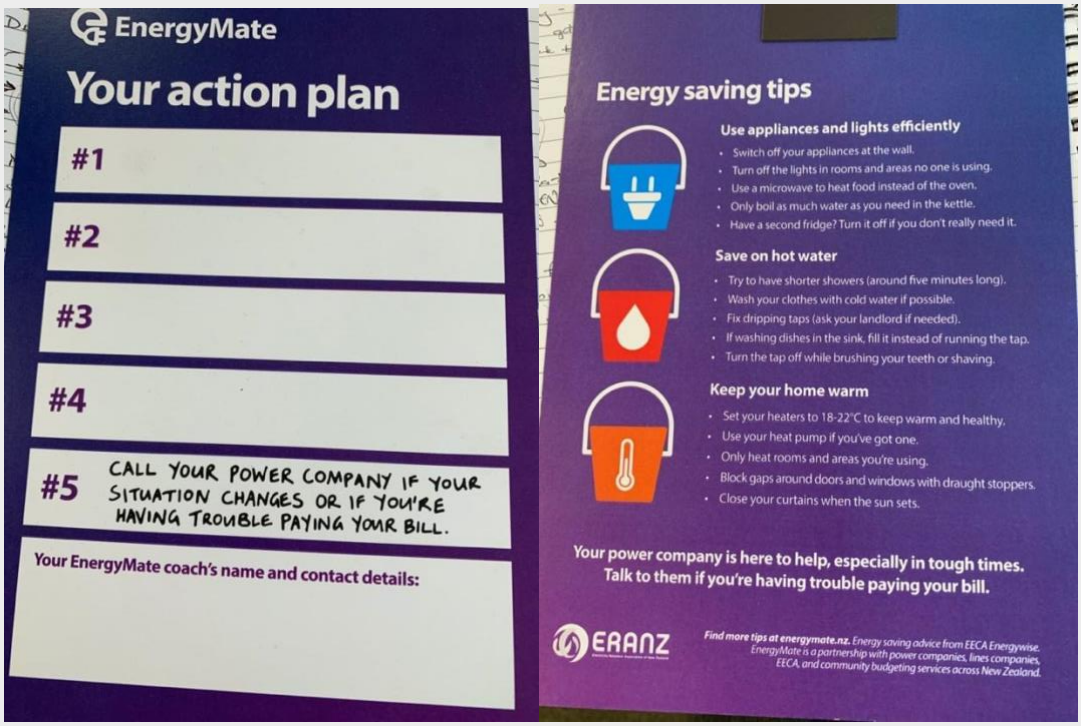


Figure 10: Fridge magnets left behind by financial mentors. These were used to write the top 5 tailored action plans for each whānau and to provide generic energy-saving tips (Source: ERANZ).

Switching utility plans or companies to achieve cheaper rates was also a major target behaviour, although, as the PM explained:

> *"90 minutes is the maximum time you get inside someone's home. So, the priority wasn't to check different utilities and switching them but trying to help get the basics right first. This usually meant sticking with their existing provider - if they are in debt [a quarter of them were] they can't switch providers anyway. Some are on long-term contracts and can't switch. So we focused on the best tariff and payment plans first. The more engaged they are in how they use energy in the home, the more*

willing they are to call their utility when there's a problem. We helped them understand that energy is part of their wider budget, and most importantly, that they can take some control over this."

Getting households onto 3-way phone calls with the budget advisor in the community and the utility was another target behaviour, which had its limitations however (see critiques in the evaluation section, below). The PM describes the reasoning behind these calls as follows:

"Utility retailers need to be more aware of their customers' circumstances. So, having a navigator in the home works both ways because they can talk to this coach to find out what's going on with the household's energy use / health / infrastructure. Budget advisors help retailers realise that the families are supported with their budget needs. It thus creates more of a trusted relationship, more leniency, and helps the utilities better understand what they can actually afford. This relationship is being built in the 3-way calls, because the coaches have already built up relationships with retailers and households. They are the real Middle Actors here. It's important that they all get to know each other, that there's always the same key contacts – it's not really scalable, but it works."

Content

Engagement strategy

The overall engagement strategy can be summarised in these four steps, according to the ERANZ website:

1. **Home efficiency check**

EM coaches do a quick check of the household, including heating, lighting, hot water, and appliances. Some easy changes can make homes more energy efficient. Those savings can then be put towards the things that matter most, like keeping warm.

2. **Getting on top of the bill**

Coaches explain what the household's electricity bill means and how to read it. Together with the family, coaches call the family's power company to make sure the household is on the plan that best suits their needs.

3. **Building an action plan**

Coaches build an action plan of the things the household can do to save on power and keep warm. Coaches can also connect households with support from other agencies to help improve their home with things like free curtains or discounted insulation.

4. **A healthier home**

For some, EM will help reduce their power bill. For others it might make their home warmer in winter without spending more than they already do.

EM also seeks to facilitate connection between whānau and electricity retailers. The primary mechanism for this is a three-way telephone conversation (see above) conducted during home visits.

Messaging

Messaging was designed during a co-design workshop, where they developed a check sheet which was really consistent in terms of what questions were asked during home visits. As the PM states:

"It's a real privilege to be in someone's home, the budget advisor's kaupapa *(principal, understanding) of how to interact with people is already there – it's their day job. They already have got the knowledge and strategies around support, empathy, confidentiality, targeted assistance, sensitivity etc. The HPA HH online training complemented what was already mostly known by a lot of them - these are the kind of soft skills which are super important."*

Emphasis was put on using plain English in all communications although they are thinking of translating some of the materials with the new cohort in Phase 3. Community *hui* (gatherings) were

used to test the content of brochures, they focused on simple design and pictures (see Figures 10 and 11). They also provided a manual as part of the HPA HH training with a flow chart with three different 'buckets' (things with switches, hot water and heating). The message was simple: "*if you save on two of these buckets, you can spend more on the 3rd one"* - heating was highly encouraged as most homes were under-heated. The PM said that the majority of providers and coaches were coming back with positive feedback to this approach.

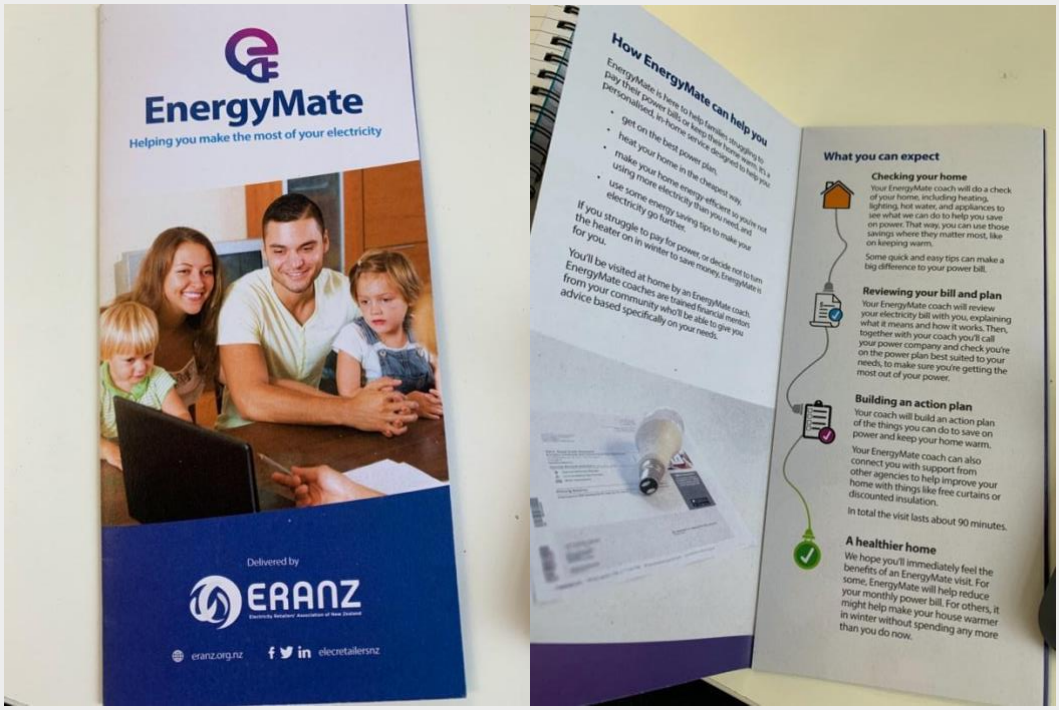


Figure 11: *EnergyMate* brochure (Source: ERANZ).

Delivery

Delivery mechanism

The main delivery mechanism for this pilot were community budget advisors and financial mentors. The PM gives the following reasoning:

> *"Whānau were already connected with budget advisors in their communities, these guys can talk to them, show them our brochure, and sell it to them because they already knew and understood their situation. It did work better in some locations than others. Providers sitting in an office waiting for people to turn up are nowhere near as effective in engaging as those who are out there already in the community."*

The importance of creating interest in the community by holding fun *hui* was also highlighted:

> *"The original pilot of 150 was great, but its evaluation showed that it needed to be tested further and spread into more locations and to use community hui to reach more people. In all 8 locations [for Phase 2] they did a hui where they are talking about energy, playing fun games – we got really great feedback but very limited attendance (despite free* kai *[food], freebies etc.). However, this will likely be different in Phase 3 when we'll get iwi and Pasifika community members calling the hui."*

Messengers and communication channels

The initial evaluation by Kelly (2019) clearly shows the most effective channels driving referrals: Most referrals came from EM community providers (60%), which indicated its relevance to their

communities. Around a third (34%) were referred from the *Healthy Homes Initiative* (HHI, see first case study above), with just 7% coming from retailers.

