

## Evaluation of a digital health programme for self-management of diabetes and prediabetes

### Research Findings

**This study evaluated BetaMe/Melon\*, a digital health programme, and found that in its current form it was not clinically effective for controlling diabetes.**

This is an important finding. Despite their promise, digital self-management programmes may not all be as useful as once thought in preventing and controlling long-term health conditions such as diabetes.

Robust evaluation should be undertaken before digital health programmes are purchased and rolled out.



### Why was this research needed?

**Six percent of adult New Zealanders have type 2 diabetes and one in four has prediabetes. Rates are rapidly rising for both conditions, and are higher among Māori and Pacific people.**

Using technology is one approach to address this growing health problem as the usual standard of face-to-face medical care is becoming less viable to maintain. Digital self-management programmes are increasingly being recommended to people with long-term health conditions as a tool to support lifestyle changes towards better health. However, there is limited evidence about their effectiveness for the population as a whole, and even less evidence in relation to high need groups within the population such as Māori and Pacific people.

### What did the research team do?

**This study undertook a randomised controlled trial (RCT)\* of BetaMe/Melon, a previously developed digital health programme for self-management of prediabetes and type 2 diabetes.**

An earlier pilot study showed very positive results: over 70% of people with pre-diabetes had normal levels of HbA1c\* after four months on the BetaMe programme. However the pilot was small, did not have a comparison group, and did not look at whether improvements persisted over a longer period. Randomised trials are a better study design to assess whether this kind of intervention works

because results can be compared between those who receive the intervention and those who do not.

This RCT investigated whether using BetaMe/Melon resulted in changes in HbA1c, weight and other outcomes, after 4 and 12 months, for both the general population and for Māori and Pacific people.

More than 400 study participants were recruited from 25 general

### PROJECT TIMELINE

March 2017 – February 2020

### LEAD RESEARCHERS

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practices in the greater Wellington and Waikato regions in New Zealand, covering both urban and rural settings. All participants in the study received usual care from their primary health services. Those assigned to the intervention group also received the BetaMe/Melon programme on top of usual care. There was very high retention of study participants, with over 98% contributing to the measurement of clinical health outcomes.

## What were the results?

The results of the RCT showed no lasting benefit from using the programme compared to receiving usual diabetes care, and there was some evidence that it impacted negatively on quality of life.

Those using BetaMe/Melon achieved small improvements in HbA1c and weight at four months (greater for the non-Māori, non-Pacific group than for Māori and Pacific) but these had largely reduced by 12 months.

There was no difference in changes to HbA1c or weight after 12 months between those using BetaMe/Melon and those with usual care.

## Next steps

To improve the development of digital self-management programmes in the future, more research is needed to identify which elements are effective at improving health and how people can be encouraged to keep using these tools over extended periods.

Health service planners and funders should exercise caution before investing in digital self-management programmes for long-term conditions. In the absence of robust evidence that a programme is effective, alternative approaches should be considered, especially for high needs groups.

### \*BetaMe/Melon

- is a multi-modal (mobile and web-based) programme for self-management of prediabetes and type 2 diabetes;
- has four components: health-coaching, evidence-based resources, peer support and goal tracking;
- was developed by Melon Health Ltd with input from a multidisciplinary team, including primary care practitioners, Māori and Pacific health providers, and psychologists;

*In 2018 the name of the BetaMe programme was changed to Melon.*

\***HbA1c** or glycated haemoglobin is a measure of average blood glucose (sugar) levels over a period of 2-3 months. It is used to diagnose, and monitor control of, type 2 diabetes and prediabetes.

\***A randomised controlled trial** (RCT) is a research study in which people are randomly assigned to a treatment group to test a specific intervention. One group (the experimental group) has the intervention being tested, the other (the comparison or control group) has an alternative intervention or placebo intervention. The groups are followed up to see how effective the experimental intervention was. Outcomes are measured at specific times and any difference in response between the groups is assessed statistically.

## Publications

**Impact of a comprehensive digital health programme on HbA1c and weight after 12 months for people with diabetes and prediabetes: a randomised controlled trial** *Diabetologia* 2020. doi: [10.1007/s00125-020-05261-x](https://doi.org/10.1007/s00125-020-05261-x)

**A Mobile- and Web-Based Health Intervention Program for Diabetes and Prediabetes Self-Management (BetaMe/Melon): Process Evaluation Following a Randomized Controlled Trial** *J Med Internet Res* 2020; 22(12):e19150. doi: [10.2196/19150](https://doi.org/10.2196/19150)

**Technology-assisted self-management programmes are increasingly recommended but the evidence from this study shows they may not all be effective**

### Content

- Health coaches
- Evidence-based resources
- Peer support
- Goal tracking

### Delivered via

- Web
- Mobile phone

### Aims to

- Drive behaviour change
- Prevent prediabetes progressing
- Manage type 2 diabetes

### Outcomes after 12 months

- Initial engagement has reduced
- No change in diabetes control
- No change in weight
- Lower quality of life (possibly frustration)

### The Long-Term Conditions Partnership

The New Zealand Ministry of Health, Health Research Council of New Zealand and Healthier Lives – He Oranga Hauora National Science Challenge entered a three-way partnership in 2016 to invest in research aimed at improving long-term health conditions.

More information about this study and the Long-Term Conditions Partnership is available at: <http://healthierlives.co.nz>

### Please use the following citation:

Research Findings Brief *He Kupu mō ngā Kitenga Rangahau*: Evaluation of a digital health programme for self-management of diabetes and prediabetes, Long-Term Conditions Partnership 2020.

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