



The Evidence of Housing Interventions

Housing and Health Research

For: Salvation Army Meeting 4th Feb

By Nevil Pierse



Te Whare Wānanga o Ōtago

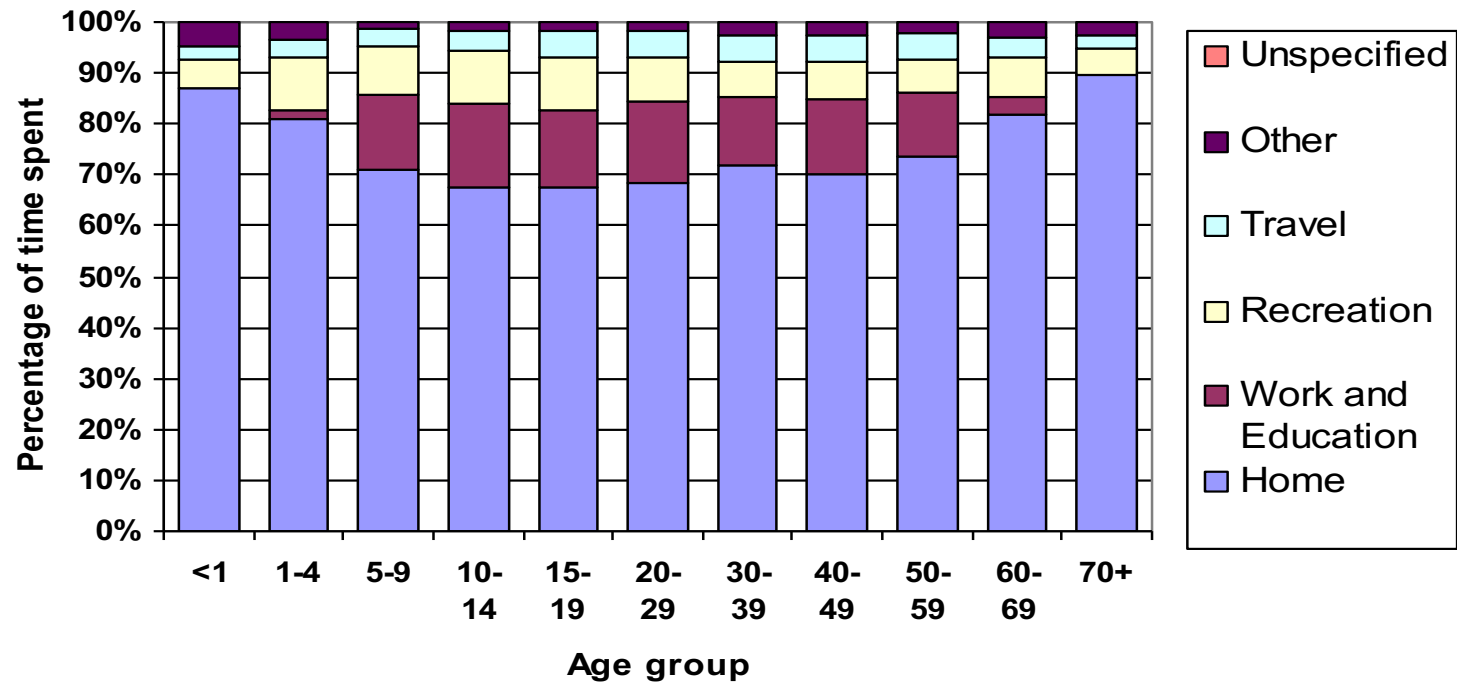
H E K A I N G A O R A N G A



Overview

- New Zealand Housing
- Getting to Warm, Dry, Mould free, Safe
- Insulation Study
- Heating Study
- Home Study (Mould)
- Injury Prevention Trial
- HHI and SHELTER
- Future Work
- Conclusions

Where we spend our time?