The operating assumption on part of EM is that by contracting trusted community providers (e.g. iwi or budget or social support service providers) who know their community, you are extending their reach and doing it in a way that will reach those who need it the most. However, as the programme evaluator cautioned:

> *"The question is how much onus can be put on the community. There are a lot of good providers who have a high level of confidence they can access the right households. If you are funding the precious time of a community support person to go into someone's house it is built on the assumption that they are skilled and trained in EE, housing and health. But it's important to check in that that assumption was holding true. That's where the HPA HH training came in useful."*

It is also important as another part of the intervention to ensure that information provision by community MAs doesn't happen in isolation, but also that whānau get a better deal around where and how their money is going to utilities. That is why the 3-way calls between whānau, financial mentors and utilities were so valuable.

Timing

The pilot (Phase 1) started before winter 2019 and ran from June to October. The second phase was held back by COVID-19, so winter 2020 was unfortunately mostly missed. It ran from August 2020 to May 2021. The PM highlights some issues around timing:

> *"We know that people are less motivated in EE or to fix their homes in the summer months. COVID-19 was also big impact in South Auckland particularly [because Auckland locked down most often] – these were the real hard-to-reach targets."*

From the providers' perspective, Kelly's (2019; 2021) reports highlighted that it had often been difficult to spread EM delivery alongside other work. For example, providers' end of financial year obligations for other contracts added to their delivery pressure. Utility bill data was not collected due to the brevity of the pilot period and the seasonal timing (winter to summer).

Evaluation

Pilot monitoring and outcome evaluation (Kelly, 2019; 2021) aimed at answering two key questions:

1. The value of EM to date (to participating whānau, providers and utilities), and
2. Whether the programme warranted further investment to scale up results.

An outcomes model based on *grounded theory approach* was developed based on four tiers (*project outputs, short-, medium-, long-term outcomes*, see Table 1 in Kelly, 2019). The evaluation report (ibid; a more data-driven follow-up for Phase 2 has been published in Kelly, 2021) was based on: pilot delivery data as at 26 September 2019 (surveys conducted during home visits [n=124]; post-visit interviews with whānau [n=27]; a survey of participating electricity retailers [n=8]; and three workshops with project partners and stakeholders).

This approach has been updated in the evaluation report for Phase 2 (from August 2020 to 31 May 2021), which includes: quantitative data on participating *whānau* home energy profiles (n=319), as well as quantitative and qualitative information from the check sheet completed by EM coaches during home visits (n=319 check sheets), and eight week follow up (n=226 surveys); in-depth korero/discussions with *whānau* (n=7) on their experiences of EM, energy hardship etc.; EM provider workshop and in-depth interviews with project managers (n=2); observations of a community *hui* (n=42); online survey questionnaire with electricity retailer staff (n=7); customer data for EM Phase 1 electricity bills (n=51); and interviews with expert informants (n=5), including this report's author.

RESULTS

Below is a summary from the independent evaluator's 2019 and 2021 evaluation reports, focusing on Phases 1 and 2 of the pilot, respectively. In general, both evaluations found that EM has improved whānau's understanding and management of energy use and costs, including changes in payment plans, if relevant. Providers also felt that EM has value for their customers, particularly valuing the 3-way calls and facilitation with energy retailers. Provider staff also noted that their own energy literacy had improved as result of delivering the programme. Overall, EM referred 32% of all whānau to *Healthy Homes Initiative* (HHI) housing support services, and 23% of all whānau to budget support services.

Most importantly, whānau are very positive about EnergyMate and coaches are noted to have communicated key messages clearly and well. Key actions improving energy usage and costs were identified and followed through. The in-home nature of visits is likely to be a key factor in this success. Energy efficiency awareness and improved understanding of bills were the most frequent answers when asked if whānau had learned anything useful during EM visits. Below are some example quotes from whānau provided by the PM and Kelly (2019; 2021). They are very positive seeing that this group of households is regarded not only as highly-vulnerable but very HTR, particularly due to trust issues with both government and utility actors. The face-to-face visits with empathetic and trained HPAs clearly helped overcome some of the distrust and shame issues in whanau.

"Visit was good and lots to think about. At first I was a bit hesitant but I'm glad that they came."

"Everything was awsom (sic). Explained well to understand benefits of power usage."

"Knowing that there are people out there that care about the community"

"My EM explained how to save energy in my home in terms I understood"

"I was quite whakamā but as I got used to them, I felt at ease. I recommend they visit every home."

The following answers were in response to the question "What has been the most helpful part of the EM visit?". They show that the behaviours targeted here were appropriately tailored to vulnerable whānau's needs. There was a definite educational element to having these discussions, often for the first time.

"Changing onto the right plan was very helpful - all this time I never bothered to check if I was on the best plan for me and my whānau."

"It was a different conversation to have, I hardly talk about power and stuff like that. But it was good."

"I really enjoyed the whole visit but the shower flow test was very interesting and now, not only myself but my boys too are more conscious of shorter showers."

"We had a Well Homes *[see next case study, below] visit and the information is very similar. They worked well together."*

"Definitely reducing my repayments has been a big help and overall the visit was awesome."

"Not being afraid to call your power provider and talk. Using the fan in the bathroom to help get rid of steam and condensation."

"Better understanding of monitoring usage of energy. Conscious of light usage and stand by lights. Better understanding of his energy retailer."

In terms of behavioural persistence, four out of five whānau had completed some or all points on their Action Plan 6-8 weeks later. Follow-up interviews 6-8 weeks after visits suggested Action Plans were pitched correctly for circumstance and capacity. Kelly (2019) outlines "*Reasons noted by whānau who had not completed any action points included: hesitation to contact landlords, illness, competing commitments; and unwillingness of some whānau to follow action points. A few whānau were waiting for work (e.g. insulation) to be carried out.*" Around half noted changes to home energy use (measured in kWh) following their EM visit – this could be a decrease or increase (e.g. due to weather changes or visitors staying), the important point to note was that whānau showed greater awareness (see also Kelly, 2021).

Finally, EM also increased retailers' knowledge and insight into customers in vulnerable circumstances. The three-way phone call was felt to have led to greater insights into whānau's needs, e.g. around specific health circumstances. All utility respondents felt that customers in energy hardship would have a better understanding of their energy use, including customer awareness of their entitlements (from Kelly, 2019):

"[We] benefited from being able to have eyes on the ground when it came to dealing with some of the customers that were referred to EnergyMate. The 3-way phone conversation is particularly beneficial as the coaches are in the customers home and able to provide us with information we may not have been able to gain from dealing with the customer directly."

Some critiques of the EnergyMate programme

Impact of the programme

As the evaluator noted:

"It will be difficult separating this out from other visits from other actors and other programmes that make homes warmer and drier. The evaluation we did so far isn't scaled sufficiently to be able to break these apart. It is clear, however, that EM isn't operating in isolation."

One of the issues outlined under limitations in Kelly (2019) was the initial pilot numbers in each region being too small to analyse or explain differences within and between regions. Thus, the initial pilot findings could not be compared to other potential delivery models due to lack of a counterfactual. The greater numbers and reach of the second and third phases of the programme will provide the ability to compare the programme's effectiveness with other, similar community interventions – although the second Phase also suffered from the impacts of COVID-19, more than halving the expected participant numbers (from 800 to 319). Travel restrictions also meant EM was delivered in the provider offices, rather than in-home, which may have reduced the impact somewhat (virtual delivery was not used).

Role of industry in energy hardship

All experts and stakeholders interviewed here and by Kelly (2019, 2021) agreed that the energy industry had an important role to play in addressing energy hardship in A-NZ. This echoed the *Electricity Price Review*'s (2019) recommendations around the sector's social responsibilities. Industry should also play a lead role to support on-going education and awareness raising for consumers, and help to reduce energy hardship as part of a system-wide approach. However, as Kelly (2021) highlights, mistrust of electricity retailers in the energy equity space must also be acknowledged.

A number of providers who focused on retailer referrals noted surprise and disappointment at very low referral numbers and expected retailers to take more of a lead in promoting EM (Kelly, 2021). For these providers, retailers hold the most relevant information on who is experiencing energy hardship, leading to an asymmetric information problem/failure.

Onwards referrals and shared learning

It was also noted by Kelly (2021) that the system of interconnectedness between different providers and onward referrals was not uniformly well-received. Some community providers had great networks they could forward EM participants to. Others struggled, or felt that this distracted from their primary mandate, which was budgetary advice. As the EM project manager was seen as the key driving force, and retailer referrals were sometimes regarded as insufficient, some providers were less engaged in shared learning than others. Selected quotes from providers (in Kelly, 2021):

"It's time-consuming to train people as financial mentors, you don't want them doing other things."

"EnergyMate *Coaches have to have a lot of networks to make it work."*

"I thought we would get a lot more referrals from power companies."

