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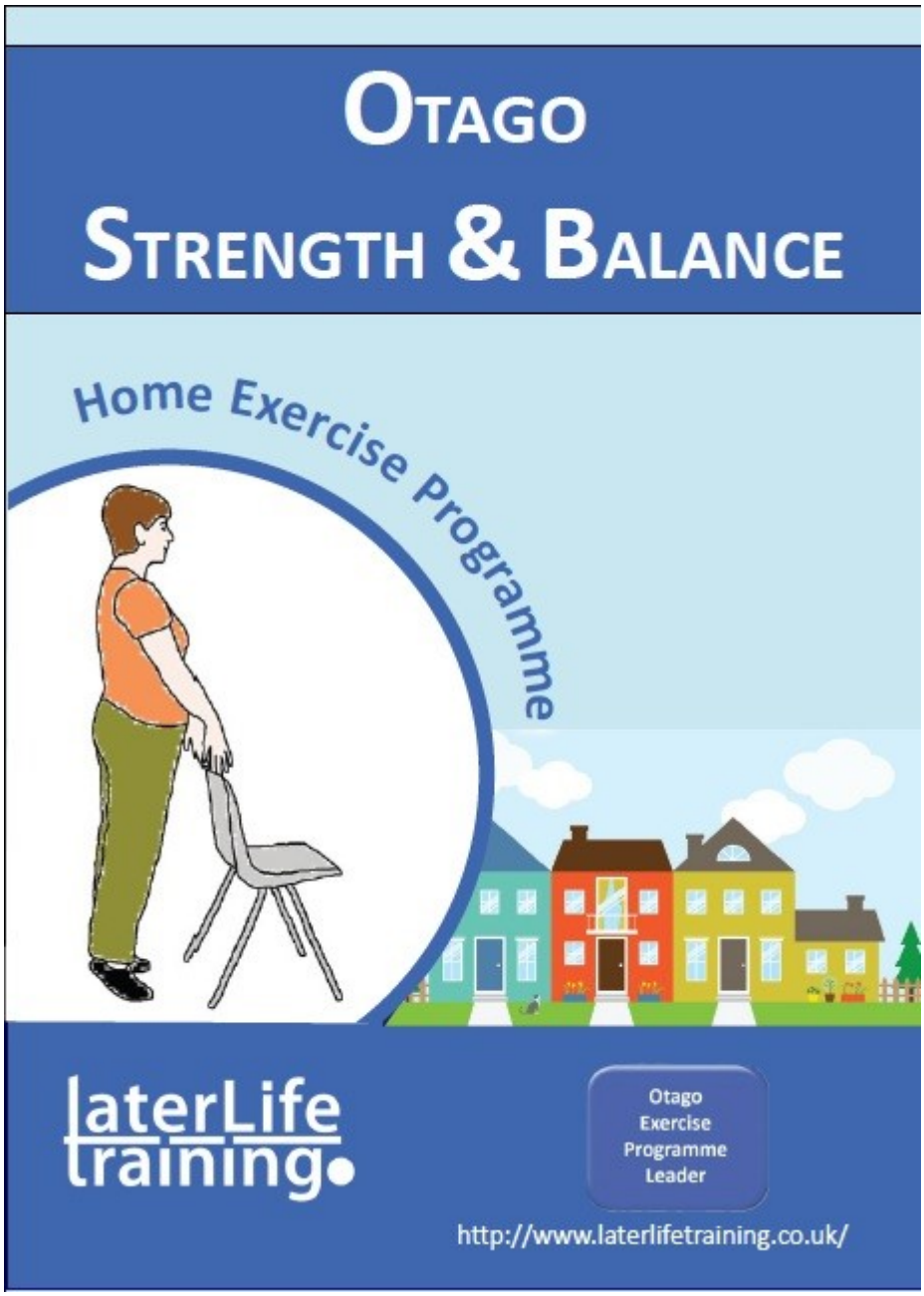

Preventing falls can be very cost-effective in NZ – New study

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We have just published a modelling study on exercise programmes in NZ to

prevent falls in older people. This work suggests that this approach (home-based or group-based exercise) is good value for money for the NZ Government. In this blog we consider these results alongside other fall prevention interventions that policy-makers can consider – which are now all in the BODE^3 online interactive league table.

Falls among older people are common, with high morbidity and mortality impacts. Yet there are interventions that can reduce the risk of falls. In this blog we examine some programme options.

What did our new study find?