New Zealand Travel Survey, 1997-98



Overview NZ Housing

- NZ houses are mostly old, cold damp, mouldy, poorly built with inadequate insulation and heating
- 90% of time indoors, 75% in homes
- Average winter temperature is 14.5°C (WHO recommends 18°C – 21°C)
- 1600 excess winter deaths from respiratory and circulatory ~8000 hospitalisations
- Crowding causes infectious diseases
- Private dwellings with public consequences





09/13/2011

Housing & Health

RESEARCH, POLICY AND INNOVATION



edited by
Philippa Howden-Chapman & Penelope Carroll



He Kainga Oranga

- Focus is on understanding causal relationship between housing & health
- Multidisciplinary team of 28 researchers and thesis students
- Range of methods (**community trials**, cohort studies, case-control studies, qualitative research)
- Range of scales (from small in-depth studies to 5,000 people in community trials)

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Housing, Insulation & Health Study

- Community-based study of 1400 homes, 4,414 people
- Insulation retrofitted
- Significant increase in indoor temperature + decrease in relative humidity + less energy used
- ↓in self-rated poor health; ↓self-reported wheezing in the last three months, ↓children's days off school, ↓adults' days off work; ↓visits to GPs; ↓respiratory hospitalisations

Howden-Chapman, P., Crane, J., Matheson, A. *et al.*, Retrofitting houses with insulation to reduce health inequalities: aims and methods of a clustered, randomised trial in community settings. *Social Science and Medicine*, 2005, 61, 2600-2610.

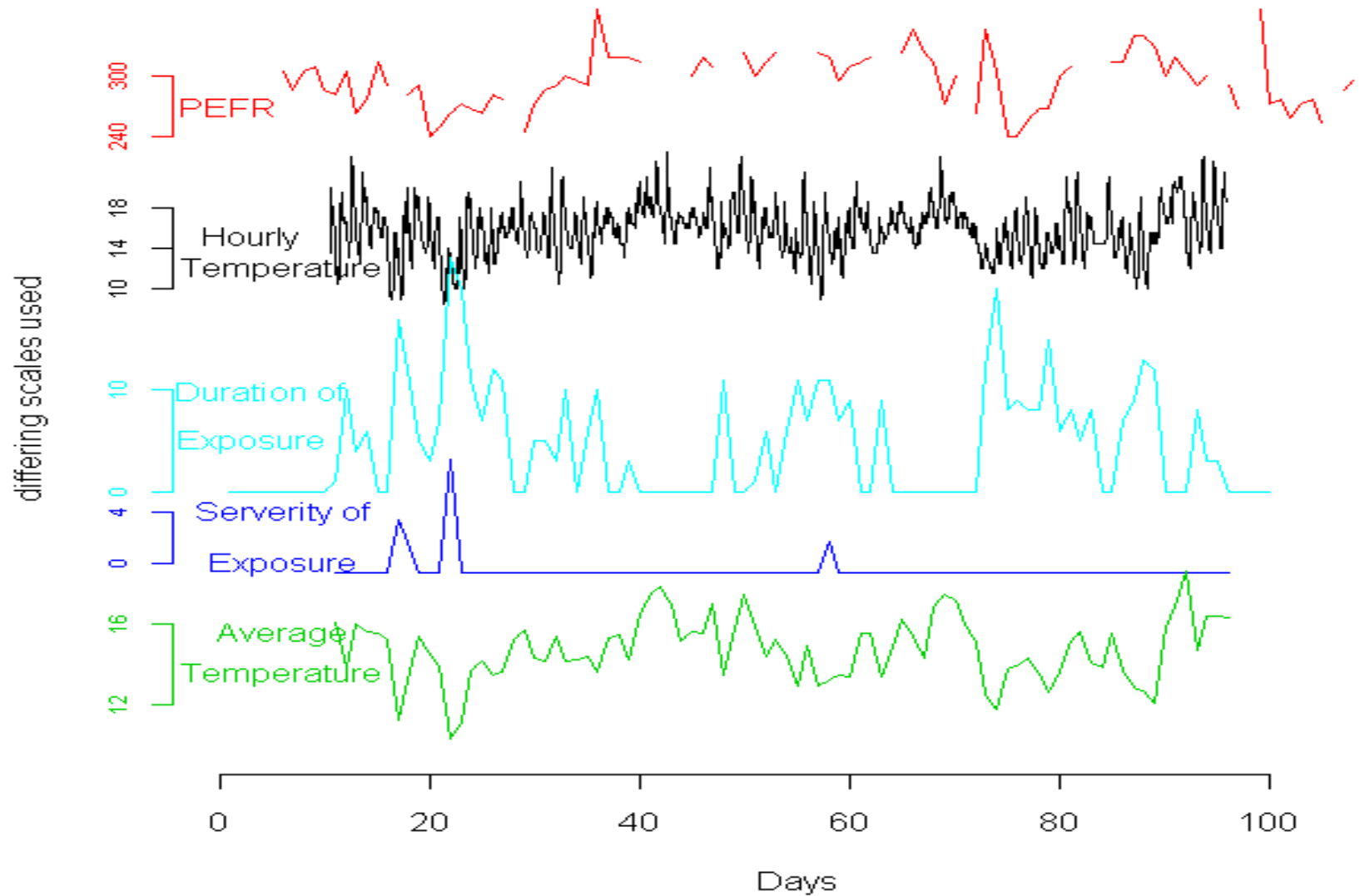
Howden-Chapman, P., Crane, J., Matheson, A. *et al.*, Retrofitting houses with insulation to reduce health inequalities: results of a clustered, randomised trial in community settings *Submitted for publication*