Data collection issues

Qualitative data was only collected after the initial pilots, not during in-home visits. There is already quite a lot to do during a visit and even though data is collected consistently, it is mostly demographic, not psychographic. The evaluator notes that:

"Engagement is very much understood on a whānau-level, not individual connections. Most people the programme is reaching are probably women. The advisors aren't asking any knowledge / attitudes / behaviour questions. It's more around interviewing whānau around their situation and barriers. But seeing that most utility programmes focus on the bill payer, this one is good in that it focuses on the whole whānau."

Differences in effectiveness between regions and providers

Even though EM successfully delivered to most in-coming referrals (78%), implementation numbers varied across regions (with Rotorua having 93% successful in-home visits following referrals, but Auckland South [75%] and Porirua [65%)] having much lower success rates, according to Kelly, 2019). It became clear that pre-existing contact and relationships between providers and whānau were a significant success factor in those providers reaching greater numbers of referred whānau (ibid).

The second evaluation report by Kelly (2021) also highlights the difference in approaches between different EM providers, and how important a strong understanding of their target audience and community connectedness was: *"The community connectedness of providers is important for EnergyMate success. Providers need to know their communities well and be able to reach those who could most benefit from tailored home energy support. In addition, providers need to be well connected with other support services to optimise coordination and leverage system coherence to address multiple drivers of energy hardship."*

Difficulties delivering the programme

All providers noted some administrative strain to deliver (e.g. repeated phone calls and rescheduled visits). Some providers also asked for more support for their frontline staff – even though the HPA HH training was deemed as high quality, some were still not that confident on delivering EE or energy management advice after the 1-day training course.

Some EM coaches also noted difficulty lining up the three-way phone discussion with retailers during home visits (Kelly, 2019): *"Retailers were also divided on the extent to which advance phone calls to confirm the time of three-way phone call with whānau worked well. Several responses indicated contact would be smoother with better communication and advance arrangement, for example to ensure retailers have whānau account details to hand. In one example, an EM Coach did not use the dedicated phone line which resulted in a frustratingly delayed connection. This highlights the significance of retailers' dedicated phone numbers for EnergyMate."* The extended pilot has developed an online database to manage administrative aspects of the programme and pre-set appointments for the 3-way call.

In addition, organisational capacity appeared to be an issue for some providers to carry management costs of EM e.g. time expended recruiting participants and rescheduling visits if they were cancelled (Kelly, 2021). Kelly's second evaluation report also notes that :"*Financial hardship could act perversely as a barrier for EnergyMate uptake, as other priorities were so much more urgent than 'energy education'. A few providers reported clients felt they already knew much of what was on offer and did not need support to contact their retailer. One provider noted recruitment issues if retailer referrals were not already known to them, with some referrals affronted to be contacted over difficulties paying their bills*."

Potential positivity bias (favouring positive data in information processing)

As Kelly (2019) notes: *"Monitoring and evaluation would be strengthened by removing potential positive bias of project implementers conducting follow-up interviews. If EM is expanded, tracking bill cycles over time will enable a stronger picture of its impact on energy usage and costs, as well as offer retailers insight into payment behaviours/ patterns for customers in vulnerable circumstances."* The initial pilot also took a lot longer to implement than initially thought and longer-term results or persistence was not able to be gauged (ibid).

Reaching the hardest-to-reach / most vulnerable

It is clear that this programme is doing well in reaching a lot of low-income customers who need financial or budgeting advice. However, Kelly (2019) notes that "*Although the community-based delivery model is effectively reaching key audiences, there may still be accessibility gaps, particularly for whānau who are not already accessing HHI or local community organisation support. A significant number of whānau referrals could not be reached by providers, despite these organisations' deeply established community networks. More data is needed on the extent to which whānau in vulnerable circumstances are potentially missing out on benefitting from EnergyMate. This could include, for example, retailer data on customers who most struggle to pay bills on time and who are hardest to reach by providers*." She underlined this point in her interview :

> *"Money is often micromanaged to the last level already in these households. EM probably does some good for most of the people it is engaging. But the most HTR and most vulnerable whānau are in a different audience segment again."*

The evaluation of Phase 2 (Kelly, 2021) "*did not examine EM's reach to those most in need (for example, experiencing multiple energy hardship vulnerabilities), or the degree to which extremely low income inhibited even minimal shifts for warmer, drier homes for some whānau. There is no doubt a spectrum of energy hardship vulnerability, however, and the extent to which EM could scale efforts according to need is not known*."

The importance of culture and trusted messengers

One thing that is clear is that cultural misunderstandings and neglecting the importance of culture when dealing with these *whānau* can be a major barrier from the perspective of utilities. When they are classified as 'hard-to-reach', it sounds as if the onus is on them to be easier to reach (see discussion in Rotmann et al, 2020). However, they are nowhere near as HTR for providers and support services in their own communities. For example, the PM highlighted how important the huge *mana* (respect, power) within FinCap leadership, and their approach to working with Māori, was:

> *"You have to insert the personal into the workplace with* Māori *and* Pasifika*, you don't just do a transaction without a relationship. It's actually a much better way of being. Once these relationships are established, these community providers refer those whānau who need our services. Pākehā are so used to being in control and owning things, and checking if people are eligible and such, but this is not how it works with these communities."*

She elaborated further:

> *"Iwi connections and the way they operate are so different to what Pāhekā know and are used to. I was so lucky to have support making these important relationships in their community. It is such a*

privilege to be able to meet these iwi or Pasifika communities face-to-face. The cultural divides are an important barrier that we must continue to navigate."

Scale-up and continued industry support

The PM highlighted a recurring issue with many pilots – (national) scale-up and how to keep industry support going. Even though EM has been scaled considerably from its original 3-region pilot and is now part-funded for its third and largest phase-to-date by the government (via MBIE's *SEEC funding*, see above), the PM is still the main person driving the programme within the utility industry:

"The SEEC funding is a massive validation for this approach. The industry doesn't want to solely own the issue of energy hardship and nor should it – the more co-funding and support utilities get, the more likely it is to keep going and scale-up further."

Kelly's (2019; 2021) evaluations found opportunities to potentially reinforce energy efficiency messages through accompanying initiatives such as community hui, which are now being implemented.

She also made the following recommendations:

- *Support* EnergyMate *implementation in other high deprivation areas of New Zealand, but ensure providers have capacity relative to other work streams to meet contract requirements.*
- *Consider future strategies to test extending EM reach and impact through complementary channels e.g. community hui, social marketing and online resources.*
- *Ensure contractors are adequately trained to fulfil data capture requirements fully (visit check sheets; Action Plans; Initial interviews)*
- *Consider independent researchers / evaluators to ensure high quality follow up interview and electricity bill data analysis.*

The PM also pointed out that currently, there is no landlord liaison as part of EM but that this could be a useful addition to the programme.

Conclusions

The *EnergyMate* pilot has overall been successful in achieving its objectives, seeing that community providers, retailers and participating whānau all thought it fulfilled its main objectives well. This is underpinned by the government's support for a scaled-up Phase 3 to focus on Māori and Pasifika households around the country. However, as noted in the critiques above, there are certain issues that this programme alone may not be able to overcome. It particularly highlights ease-of-reach differences between established whānau clients and new referrals, particularly referrals from retailers that were typically much harder-to-reach. Some of the most vulnerable households are still regarded as hardest-to-reach. Community providers also highlighted how it had still been difficult to spread EM delivery alongside other work. This is a wide-spread barrier of community and social support organisations who have a lot of pressure to do their important work, usually with little funding, government support, time and resources.

However, when it can be done, tailored in-home delivery by a trusted community provider (Middle Actor) is clearly the main success factor in the positive results reported so far. As Kelly (2019) notes: *"Providers are clear in their views that delivering support in homes is key. Two key reasons emerged for this assessment. Firstly, visiting homes establishes and strengthens trust-based relationships so whānau feel comfortable sharing personal details. Secondly, in order to effectively tailor energy efficiency support, coaches need to have a full picture of whānau circumstances (housing, heating, social, economic).*" This assessment concurs with a wide range of research (see Rotmann et al, 2020) **demonstrating the effectiveness of personalised in-home energy support by trusted Middle Actors.** Probably most importantly, participating whānau had very few suggestions for improvements to EM beyond expanding the availability of the service.

Some important final points were made by the programme evaluator:

> *"I don't think of this as solely a utility-led programme, it is funded by the sector, but it is delivered through a community provider model. The strength of the approach is the combination of community providers who really know their communities AND recognise the financial literacy aspect of EE behaviours. But, the delivery environment for them is still hard, they are often very stretched so the extra EE stuff can be a bit of a burden if not adequately resourced and managed.*
>
> *EM is about making homes warmer and drier, not necessarily reducing power bills. Providers will involve other social services if need be. It does intersect with the utilities' interest area to connect better with their customers, especially those who are struggling to pay their bills. But there are also obvious tensions. Having driven this by one programme manager in ERANZ is both the programme's strength and its vulnerability, because it's unclear what would happen if the PM leaves. It is also important to understand the value that is being delivered - maybe there are other ways for the sector to support those whānau?"*

These valid points show a certain disconnect in mandates – the utility industry does care about their customers being able to pay their bills, but the underlying structural issues of energy hardship are largely left to the government to solve. The additional tension of inefficient, inadequate and unhealthy housing stock, which is often rental housing, further exacerbates the problem.