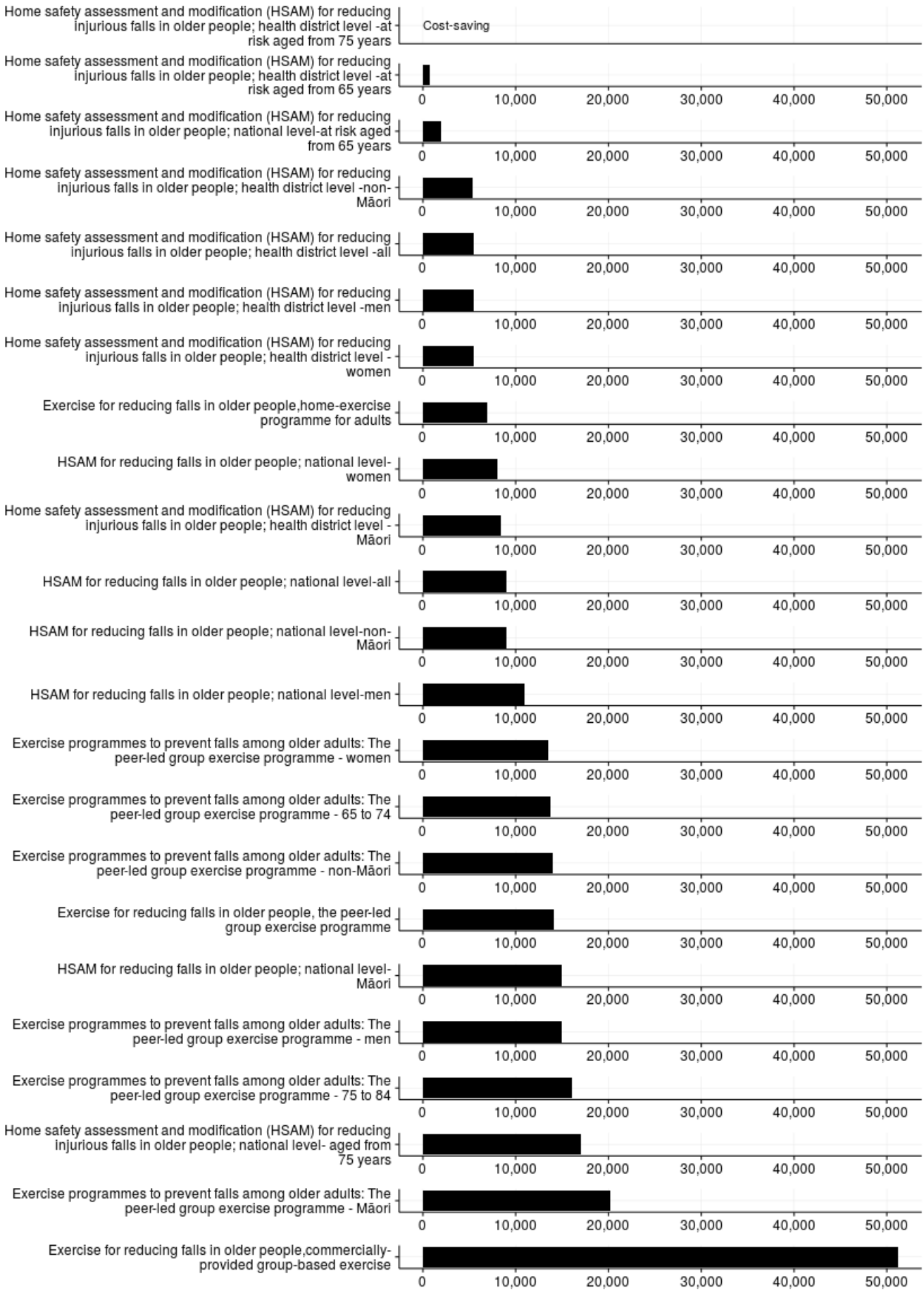
We found that a home-based exercise programme generated the greatest health gain and cost the least. This programme involves instructions from a nurse specialist with five home visits and was assumed to have central government funding (with costs based on the established "Otago Exercise Programme"). We estimated that for people aged 65+ years (in year 2011) who participated in the programme, the health gains over the remainder of their lives would be 47,100 quality-adjusted life-years (QALYs; 95% uncertainty interval [UI]: 22,300 to 74,400). In terms of "value-for-money", the incremental cost-effectiveness ratio (ICER) was NZ$6900 per QALY gained (95%UI: 2200 to 15,600). By a common rule of thumb of "less than GDP per capita per QALY gained" (around NZ$45,000), this is a favourable cost-effectiveness estimate – although the funding still needs to be found.