Housing, Heating & Health Study

- Community-based study of 409 homes, of children with asthma
- Installed, Heat Pumps, Wood Pellet Burners & Flued Gas Heaters, in insulated homes.
- Significant increase in indoor temperature + less energy used
- ↓in self-rated poor health; ↓self-reported wheezing in the last three months, ↓children's days off school, ↓visits to GPs.

One Child's Data





Temperature

- WHO recommends minimum indoor temperatures of **18-21°C**
- NZ Children's bedrooms are on average 14.5°C
- Insulation improves bedroom temperature by ~0.8°C
- Heating improves bedroom temperature by ~0.8°C
- These are averages
- The worst home had -4°C in the asthmatics child bedroom while they were sleeping
- 10% of insulated bedrooms had temperatures < 9°C

**Is your home one of the 900,000 houses
with sub-standard insulation?**

You could get 1/3 off the cost to upgrade.



Warm Up New Zealand: Heat Smart Evaluation



- \$347 million four year insulation and heating retrofit programme administered by EECA
- 100,000 homes in first two years
- Quasi-experimental design linked administrative (NHI) and commercial datasets (QV)
- *He Kainga Oranga* focussed on health impacts
- Found household reductions in hospitalisation costs
- Reductions in mortality for vulnerable individuals
- Benefit: cost ratio (3.8: 1) primarily driven by health benefits, for children closer to 6:1



Prime Minister's
Science Prize,
2014



Injury prevention

- NZ houses are of poor quality
- 500,000 medically treated falls at home per year
- Observation studies suggest RR 1.23 per identifiable hazard
- On average circa 3 hazards per house
- ACC provides a unique point of data capture
- Fix the house not the occupant
- Randomised Control Trial of 850 homes



Setting modified	Number of Homes	Average cost (\$NZ 2012)
Intervention (overall)	436	\$560
Steps only (handrails; slip-resistant edging; minor repairs)	62	\$317
Bathroom only (grab rails; non-slip bathmats)	1	\$66
Other only (fixes to carpets; provision of lighting; surfacing of decks and porches; minor repairs to window catches etc.)	18	\$287
Steps + Bathroom	25	\$246
Steps + Other	113	\$714
Bathroom + Other	8	\$319
Steps + Bathroom+ Other	152	\$731
No intervention needed	24	\$10
Intervention not carried out	33	\$0



Results

	Control group	Treatment group
	rate (std error)	rate (std error)
Home injuries excluding falls overall	0.097 (0.0076)	0.109 (0.0077)
Falls overall	0.072 (0.0068)	0.061 (0.0063)
Specific injuries overall	0.028 (0.0039)	0.018 (0.0031)

	falls	specific injuries
Intervention	0.74 (0.58, 0.94)	0.61 (0.41, 0.91)



Solutions to
Child Poverty
in New Zealand
evidence for
action



Expert Advisory Group on
Solutions to Child Poverty
www.mta.govt.nz/childpoverty



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- 50% children below the poverty live in private rental housing , 19% Housing NZ homes
- 33% of Pacific peoples live in crowded households, 20% Māori, 18% Asian, 4% European.
- 9% no form of heating.

Unable to pay steep rent, family huddle in freezing tent

ASHLEIGH STEWART

BLANKETS and body heat.

That is how one Christchurch family, huddling together in a freezing tent as rain batters their makeshift home, have spent two months trying to keep warm.

The family of five have just weathered their third storm in a tent pitched at the Spencer Beach Holiday Park.

Taurua Houia, his wife and their three children are one of 220 priority A applicants on the Housing New Zealand waiting list.

"They have been priority A for three weeks, despite being assessed in February."

"We had a private rental in Hills Rd, but it was too expensive," Houia said.

