Evaluation of the Mobility Action Programme (MAP)

An early intervention programme for people with musculoskeletal conditions

Cycle 2 Final Report **August 2016 – December 2019**

ALLEN+CLARKE

MINISTRY OF HEALTH
MANATŪ HAUORA

ACKNOWLEDGEMENTS

Allen + Clarke is grateful to evaluation participants who made themselves available for interviews and focus group sessions. The experiences and ideas shared during the evaluation were invaluable. We would like to thank the MAP service providers for their interviews and focus group session participation, and the Ministry of Health's MAP project team (Simon Duff, Peter Jones, Julie Palmer, Peter Larmer, and Jake Gallagher) for their support with this evaluation. Ngā mihi nui ki a koutou katoa.

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Document status:	Final Cycle 2 Report (Anonymised version)
Version and date:	V3; 21/01/21
Author(s):	Jessie Wilson, Ross Wilson, Haxby Abbott, Brendan Stevenson, Marnie Carter, Yasmine Kayem
Filing Location:	W:\MOH Service Commissioning\Evaluation of MAP AOG-MOH059MAP\3 Evaluation cycle 2\8 Reporting\Drafts of draft Cycle 2 report
Peer / technical review:	Marnie Carter
Verification that QA changes made:	Jessie Wilson
Proof read:	Pounamu Aikman
Formatting:	Pounamu Aikman
Final QA check and approved for release:	Marnie Carter

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EXECUTIVE SUMMARY

Background and evaluation purpose

As the leading cause of disability in New Zealand, musculoskeletal (MSK) conditions generate health, social, and economic strains on individual quality of life and health system costs. Research indicates that one in every four adults is affected by MSK conditions, which include arthritis, osteoporosis, lower back pain, spinal disorders and injuries to the spine and limbs.[1] MSK conditions are not fatal but come at a significant cost to the physical and holistic wellbeing and quality of life of those affected.

New Zealanders affected by MSK conditions can access a range of health services in primary and secondary healthcare settings. However, the management of chronic MSK conditions is largely episodic, uncoordinated, and often lacks a strong evidence base.[2] The management and treatment of MSK conditions is costly; in 2009 it was estimated to comprise at least 25 percent of New Zealand's total annual health costs.[3]

As a key health priority for the Ministry of Health (the Ministry), Budget 2015 confirmed a total of $50 million to be invested over the 2015/16 to 2017/18 financial years to improve prevention and treatment for people with orthopaedic and MSK conditions, and to provide more New Zealanders with timely access to planned care. Of this, $44 million was targeted to support extra orthopaedic and general surgeries, and $6 million to improve care for people with MSK conditions by delivering early-intervention, community-based programmes.

The Mobility Action Programme (MAP) was developed by the Ministry as part of this $6 million investment. The MAP was designed to align with best practice approaches to early intervention programmes for MSK conditions and the five themes of the New Zealand Health Strategy.[4,5] The MAP aimed to deliver evidence informed, community-based, multidisciplinary interventions for adults with MSK conditions. It intended to support people to access advice, assessment and treatment earlier than had previously been available. The MAP's priority groups were Māori, Pasifika and individuals living in the highest deprivation quintile. The programme ran from May 2016 to December 2019. During this time, 4,783 individuals participated in the programme.

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[1] Bosley, C., & Miles, K. (2009). *Musculo-skeletal Conditions in New Zealnd: The Crippling Burden*. The Bone & Joint Decade 2000-2010: Wellington.

[2] Sourced from contract service specifications between the Ministry of health and the MAP providers.

[3] Bosley, C., & Miles, K. (2009). *Musculo-skeletal Conditions in New Zealnd: The Crippling Burden*. The Bone & Joint Decade 2000-2010: Wellington.

[4] The MAP was designed based on best practice approaches for early intervention programmes such as Australia's Osteoarthritis Chronic Care Programme; Britain's National Institute for Health and Clinical Excellence; the Osteoarthritis Research Society International; and the European Action Towards Better Musculoskeletal Health.

[5] New Zealand Health Strategy strategic themes include: 1) People-powered; 2) Closer to home; 3) Value and high performance; 4) One team; and 5) Smart system.

The key objectives of the MAP were to improve the holistic well-being of adults who experience MSK conditions, reduce demand on secondary healthcare services, and address health inequity. It also aimed to provide evidence on the effectiveness of early intervention programmes targeting MSK conditions in the New Zealand context.