We have also previously modelled a ***home safety assessment and modification (HSAM)*** programme. This programme involved putting hand rails into homes, removing loose rugs etc. It was also a 'good buy' (ICER = $9000 [1]), and even more so in one particular DHB that we studied: Counties Manukau DHB ($5480 per QALY gained [2]).

We also modelled a ***peer-led group-based exercise programme***. This involves trained peers who run weekly classes (also with central government funding). We estimated that this programme would generate 42,000 QALYs, at $14,100 per QALY gained. A more expensive and less cost-effective was the ***commercially-provided group programme*** (ICER = $51,200). Further analyses by sex, age-group and ethnicity (Māori, and non-Māori) for the peer-led group-intervention showed similar health gains and cost-effectiveness.

How does these results compare with other interventions? Using the BODE^3 online interactive league table

We have introduced our online interactive league table previously. It has now been updated to include a total of 23 different falls prevention interventions (including targeting by different age/sex/ethnic groups). The graph below – taken from the league table – shows the cost-effectiveness (ICERs) of 20 selected interventions. But this league table can also be used for making comparisons between falls and other interventions (diet, tobacco, cancer control etc).



While the above figure just shows the cost-effectiveness, other graphs in the online league table can show the total health gain (in QALYs) and also the total costs to the NZ health system.

Our job as researchers, modellers here, is to generate this evidence to inform policy options. But we recognise there are many other considerations that policy-makers should consider (eg, upfront costs, if other interventions are more pro-equity etc). Nevertheless, having some numbers on the table should help (rational) decision-making, especially in a country with Accident Compensation Corporation that actually 'realises' the downstream costs of injury, incentivising a focus on prevention. The Appendix below goes a bit further into other considerations that policy-makers could take into account.

Are there more falls prevention programmes that warrant policy consideration?

Yes. Knowledge gaps for NZ persist and further modelling work could be done on interventions such as:

- Expedited cataract surgery – since visual impairment is a risk factor for falls (see this Australian work: [3]).
- Enhanced levels of medication review in older people – since some medications increase the risk of falls (and psychotropic medication withdrawal may be cost-effective in Australia [3]).
- Improved alcohol control (eg, higher alcohol taxes) since alcohol is a key risk factor for falls [4] (and we know of at least 10 studies on how alcohol taxation is either cost-effective or cost-saving [references available on request]).

Conclusion

There is now a body of New Zealand specific modelling work that suggests the programmes to prevent falls in older people are cost-effective and a relatively good investment in health. Policy-makers can now consider the 23 options in the BODE^3 online interactive league table.

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Appendix: Some other considerations in selecting falls prevention programmes

Our online interactive league table focuses on the key numbers: QALYs gained, net health system costs and ICERs. But here in this Appendix, we mention a few other considerations that policy-makers could ponder.

First, we suspect that a whole-of-society perspective may favour falls prevention interventions that also prevent falls in adults under the age of 65 years – since most of these people are still working in the formal economy (generating economic activity and paying taxes). This view would favour an expansion of HSAM to a wide range of households (as already successfully achieved in a community trial in Taranaki [5]). There is also some NZ evidence concerning acceptability of such falls prevention interventions by Māori as per

an evaluation of ACC's "My Home is My Marae" [6]. In a previous blog we also discuss a range of targeting options to maximise cost-effectiveness of the HSAM intervention.

Secondly, if the productivity issue is put aside, then policy-makers might wish to favour the expansion of group-based exercise programmes for older people. This is because exercise programmes also deliver chronic disease reduction benefits [7] and group activities may counter loneliness for some older people (we did not consider these additional issues in the modelling in our just published study due to data limitations and model complexity reasons). But we also note that the issue of preventing loneliness may overlap with the new Government's interest in improving population mental health (since there is evidence that loneliness is associated with depression and anxiety [8]). Loneliness is also associated with all-cause mortality [9].

Finally, policy-makers might wish to keep abreast of technological innovation in the falls prevention domain – in case this can result in improvements in uptake, lowering running costs and improve cost-effectiveness. For example, robots are used to run exercise programmes for older people in Japan [10-12] (see Figure below). But then again the use of robots in this way may have low acceptability in the NZ setting – especially if a government goal is a high level of employment.

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