Case Studies 3&4: *Well Homes & Warm Fuzzies*

Background

The community sector is a vital source for supporting whānau in energy hardship in Aotearoa New Zealand. The *Sustainability Trust*[52] ('The Trust' or ST), servicing the Wellington Region, is one of the shining examples of this important *mahi* [work]. The Trust is run as a social enterprise, where the profits from e.g. *Warmer Kiwi Homes* government subsidies for insulation and clean heating, and from their eco shop[53] are used to support community programmes such as the *Wellington Curtain Bank* and community gardens. The Trust also provides a lot of education and general waste minimisation programmes. In addition, ST chairs the Aotearoa-wide *Community Energy Network*[54] (CEN), which is a collective of regional community trusts focused on energy hardship and wider (particularly, child) poverty reduction, healthy homes, and *Home Performance Advisor* (HPA) training.

Child poverty is a huge issue in A-NZ, where, in the year ending June 2020 almost "*1 in 7 New Zealand children (157,800) lived in households with less than 50 percent of the median equivalised disposable household income before deducting housing costs*."[55] Statistics NZ (ibid) reports on 'material hardship', "*which indicates the number of households going without more than 6 of the 17 basic things most people would regard as essentials. Examples of lacking essential items include: the household respondent reporting serious restriction on eating fresh fruit or vegetables, putting off a visit to the doctor because of a lack of money, or* ***not being able to pay the gas or electricity bill on time***." The rate for Pasifika and especially Māori children is higher across all indicators, with almost 20% of Māori, and 26% of Pasifika children living in material hardship (compared with 11.3% for all Kiwi kids).

In A-NZ, the *Healthy Homes Initiative* (HHI; see case study above) focuses on this highly-vulnerable group (see submission by the NZ College of Midwives in 2018, in support of this programme based on the importance of EE housing on pregnancy and infant wellbeing). One of the ST programmes described here, *Well Homes* (WH), is funded by the HHI. *Warm Fuzzies* (WF), in contrast, has been around a lot longer and became a backstop for any family that wasn't identified as eligible under WH. It is funded by the social enterprise arm of ST and through philanthropic support. However, they are both almost identical with regards to their service to whānau and are thus discussed together here.

Case Study Methodology for WH / WF

Three people at the Trust were interviewed for this CSA. All were in-home assessors who were certified in *Home Performance Advice*[56] (HPA); one managed service delivery, another focused on social needs assessments, and the third focused on the physical EE side. Questions they couldn't answer were checked with a previous programme manager of WF. WH came about in 2015 as the *Ministry of Health* (MoH) initiated HHI to target overcrowding and rheumatic fever. ST opted to join a local partnership called *Well Homes* (WH), which is the Wellington iteration of several similar services across the country. WH aligns to two local *District Health Boards* (DHBs), *Capital and Coast DHB*, and *Hutt Valley DHB*. Local DHBs link with local service providers to provide equivalent programmes to WH. *Warm Fuzzies* (WF) was initiated by the Trust around 2008 and, even though whānau would not be able to tell many differences in services delivered,

> "*WH has more power because it's connected with the government and DHBs – we can push through to the* Ministry of Social Development *(MSD) for social housing transfers and get stronger responses from* Kainga Ora *(the government's social housing agency). WF was so much harder as it was a standalone service, it is much easier to do this mahi in cooperation with government departments*."

[52] https://sustaintrust.org.nz/
[53] https://shop.sustaintrust.org.nz/
[54] https://www.communityenergy.org.nz/
[55] https://www.stats.govt.nz/news/latest-release-of-child-poverty-statistics
[56] https://hpa.arlo.co/w/

However, the learnings from WF informed assessment of the in-home delivery of WH, including how best to keep the house warm for whānau living in vulnerable circumstances. It was agreed at ST governance level that WF clients who are deemed ineligible under WH are also entitled to the same support for interventions, enabling them to receive beds, bedding, heating, mould cleaning kits, low-energy lightbulbs and other interventions that have not previously been available to them (ST, 2017).

ST, as the EE and housing specialist coordinates with the *Tū Kotahi Māori Asthma Trust* who have strong community relationships with vulnerable Māori whānau, and *Regional Public Health* (RPH) who have public health nurses that deliver the programme and which is the administrative hub for WH. *He Kainga Oranga* (University of Otago's Housing and Health research programme) also provide expertise related to understanding the impact of housing on whānau health. They are all members of the *Wellington Housing Coalition* (Allen + Clark, 2017). For the past 5 years it was largely RPH who promoted this service and triaged health referrals (for details on eligibility, see the HHI case study above). But, as one Programme Manager (PM) noted:

> "*Just in the last few months ST has chosen to be a bit more autonomous in how we promote and deal with referrals. This was done to lighten the eligibility criteria that came down from the Ministry of Health – so we can increase our target audience. It means that the Trust can be more active and present in the community and triage referrals more quickly so families aren't waiting.*"

The WH and WF programmes are informed by a wider internal strategy that focuses on best practice, using a *whānau ora* [family / wellbeing] approach. This includes all in-home assessors having to undergo violence prevention training, understand their obligations under the *Vulnerable Children's* legislation[57], partner with iwi and Pasifika communities, having clear systems and processes in place for triaging and referrals to other community partners, and reflects the ST's strong brand and reputation. Community partnerships are particularly important and broad, and include engaging with:

- Iwi
- Pasifika service providers
- Other community organisations working with the same families
- Ministries of Social Development and Health, Kainga Ora
- Other government agencies working with the same families
- Internal RPH staff
- *Te Rōpu Wero Hinengaro*
- *Community Housing Aotearoa*
- Providers who work with blind, deaf and whānau with intellectual disabilities.

(Shared) Objectives

Even before the government developed the HHI, the Trust had realised that whānau living in vulnerable circumstances needed help, via a two-pronged approach:

> "*We wanted to assist families and build on their pre-existing knowledge of energy behaviour and to link them with existing central government programmes for insulation and heating.*"

Even though WF doesn't have funding to do much more than refer onto *Warmer Kiwi Homes (*WKH), it does have some resources to provide portable heaters. *Wellington Communities Trust* and the social enterprise part of ST are also co-funding interventions like small weatherisation upgrades, curtains from *Curtain Bank*, and in the future they want to include more minor repairs and instant upgrades to poor housing stock. WH has more funding (as it is funded by HHI), and can also provide beds and bedding through it. Some of it filters through to WF especially for worst-case families (but bedding only).

[57] https://www.justice.govt.nz/justice-sector-policy/key-initiatives/cross-government/childrens-action-plan/

In order to provide a broad range of support and to reduce competition for the same funding streams, ST coordinated with *Tū Kotahi Maori Asthma Trust*, RPH and Otago Uni to create the *Wellington Housing Coalition* (WHC). Each organisation played a specific role and provided different expertise (see Allen + Clarke, 2017). Client referrals came through community organisations as well as hospitals and medical providers. Well Homes then co-created standards of practice (STRAP) which all collaborators followed.

Regular operational meetings were held between all consortium members, where they went page-by-page through the standards of practice and made changes. They did this after taking feedback of the home assessors into account. According to one PM, "*This leads to the great success of WH – it is a partnership where everyone has different strengths and all voices are heard*."

They have also recently joined a national *hui* [gathering] in Auckland, for the first time in 2 years with the aim to meet and greet other providers around the country.

> "*Everyone is working towards [the] same goal (ensuring families live in warm housing and feel empowered), but how it is achieved in terms of service delivery, there is quite a range, including in the relationships with local stakeholders*."

Probably due to how the contracts were initially set up between service providers and MoH, some lean quite heavily on their local DHBs, and some are quite independent from them. The hui included a conversation about how important it was for the programmes to be holistic – that "*housing isn't just about the house and energy, but about social issues too*." Different funding levels also have something to do with the variable impact of different programmes. MoH provides funding for the administration but not the physical changes in homes – these come from the local service providers, although in some cases there are national providers, e.g. *Variety* (a children's charity) provides the beds for HHIs around the country.

One thing that became clear from the discussion with the PMs (including a former PM who helped set the programme up), was that main differences between WH and WF procedures were around who directed the programme. With WF, it was a bottom-up programme developed internally by ST, and it was thus quite flexible to meet different clients' needs. WH, being a top-down programme developed by the government, was more systematised and steeped within health frameworks and systems. More focus was put on e.g. privacy concerns of clients.

Audience

Definition and characterisation of the target audience

The target audience for WH was very clearly defined and needed to meet certain eligibility criteria (see HHI case study, above). The main focus was on rheumatic fever (RF), particularly in children and pregnant women or newborns. A secondary focus was on low-income whānau (same definitions as in HHI and EM) with serious respiratory conditions. All tenure types were targeted, not just renters. Initially, *Warmer Kiwi Homes* (and its predecessor *Warm Up New Zealand: Heat Smart*) also tried to target landlords, although largely unsuccessfully (see barrier discussion below).