"I've just been sitting up in the tent every night. I don't get much sleep."

Houia works fulltime as a roofer, but wife Sonia is unemployed and receives a benefit.

But they say this income still does not provide enough money for Christchurch's rents as well as being able to survive.

A large tarpaulin is draped across the outside of the tent for



Tent trap: Taurua Houia and his family live in tents at a holiday park because of a housing shortage.

Photo: Ashleigh Stewart

extra insulation as members of the family curl together under duvets during this week's rain. The mattresses account for about half of the floor in the small tent, the remainder is bare.

There are no separate rooms, and no privacy.

"It's blankets and body heat to keep warm," Houia said.

They had returned to the spot on Monday after a brief, but un-

pleasant, stint outside the camping ground.

Forced to leave as it was booked out for Easter, the family moved their tent to Waiuku on Friday - where it was blown

down. In an effort to save money, they then gave freedom camping a try.

After their tent flooded, they moved to a camping ground in Linwood, where they paid \$82 a night for a campsite.

But even after their ordeal and as the weather closed in, Houia was hesitant to complain. "We just take it. I'm all right. It's just the kids."

Family friend and Taurua's boss, Allan Rolfe, has been helping the family and advocating for them to the agencies.

He had offered to let the family stay with him at his home, but they were "terribly independent" and had refused, Rolfe said.

"It's a horrendous situation. It's a desperate situation, they've got three children as well."

Ministry of Social Development general manager Marlene Edwards said Sonia Houia - whose name the application was under - was first assessed in February, and has been on the waiting list since April 4.

"Housing New Zealand and registered community housing providers will continue to work with Ms Houia to find a suitable property," Edwards said.



Safe Housing Enabling Long-term Effective Recovery *SHELTER*

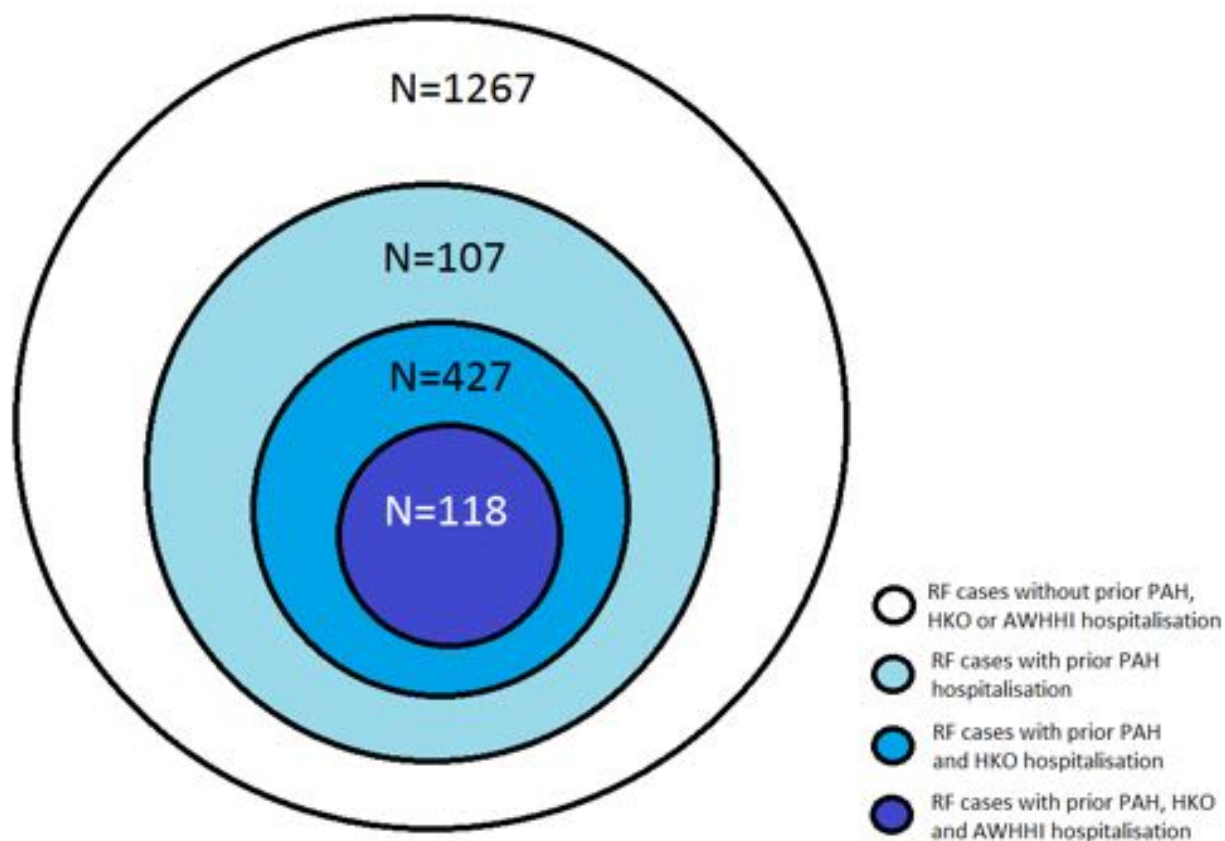
- Observation study
- 800 families in Wellington
- Intervention: coordinated housing intervention
- Data collected using administrative systems
- Collaborations:
 - Wellington Regional Public Health
 - District Health Boards
 - Energy Efficiency Conservation Authority
 - Housing NZ Corporation
 - Ministry of Social Development
 - Tu Kotahi Māori Asthma Trust
 - Sustainability Trust