AUDIENCE DEMOGRAPHICS

Internal evaluation (ST, 2017) showed that housing tenure split of referrals remained consistent with previous years. *Kainga Ora* (social housing) properties are a significant proportion of both WH and WF referrals. Although it is anticipated that these rates will decrease over time as Kainga Ora focuses on upgrading all rental properties to comply with legislative requirements. There are also a large number of private rentals visited by assessors. These highlight barriers related to landlords, particularly fear of being evicted or rents being increased if housing upgrades were undertaken following complaints.

Porirua was the most common location for 2017 WH and WF clients to live (and East Porirua in particular where there are high levels of deprivation, ibid). A smaller proportion of WF clients were

located in Hutt Valley but WH clients there are supported by a partner organisation, *Tū Kotahi Māori Asthma Trust*. 82% of WH clients reside in locations with deprivation scores of 9 or 10, whereas 64% of WF clients live in these locations. For WF, there was a relatively even split between ethnicities, with nearly a third identifying as Pākehā (NZ European) or Pasifika (Pacific Islander), and just over one quarter, as Māori (see Fig 12 below). This varied from the ethnic mix of the WH clients, with over 86% being Māori or Pasifka. As the HHI has been established to support the most vulnerable who are at risk of, or suffer from rheumatic fever, these differences make sense, as these ethnic groups are overrepresented in the negative health statistics for RF risk.

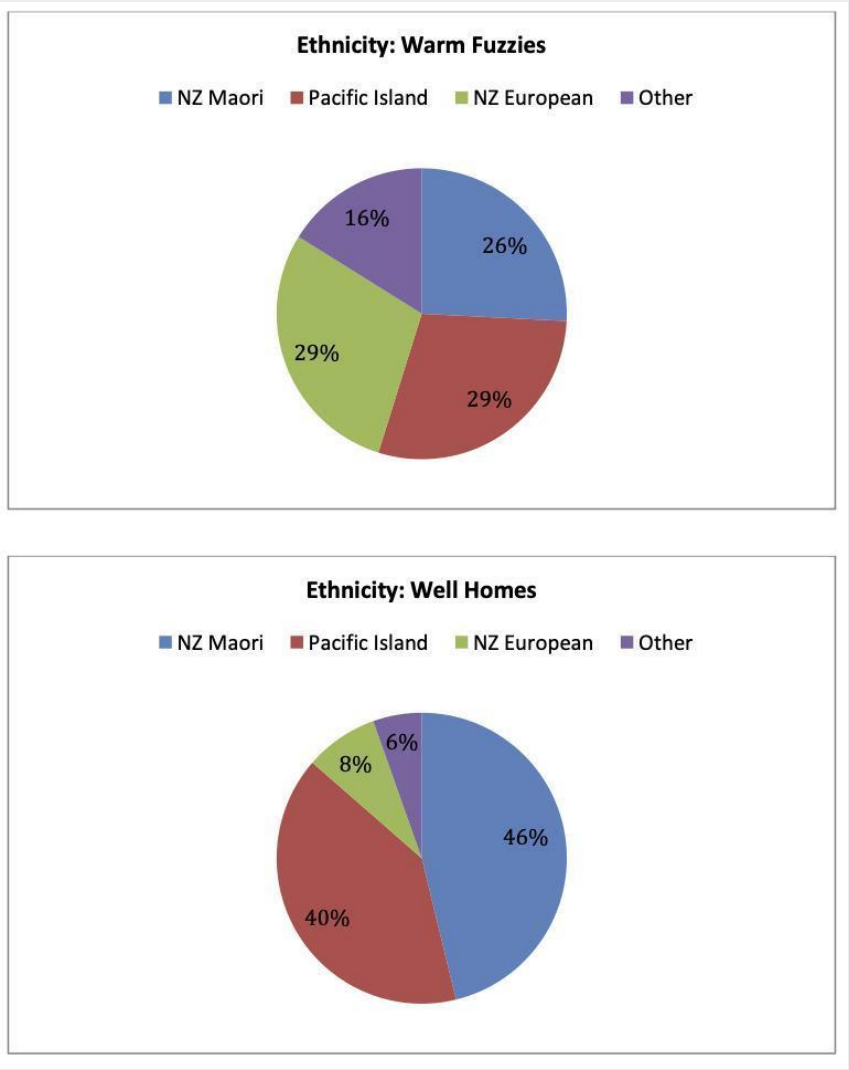


Figure 12: Demographic breakdown by ethnicity in WH and WF clients (Source: ST, 2017)

WF has another audience group it targets specifically – the elderly, who have been referred by their doctors. Some of the groups outside of the 5 target ones who are eligible for WH also fall into WF (e.g. kids with autism over 5 whose parents have to stay at home to care for them, grandparents looking after grandchildren). The Trust often get referrals for children and then helps the whole family – e.g. via occupational therapy referrals back to the regional health providers.

AUDIENCE PSYCHOGRAPHICS, BARRIERS AND NEEDS

When asked if these groups, mainly targeted through health and income indicators, could be regarded as hard-to-reach (HTR), the following feedback was given:

"Initially yes, it is hard to physically contact them. They usually don't pick up when you ring, I often go straight to texting them. Once you are in the home, however, people are really open and grateful for the support. That's why we use referrals from external organisations to target them – this triaging works and that's down to the Trust's relationships with these organisations. We also refer back out to them if there are things the Trust doesn't do that others can help with."

The Otago University research evaluator interviewed in the HHI case study sent out an audience survey but the questions were very specific and more quantitative, focusing on physical markers of a cold home and a household's ability to heat, deal with mould and damp, and around using pre-paid power. However, as the PM with a social focus said:

"Psychographic issues come up during the in-home assessment (especially the social ones I do) – for example, around trust, though not really so much around competing life priorities."

The social assessment undertaken by WH gets done first, in order to understand what is going on socially with the family, so they can be helped with tailored physical advice. As the PM responsible for these in-home assessments stated:

"There is always something else that comes up. The social assessment explains the physical impacts of an unhealthy house to whānau e.g. issues of depression may be because the house doesn't get regularly ventilated. On the flip side, it also explains why some physical changes aren't made, for example, addiction gets prioritised over paying electricity bills."

It is unclear if and how much of this qualitative or anecdotal information is shared with the wider consortium and research experts.

One of the biggest barriers was around getting landlords to improve poor housing stock, even with EECA's targeted subsidies for insulation and clean heating. The biggest change the new government made in response to this poor uptake were regulations called *Healthy Homes Standards* (HHS).

"Assessments prior to them were simply making recommendations and appealing to the good will of landlords. Since the standards, things have changed completely, we are still recommending improvements but now we also have the opportunity to inform Tenancy Services *if housing falls short – there is now a stick and a time frame for when the improvements need to be done by. This completely changed how we operate and our role in the community."*

There was a strong political component to this intervention, related to a change in government after 9 years of National Party rule:

"Since standards have been implemented, old property managers are ringing asking if the subsidies are still available (they aren't). National was protecting landlords and helping them with subsidies, whereas Labour is helping the low-income households."

Behaviours

The behaviours targeted here are similar to those described by the HHI case study, above. The ST (2017) report outlined how in-home assessors make recommendations for both structural improvements for houses and behavioural changes for occupants to achieve warm, dry and healthy housing. ST is able to assist with providing curtains from the *Curtain Bank*, fixed heating, insulation, mechanical ventilation and cylinder wraps (pipe lagging). WH also includes referrals for beds and bedding. Minor repairs are still a common intervention and include fixing draughty windows, repairing leaks, installing security stays, door brushes and wrapping hot water cylinders and pipes. Whilst this is identified as a common intervention the Trust does not have a direct avenue for repairs to be undertaken, although they are planning to employ skilled staff to do so in the future. Recommendations for heating sources combine fixed efficient heat sources (heat pumps / wood burners) and portable electric heating (see Figure 13).

Or, as the PMs describe it:

> *"Anything to make the house warm and dry. Whatever is going to impact their pockets, we try to do things that will make bills cheaper. Presence of mould drives our messaging – ventilation, heating, windows draughty, insulation levels, curtains. We always go with what they can afford or what helps with reducing their bills. Low cost and no cost advice comes first."*

> *"Empowering households is mostly around energy education – to build on what they already know, not to patronise them. We have conversations over the coffee table, chatting about their experience in the home, what they're doing to keep warm and dry. We then build on that knowledge base with specific tailored advice. It's very personal going into someone's home, our services are in no way judgemental, it's really all about listening, not about telling them what to do."*

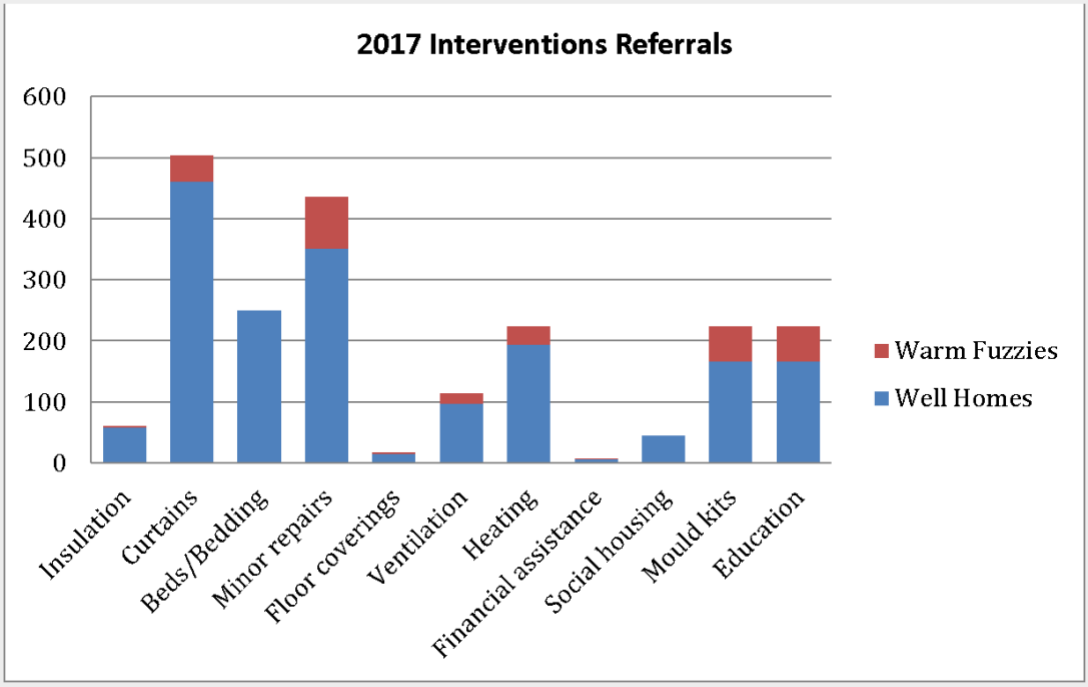


Figure 13: Intervention referrals for WH and WF (Source: ST, 2017).

Interestingly, the interviewees didn't just focus on changing the behaviour of the target audiences. Understanding the bigger systemic issues and barriers, they also pointed out that landlord and policymaker behaviours needed to be changed:

> *"Landlord behavioural aspects were always the real challenge – we could really only appeal to their social conscience. Now, the standards set them as minimum and there is a legal target. Engagement is more on those targets now. Anything on top is nice, but it's highly unlikely they'll go above and beyond. We offer them recommendations for doing the right things, but we focus on the stick."*

There is also a big push to change government agencies' behaviours, especially around trying to streamline things for community stakeholders on the ground.

> *"It's easy not to acknowledge or understand the real needs of families when policymakers are just sitting in their office. The people on the top all say the right things, but it doesn't always filter down to the people in the offices who we are dealing with. That can make the process more frustrating than it needs to be."*

Content

Engagement strategy

The wider engagement strategy was co-designed in partnership with RPH, which focuses around standard operating procedures and is "*mostly admin*", rather than communication. Recruitment of households which qualify is largely left to the community providers. ST works on the in-home engagement directly with families, using a two-touch approach of doing a social assessment first, then providing the physical EE advice based on it. As the PMs state:

> "*There is lots of trial and error and testing to get it right. It's not hard to keep families engaged when we do two in-home assessments. After the first assessment, we can drop off some quick interventions, but the second one is around how to keep the home safe and dry and healthy for the whānau, which resonates with the families*."

ST provides a list of tailored advice with key messages around energy-saving tips. WF did try getting families to sign pledge cards as a behavioural commitment, but this is not used in WH. The engagement strategy was not informed by expert behavioural science or insights.

> *"We didn't design this with any strategic approach, it was more holistic, based on shared experience and knowing how to deliver their advice based on who they are working with. For some families, leaving a piece of paper is meaningless. Families are all very different, can't just do one thing for everyone. Some families are receptive to specific steps they can take, we can then tap into the technical side, e.g. DIY. Others aren't into that at all, motivation is to do the least possible, so we need to prioritise. Families often had a long history of very difficult engagement with agencies. Being the person that listens, is supportive and helps them in a way they are not used to is really important and very successful*."

Delivery

Delivery mechanism

The main delivery mechanism is face-to-face, though the initial contact (after referral) is usually made via phone:

> "*They often don't pick up when we call – this is usually a sign they might be distrustful of MSD. The Ministry doesn't text or email so if we do it, the whānau responds – as long as you do it in a way they're comfortable with. We take a conversational, personal approach, and we tailor the message if we have already tried something else unsuccessfully. That usually works."*

It is a recent change that ST contacts households first. Previously, the admin of the RPH called first to collect any other info from the referral process, the second call came from a public nurse to triage assessment criteria, and only the third call came from ST. However, as a PM said:

> *"It is much more ideal to get one phone call straight from the in-home assessor, in the worst case there are two phone calls."*

Messengers and communication channels

The messengers are usually the ST energy assessors, who are generally trusted much more than any government agencies. Feelings of **stigma** could be an issue, especially around referrals generated from hospital admissions (e.g. that they could be regarded as being 'bad parents' because their children have chronic respiratory illnesses). These kinds of referrals were found to have lower uptake. Any interaction that whānau would have had with *Oranga Tamariki* (the child welfare agency) is noted. It is policy of ST not to pass on any issues to Oranga Tamariki unless they are potentially criminal or harmful.

"We don't see many e.g. drug or gang houses, but assessors in the Hutt certainly do. They also live in that community and thus know about those kinds of houses."

One PM recently saw her first gang house, and joked that there was an intervention from the patched gang member, who was *"playing with a switchblade, but otherwise he was very nice."* Another PM went to a number of gang houses, which were initially often a bit on edge, but subsequent visits showed that the nature of the visit was the house and they understood ("*usually the mom or female was the dominant presence, and she calls the shots of what happens in the house*") that there are children in need and they take up the help.

Allen + Clarke (2017) also highlighted some other examples of different messengers and communication channels, including several recommendations:

- *WH has partnered with* Rimutaka Prison*, through their skill- building programmes, to make some of the interventions that are used for the HHI (such as slow burning fire blocks and quick-dry quilt sets). Well Homes supplies the materials. Although this approach is not always the cheapest option, it is seen as valuable for its wider positive social impact. Well Homes provides healthy housing education to the prisoners who can share the knowledge with their whānau, and prisoners can learn practical skills.*
- *WH is developing a mobile application to enable whānau to self-assess the health of their homes.*
  - Kiwi Plus *teach English classes to migrant families new to A-NZ but also have a social side. ST reaches out to community partners like that. Play to each other's strengths.*
  - *Churches are on the list to talk to as well. Can work with RPH and use their existing relationships with other programmes e.g. immunisation programmes. Will work with local schools and church groups, ST could piggy-back on that.*

Timing

Before winter is the obvious best time to try getting referrals. Once the middle of winter hits, providers are often snowed under (sometimes literally!) and it takes longer to get measures installed. Schools and community groups were found to really respond to the message that *"we need to do it before people get sick."* Recent policy announcements and more flexibility gives ST the ability to promote the programmes more widely themselves.

The 2017 ST report highlights another important timing-related issue: parliamentary elections: *"As 2017 was an election year, there was plenty of opportunity for raising awareness around the issue of poor housing quality in A-NZ. We worked closely with a number of external agencies (*Child Poverty Action Group, Tick for Kids, UNICEF*) on campaign projects during the year. This culminated with the production of a short housing video[58], profiling a Well Homes client in her substandard house and Sustainability Trust providing a home performance assessment".*

"We also conducted a political bus tour for campaigning politicians to visit a house in Porirua, so they could see first-hand the challenges and frustrations experienced by tenants living in an under-insulated home. Media coverage of the issue was significant and in May, we were covered in a story by Radio New Zealand[59]."

Evaluation

Evaluation is done in-house through follow-up calls conducted after winter is passed. During these calls, staff check off Otago University markers (check of hospitalisation before / after visit, cross-checked against what interventions were installed), and aim to get a sense if the whānau is feeling more empowered and engaged with community and social support and is working with government agencies.

[58] https://medium.com/@UNICEFNZ/decision-17-a-safe-home-for-every-child-c224536fab19
[59] https://www.radionz.co.nz/news/national/331974/mouldy-damp-rental-blamed-for-toddler-s-ill-health

Allen + Clark (2017) also undertook a HHI evaluation with a site visit for WH provided by ST, where they met with 11 people. They also interviewed representatives from three of the four partnering organisations who provide the Well Homes programme as well as Capital and Coast DHB representatives who have responsibilities relevant to Well Homes. In addition, they held focus groups with in-home assessors.

Results

Interviewees thought that results from both programmes were useful and filtered back to assessors around the country (especially via the recent Auckland hui). The 5:1 cost-benefit ratio around health outcomes especially was highlighted as a major co-benefit of EE improvements. Their work hasn't reduced the incidence of RF, but hospital admissions went down drastically in homes who have had interventions. The Pasifika community was clearly the most vulnerable and their rates of RF had risen since HHI. They are also regarded as still being some of the hardest-to-reach whānau.

Partner relationships and clear, standardised processes for referral and assessment are a strength of WH, as is the strong formative evaluation by the University of Otago (Allen + Clark, 2017). Where the Sustainability Trust excels is in prioritising facilitating assistance to all referred families, regardless of eligibility under the HHI criteria (e.g. by referring them to the WF programme; directing them to meet with a community law service to better understand their tenancy rights; or providing eco design advisors to assess their homes).