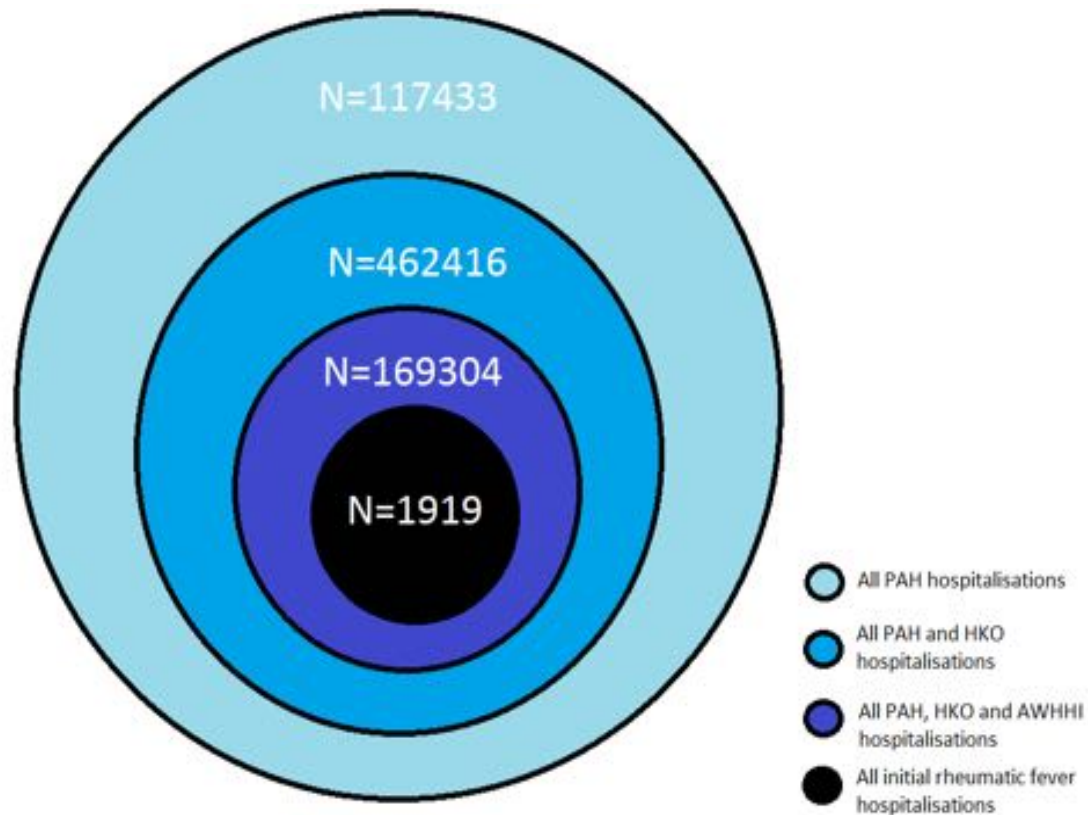
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