From the ST (2017) report it is highlighted that programme evaluation helps to provide quality assurance. The WH programme was also evaluated by *He Kainga Oranga* beyond 2019 when sufficient large-scale data should be available to determine the efficacy of the programme [this data was not yet available]. For Warm Fuzzies programme evaluation an annual survey of previous clients is conducted to evaluate the perceived benefit of WF intervention for the clients and their families. The self-reported survey results for satisfaction with the WF service were positive, in that changes in housing conditions through individual actions and behaviour change were achieved. Half of the respondents felt that there were health improvements, which was lower than in previous years and is something to continue assessing. What is most positive, is that one of the biggest barriers, namely landlord uptake of recommended improvements increased over time, though they were still only 31%. Over 80% of respondents reported that the **information they received was easy to understand and follow**, as highlighted by a selection of comments from the surveyed clients:

"It has been very helpful and I really enjoy and I am thankful on the helpful hints on how to clean the mould (with vinegar) and to open the window to allow the air in."

"Before the assessment I was wiping away the mould on a regular basis – every week! After the assessment with the heater on and windows opened to air the house I'm now cleaning the mould only once a year."

"There is a noticeable difference when we leave the windows open because it has been warm this summer. However, the other day we had to keep the windows closed because it was cold and the next morning there was water on the sills. (So opening up the windows to allow the air into the house has helped a lot)."

"The landlord has fixed the holes in the roof and they (HNZ) have chopped a few trees down at the back. The boys are excited now and enjoy seeing the sun and light (instead of the dark gloomy overcast all the time)."

"Curtains provided were warmer than the ones he had ...at night time it kept the place warm."

As with the EM feedback, it is clear that there is a significant energy education component that comes from the in-home advice by trusted community providers. However, lack of resources means that actual measurements of changes, other than self-reported feedback, are missing.

Critiques and recommendations

Low referral rates

The ST (2017) report highlights low referral rates into the programme, and Allen + Clarke (2017) also highlight that DHB referrals can be problematic due to DHB concerns regarding patient confidentiality and the potential for privacy breaches. During 2017, ST managed to overcome the privacy issues for discharged patient contact details to be released to *Well Homes*. This has enabled an auto-generated list of discharged DHB patients who are eligible for WH support, to be contacted by the WH team. Furthermore, a strategic communications plan has been developed by RPH and partners to increase the community referral rates. The Trust has also improved its database to deliver a more comprehensive and accessible database for partners. The Trust also has developed clearer procedures around insulation referrals to ensure a greater chance of converting quotes into installation of insulation.

Opt-out rates / difficulty re-contacting clients

The opt-out rate for *Warm Fuzzies* and *Well Homes* clients has been consistent with previous years (ST, 2017). Clients who opted out may have only required phone advice, were uncontactable or had moved property and no longer required the service. This indicates that the clients referred to ST are generally well briefed about the support offered and are willing to receive the service. In 2017, it was difficult to obtain a large number of responses for evaluation - many clients were uncontactable (numbers changed, moved addresses, not responding to messages) and the small sample size was highlighted to be considered when reviewing the results of the survey.

Resource and funding constraints

While housing assessments are typically designated to single assessors, based on geographic region, WH stakeholders spoke of identified benefits when undertaking assessments with two assessors present, as it allows for the provision of a wraparound service in half the time. However, financial constraints have stalled this approach being rolled out in the Wellington region.

Both intervention providers are heavily reliant on *Hutt Mana Charitable Trust* to provide funding for HHI interventions as well as funding for programmes sitting outside the HHI. This has created a delicate funding environment. For instance, although *Sustainability Trust* HHI interventions are now funded by Hutt Mana, Hutt Mana is no longer funding the aligned WF programme (which offers a similar service but with broader eligibility criteria) provided by the Trust.

Conclusions

The *Well Home* and *Warm Fuzzies* programmes highlight the importance of trusted and well-trained community providers being able to deliver both in-home assessments and housing-related and behaviour change interventions to vulnerable whānau. The more government support and flexibility is given, and the more community and health providers engage in cross-referrals, the more whānau will be able to be helped with tailored solutions.

However, there are still silos in the community sector and even though HHI is a great programme connecting various providers with those most in need, its narrow eligibility criteria and focus on largely RF (not wider respiratory illnesses such as asthma) mean that many households are still underserved. WF tries to plug that gap but has limited access to funding and is thus more ad-hoc.

General Discussion

An initial topic for discussion relates to the terminology and definitions used by the analysed case studies. Like many countries, A-NZ is still in the process of developing clear definitions and metrics for energy hardship and associated terms. An expert group recruited by the *Energy Hardship Group* in the *Ministry of Business, Innovation and Employment* (MBIE) will finalise this definition work soon, with a discussion document out for public consultation[60]. The HTR Task literature review (Rotmann et al, 2020) and these case study analyses will also feed into this definition work, and hopefully press the need to focus not just on energy hardship, but wider reasons for why energy users are HTR. This includes focusing also on those audience segments that are currently underserved by A-NZ government and industry programmes, such as SMEs (particularly hit hard by COVID-19), middle-income renters, and high income / high-consuming energy users; as well as those forced to conduct business (and schooling) from their homes (e.g. contractors, non-essential workers) due to lockdowns.

There is less explicit focus on households that are hard-to-reach (HTR) than those who are low income, or otherwise live in vulnerable circumstances (e.g. pregnant women or single mothers, children with respiratory diseases). One expert interviewee gave strong feedback on the use of terminology in this Task. He was particularly unhappy with the terms 'HTR' and 'behaviour change':

> "*The HHI population aren't HTR, they are underserved and badly served. Combining HTR with behaviour change puts the emphasis on the person.*"

This valid critique has been acknowledged by the HTR Task in its extensive literature review (ibid) discussing the different terminologies and meanings, but also the wider systemic issues underlying HTR and vulnerable energy users, such as the socio-economic context, market conditions, energy (in)justice and (in)equity, structural discrimination, etc. In addition, the quote above highlights the potential ethical issues of asking for individual (household's) behavioural changes without addressing the wider, systemic, structural issues that cause inquiry and energy hardship. On the other hand, improving energy literacy and empowering energy users to understand the links between inadequate housing, energy use and health is an important driver to improve their living conditions, and something the government and industry should be commended for doing.

Overall, the compounding global issues we are confronting (COVID-19, [energy and building] supply shortages, climate and ecological crises, increasing societal polarisation and rise of authoritarianism) will need to be addressed more holistically than focusing mainly on individual households and/or behaviours. This complex synergy between vulnerable, low-income, and HTR due to historical (e.g. colonisation), personal (e.g. mental health issues or drug addiction), and multi-generational vulnerabilities and corresponding distrust in authorities has reared its head in Aotearoa New Zealand, since the Delta virus has finally made inroads into the community (around August 2021)[61]. The rise in anti-vaxx sentiments and conspiracy theories, and the difficulty of vaccinating the most vulnerable and HTR communities, shows the importance of having built long-term relationships and support of trusted community Middle Actors, something we are still lacking in a lot of areas (Kaine et al, preprint).

Successes, and potential pitfalls and barriers with programmes such as those examined here

The programmes described here do much right in terms of best practice. They generally hit all the phases and steps described in Karlin et al's (2021) *Building Blocks of Behaviour Change* process:

- **Connect different stakeholders** from multiple sectors, e.g. policy makers from various government agencies with local health providers, energy retailers, and community groups (DISCOVER, the Why)

[60] https://www.mbie.govt.nz/have-your-say/defining-energy-hardship/
[61] https://www.reuters.com/world/asia-pacific/new-zealands-delta-outbreak-spreads-outside-auckland-2021-10-03/

- Put emphasis on **co-creation and ideation,** e.g. by connecting multiple stakeholders from the outset and prototyping of interventions (DISCOVER, Stakeholder Analysis)
- Learn from, and build on **other programmes** and interventions, e.g. Kāinga Ora and Healthy Housing Standards being influenced and informed by HHIs (DISCOVER, Landscape Assessment)
- Use **emphatic listening and journey mapping** exercises to understand target audiences better, e.g. those informing the design of HHIs (DEFINE, Audiences)
- Show flexibility when **targeting behavioural interventions** around audience needs, e.g. focusing on providing new bedding once it was clear that mouldy bedding was a major cause for RF – not something usually regarded as an EE intervention by in-home energy advisors (DEFINE, Audience and Behaviours)
- Have strong understanding of **audience barriers** and flexibility to meet them, e.g. the common use of trusted Middle Actors to address trust and cultural misunderstanding issues (DEFINE, Audience and Behaviours)
- Take **top-down, bottom-up and middle-out** approaches, e.g. by combining government policy with industry and community programmes (DESIGN, Content)
- Use **trusted, trained (community) messengers** to provide direct, in-home tailored advice, e.g. by training and certifying HPAs (DESIGN, Delivery)
- Understand the **right timing and medium** to approach their audiences, e.g. texting vs phone as phone calls are often screened for bad news, such as government agencies calling (DESIGN, Delivery)
- **Empower** community providers to come up with creative approaches that work for their communities, e.g. Curtain Banks or repair services (DESIGN, Delivery)
- **Evaluate widely**, including narrative, process and impact evaluation by independent experts, e.g. Otago University's Healthy Housing research group (DEPLOY, Evaluation)
- **Pilot**, then scale up to more regions and nationally, e.g. the current SEEC funding deployed by the government and used by EnergyMate and the Sustainability Trust (DEPLOY, Pilots)
- Tell **stories** to politicians, and **numbers** and **non-energy benefits** (e.g. around macro-economic benefits from avoided health costs) to Treasury (DISSEMINATION)
- Be able to show these interventions actually led to **warmer, drier homes** and **fewer hospitalisations and health issues** (OUTCOME).