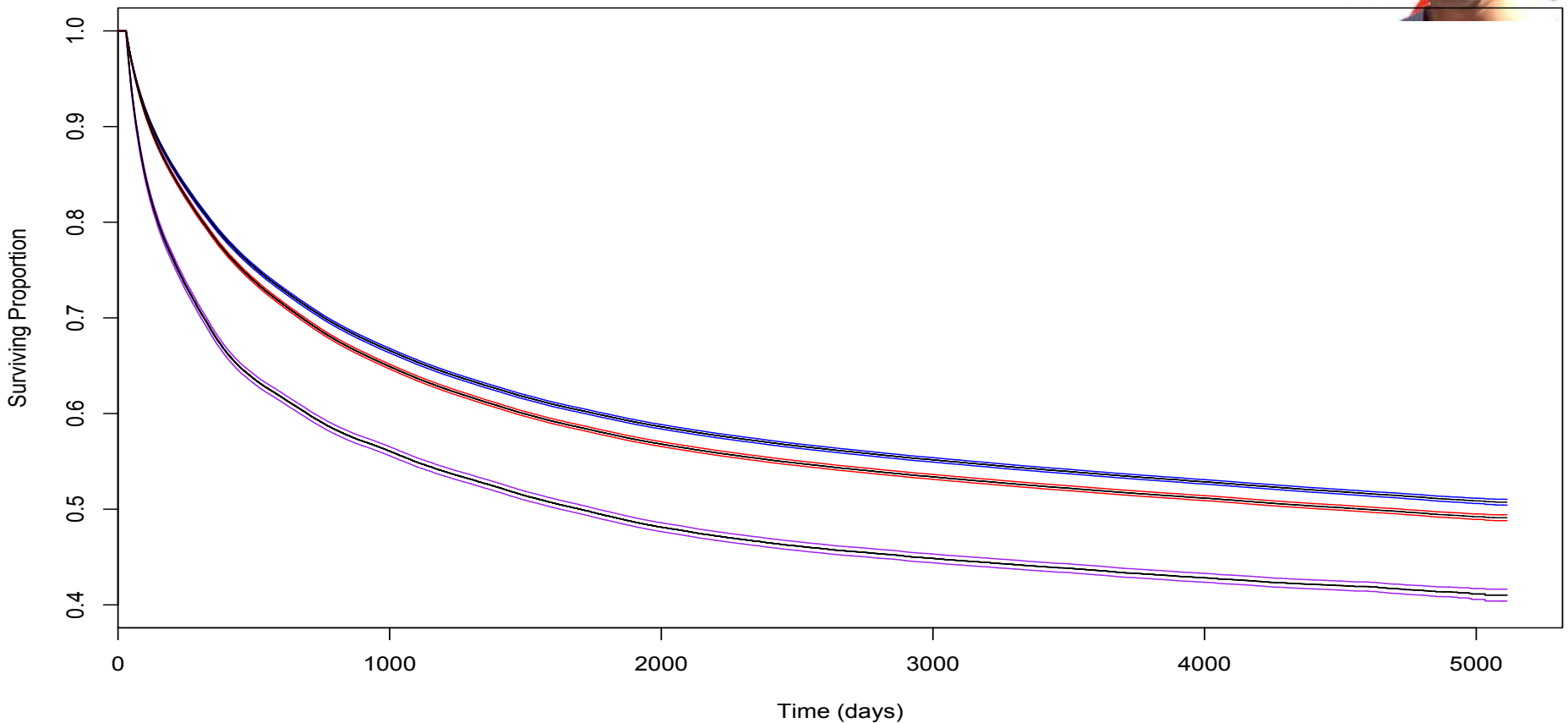
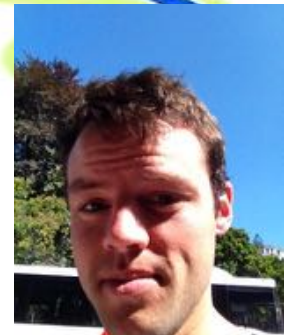
Preventing ARF