However, it often isn't as simple as just providing access to EE interventions and energy-saving tips, even when they are tailored well to individual households. Sharpe et al (2019) even highlight a possibility that some EE interventions can have a detrimental effect on health in some populations. Due to the cost of living, EE improvements may not eliminate the risk of cold on the lowest-income households (Anderson et al, 2012), nor take full account of resident behaviours, risk perception and choices when heating and ventilating the home (Critchley et al, 2007). Therefore, the potential benefits of energy hardship alleviation programmes could be overshadowed by rising energy prices (Howden-Chapman et al, 2012; Povey et al, 2014). Consequently, some households may continue to ration their heating, despite home improvements (Lomax & Wedderburn, 2009). This means that some home improvements may not help the most energy poor avoid the potential negative impacts of living in cold and damp homes. Homes receiving EE interventions may continue to experience problems with mould contamination (Richardson et al, 2005), regardless of occupant risk perception of the potential health impacts, heating and ventilation practices and EE levels (Sharpe et al, 2015). This shows the overall issue of searching for technological solutions without acknowledging potential behavioural barriers.

Some of the biggest **barriers** that were mentioned across all case studies and perspectives were:

- **Multi-sector approaches** between industry, government, community providers and research experts are the gold star, and yet very complex to manage and hard to get off the ground, e.g. as evidenced by the critiques of the EM pilot.
- They also often fail to address the **tensions from the conflicting mandates** between government utility shareholders, a neoliberal energy industry, and government and local

health authorities trying to work with an over-burdened community sector to fix ingrained energy and social injustices.

- Often, it is still important to **change the behaviours of the Behaviour Changers first,** which is hard to do from the bottom-up, e.g. community groups rarely get the ears of the Minister or high-level policy officials, and Treasury is too focused on quantitative cost-benefit analyses instead of qualitative insights into actual societal needs and (soft) co-benefits.
- **Landlord and third party** interventions are still problematic to get done, e.g. the fear and trust issue between renters and landlords is still unaddressed, although stricter legislation and non-compliance prosecution helped some.
- **Trust** is one of the biggest barriers they encounter, and the more vulnerable the situation whānau live in are, the more likely it is that there is mistrust, e.g. especially in government- or utility-led interventions.
- Community providers are the most trusted messengers, but they are **overloaded and under-resourced**, and energy advice is often a step too far removed from their primary mandates which often centre around providing health or social support services, e.g. in the HHI and EM programmes. More connection with energy and housing-specific providers such as ST could be useful. Long-term relationships between community actors, industry and government authorities are essential, yet difficult to establish and they often suffer from similar structural and systemic issues as the HTR audiences they serve.
- In-home advice by trained, trusted messengers is the most-effective approach, yet it is **time- and resource-intensive**, and can be **dangerous** when provided to whānau in volatile living conditions, e.g. gang or drug houses or homes with domestic violence.
- **Referrals and drop-outs** are quite an issue, and COVID-19 made it worse, e.g. by reducing the in-home, face-to-face component.
- There is **no one-size-fits-all solution**, not all intervention options work for all whānau, e.g. most are already extremely conscious of energy conservation – to the detriment of their health (e.g. the “heat or eat" dilemma). Instead of simply reducing energy consumption, it may need to be increased, at least from heating.
- **Isolated and remote** communities have fewer options and supply available to them – there are big differences in provider effectiveness between regions and providers, and they do need to know their communities very well and be willing and able to visit homes; e.g. smaller communities often have Middle Actors willing to go to homes or community events, whereas in larger cities they may wait for self-referrals which are not HTR.
- Community providers need to be **well-connected and refer to other services** to optimise coordination and leverage system coherence to alleviate multiple drivers that cause energy hardship, but also focus more on whānau who are underserved and otherwise HTR.
- It is hard to show **persistence** in behaviours, and most programmes do not engage in long-term evaluations. Self-reported impacts are, however, positive, e.g. in terms of changes to knowledge, literacy, and self-efficacy.
- They may **not reach the hardest-to-reach**, who are often also the most vulnerable in most need of help, or the ones with the highest energy consumption.

Usefulness of ABCDE Building Blocks Framework

The *ABCDE Building Blocks of Behaviour Change framework* by Karlin *et al* (2021) proved useful for the case studies’ analysis as it allowed a fresh, holistic, and critical perspective on the selected case studies. This fostered the identification of successes, shortcomings, lessons learned, and recommendations. The five building blocks (audience, behaviour, content, delivery and evaluation) provided a clear framework during interviews with programme managers and evaluators. It also highlighted some shortcomings in terms of the critique of behaviour change seemingly putting the onus on households, rather than the Behaviour Changers. This is somewhat addressed by the need for a strong Discovery, including stakeholder engagement phase, where community representatives of the target audiences are invited to co-create and provide inputs on approaches and what the ultimate needs of the target audiences are.

We agree with Mundaca’s (2021) assessment (in the Swedish case study, p25) that: “*From a theoretical perspective, it facilitated a dialogue about elements and concepts belonging to multiple*

disciplines – for example, behavioural economics (e.g. loss aversion), psychology (e.g. psychographics), marketing (e.g. customer segmentation), and sociology (e.g. social cohesion). This dialogue, in turn, confirmed the ability of interdisciplinary collaboration to provide a more comprehensive analysis of behaviour change." Overall, the multi-disciplinary nature of the framework means that it can provide a variety of outcomes that support analyses, which are broader than single-discipline approaches.

All four case studies were well-grounded on their **motivation and goals**, specifically around their willingness and ability to **engage multiple stakeholders**. The initial phases involved **co-design workshops**, and **mapping of the target audience**, both at a national scale through a multidimensional index, and at a local scale through empathic listening, journey mapping and surveys. Regarding behaviours, the projects strongly focused on **improving energy efficiency** and increasing awareness around the connection between **energy hardship, poor health and housing**. A common positive point was the involvement of **trusted Middle Actors** that facilitated the communication between the project team, the target audience, and the broader community. They were all trained in delivering ***Home Performance Advice*** and in some cases, also focused on the **social context** of vulnerable whānau, not just the energy efficiency or technology fixes.

The **methods and engagement strategies** were very similar, with the **community providers** being at the centre of successful delivery of programmes, and all examples successfully took advantage of **proximity approaches** to engage and advise HTR energy users. Although **independent evaluation** and monitoring were adequate, more emphasis could be put on behavioural **persistence**, and especially around **psychographic indicators** (e.g. values, knowledge, attitudes, barriers, behaviours). The case studies definitely contributed towards increasing awareness of energy issues in targeted energy users and their respective communities, creating a strong backbone for follow-up activities and further research.

Concluding Remarks

All four case studies and different Behaviour Changer perspectives have illuminated both, best practice of engaging HTR audiences - *multi-stakeholder collaborations empowering trusted, trained community providers as Middle Actors to provide in-home flexible, tailored advice and interventions, with a focus on non-energy benefits such as health and comfort improvements*, and the common barriers these types of programmes face - *overcoming distrust, overloading under-resourced community providers with work outside of their core priorities, thus reducing referrals and impacts, not reaching the hardest-to-reach / most vulnerable whānau, the ethical implications of focusing on individual behaviour change instead of structural reforms*.

This gets at the heart of the bigger and more complex issue of where the greatest focus should lie: low income, vulnerability or hard-to-reach whānau – or finding a definition and metrics for energy hardship that can somehow meet them all? There is obviously a substantial overlap between the three groups, but they do sit on a spectrum and slightly different approaches may be needed to engage them.

The main issues that were highlighted as common barriers are that the most successful delivery mechanisms (trusted community providers trained in HPA HH training), show highly-variable levels of effectiveness. The need to empower and educate community organisations to deliver creative, tailored energy advice and interventions is rooted in ensuring that these can still support their primary mandates, first and foremost (e.g. reducing health impacts, improving access and safety, reducing financial burdens).

There is also limited data and understanding (beyond anecdotal) on the specific demographics and more importantly, psychographics of whānau living in vulnerable circumstances. This is partly because collecting and analysing this type of data is time- and resource-intensive, has privacy implications, and may cause feelings of *whakamā* [shame] and stigma. These whānau, especially those in the most vulnerable (and thus, often hardest-to-reach) circumstances, usually have had

many negative historic interactions with top-down agents, such as government agencies and utility providers. Using trusted community providers to overcome this mistrust is successful, yet puts more burden on an overburdened and under-resourced sector.

There is thus a strong need for coordinated, significant (co)funding of:

a) **Research** that delves into these deeper, structural and systemic issues of (energy) inequity and injustice, and how more in-depth knowledge of individual cases can inform future interventions.
b) Current and new **community providers** to improve resourcing, staffing and training issues and provide them broader, more systematically-focussed mandates or support cross-referral to a wide range of community networks, and
c) A **cross-sector group or agency** that is empowered to tackle these deep, systemic injustices, with policy, legislation and field programmes and interventions; informed by bottom-up input of, and co-created with HTR community representatives.

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FURTHER INFORMATION

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