Numbers Needed to Treat

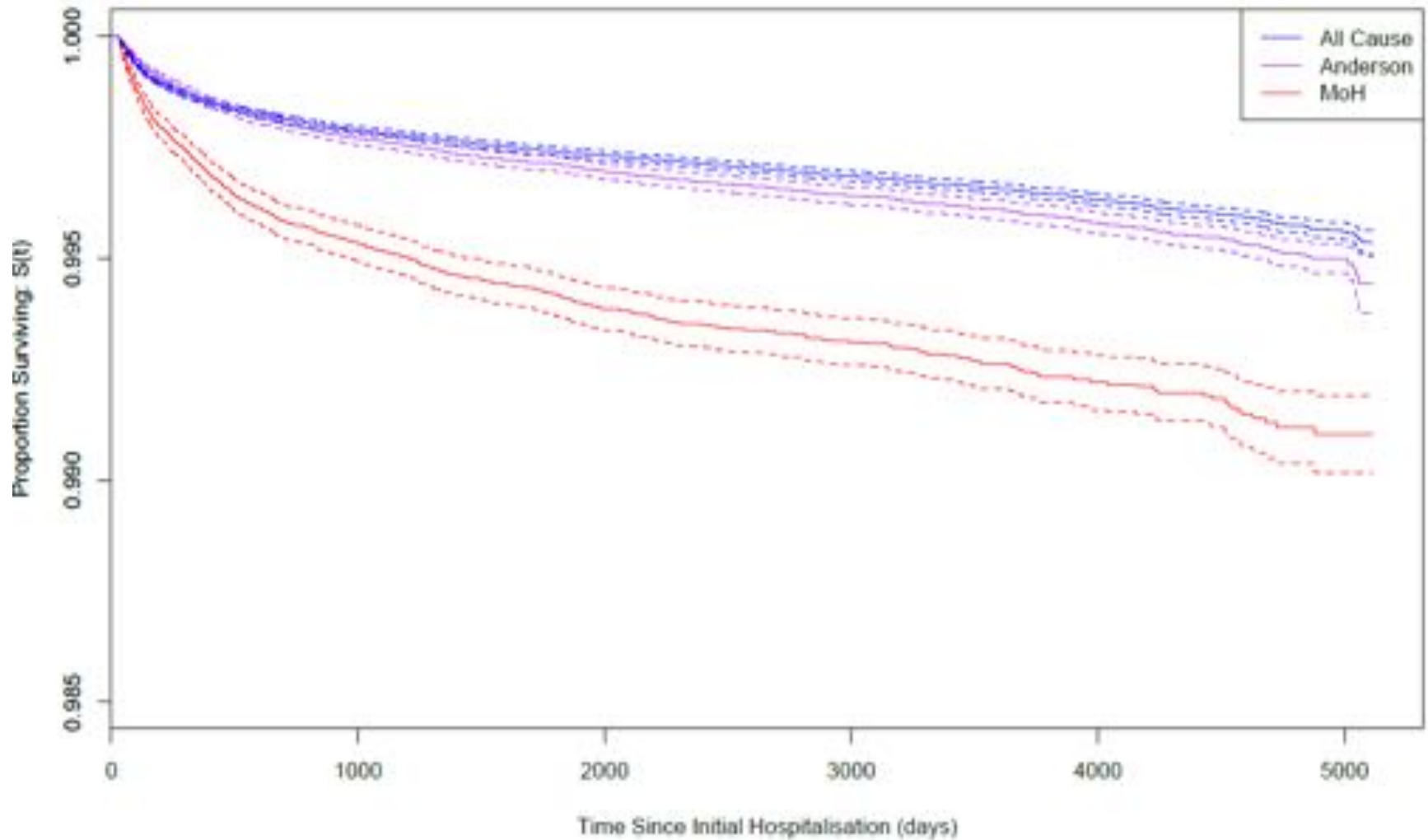


Preventing Hospitalisations





Deaths





Action Needed

- It is not okay to send people back to environments that make them sick.
- Old, cold, damp, mouldy homes are making people sick.
- Homes without safe and clean, cooking, food preparation space, toilets, hot and cold water, facilities for a bath or shower make people sick.
- Community workers need to say this is not good enough.
- We need Enforceable standards and referrals.



Other Work

- NEST study – RCT in the bedroom environment for new born children.
- Road Study - Air pollution in new housing areas
- EASY study- Energy Efficiency and fuel poverty
- Global guidelines for housing and health



Health Operation Housing Medical Students for Global Awareness



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Half a million Kiwis snug as a bug in a rug

What about you?

Thanks to everyone who helped us reach our target of supplying 500,000 New Zealand homes to help the Government's energy efficiency and heat pump transition programme.

The programme has been extended and grants available until 31st March 2024. Visit www.energy.govt.nz for a list of approved providers.

It took just a little more time than planned, and it was a real team effort by the industry including supporting partners and accredited installers. Thanks to the support of the Government, we have been able to provide a great service to the community and make a positive impact on the environment.

Energy



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