The Ministry established a total of 17 MAP pilot sites (MAPs). The first group of MAPs, involving seven providers, was initiated in May 2016 (Tranche 1 service providers). The second group, involving ten providers, was established in November 2016 (Tranche 2 service providers). All MAPs were designed to provide early intervention models of care, except for one MAP pilot site that targeted individuals in the later stages of their condition.[6]

The Ministry selected a range of providers to deliver the pilot MAPs. These included Non-Government Organisations (NGOs), private providers (such as physiotherapists, occupational therapists, and psychologists), Māori and Pasifika health providers, District Health Boards (DHBs) and Primary Health Organisation (PHOs). Providers were selected based on a range of criteria (e.g., ability to address inequity, and/or meet the unique socio-cultural and health needs of those with MSK conditions within their service areas).

The Ministry commissioned *Allen + Clarke* to evaluate the effectiveness and impact of the MAP, and to provide an evidence base that identifies the models and approaches that best achieve the programme's intended outcomes. The evaluation consists of two cycles.[7] This report describes findings from both cycles, with data collected from April 2018 to December 2019.

Evaluation results will be used to inform future investment in MAP-type programmes by the Ministry, DHBs, PHOs and/or other potential funders such as the Ministry of Social Development (MSD), the Accident Compensation Corporation (ACC) and private organisations. The findings will also help inform decisions about which MAPs, and which components of the MAPs will be continued, changed or stopped.

Methodology

The evaluation examined the effectiveness and impact of the MAP across six domains or evaluation criteria. These are: (1) health outcomes; (2) reach; (3) reduction in disparities; (4) economic impact; (5) consumer experience; and (6) what 'works best'. The following key evaluation questions (KEQs) are framed around these criteria.

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[6] One programme targeted individuals who were in the later stages of their condition and had already been referred for specialist assessment.

[7] Cycle 1 occurred over 2018 and involved analysis of participant data and case studies with MAP service providers. Cycle 2 included additional focus group sessions with MAP service providers and an in-depth analysis MAP participant data.

Table 1: MAP evaluation criteria and questions

Evaluation criteria	Key evaluation questions
Health outcomes	1. What impact has the MAP had on general health status, pain, functional status, self-confidence and ability of participants to self-manage their condition?
Reach	2. To what extent has the MAP reached its anticipated (contracted) enrolment and completion rates?
Reduction in disparities	3. To what extent is the MAP reducing known disparities in access to health services and outcomes?
Economic impact	4. What was the economic impact of the programme?
Consumer experience	5. How well has the programme managed patient care?
What works best	6. Under what conditions does the programme work best?

Overview of evaluation findings

Health outcomes

Participants in the MAP increased healthy behaviours and experienced reduced pain, enhanced mobility and functionality, enhanced wellbeing and reduced need for secondary healthcare services.

Overall evaluation findings indicate that participation in the MAP (across either all or most MAPs) contributed to:

- a maintained reduction in Body Mass Index (BMI);
- significant improvements in health-related behaviour changes;
- significant reductions in pain and improvements in mobility and functionality;
- significant improvements in participants' perceived ability and confidence to self-manage their conditions;
- significant improvements in general health and wellbeing; and
- significant reductions in visits to specialists and other secondary healthcare services.

Reach

The MAP was largely effective in reaching its target groups. Programme completion rates were less than anticipated.

Reach is defined as the extent to which the MAPs achieved their anticipated (i.e., contracted) participant enrolment volumes and anticipated discharge rates (i.e., until the end of the programme, or Time 2).

Evaluation findings about the reach of the MAP indicate that:

- most providers achieved 80 percent of their enrolment target;
- in nine out of the seventeen providers, 80 percent of participants remained in the programme until completion;
- factors contributing to non-completion included: inappropriate referrals; participants experiencing comorbidities and complex needs; administrative and logistical challenges with follow-ups; the amount of health outcome information providers were required to collect; a lack of capacity from some providers to build new systems, processes, structures and resources for participant follow-ups from scratch; and participants not understanding or buying into the purpose of the follow-ups; and
- providers' strategies to enhance the reach of the programme and mitigate non-completion included: visiting workplaces, marae and homes; building rapport with participants from the outset and incorporating follow-ups into the core programme from the beginning; being flexible and empowering participants to decide where and when follow-ups would best work for them; and offering incentives for programme completion.

Reduction in disparities

The MAP effectively reached Māori, Pasifika and those living in high deprivation, but struggled to retain these priority groups to completion. These groups achieved similar health outcomes to the general MAP cohort.

The evaluation explored the extent to which the MAP reduced disparities in access to health services and outcomes. This was assessed by exploring: (1) strategies providers used to reach the programme's priority groups (e.g., Māori, Pasifika and individuals living in the highest deprivation quintile);[8,9] (2) whether the needs of priority groups were met; and (3) whether priority groups experienced equity of outcomes when compared to the general MAP cohort.

Evaluation findings regarding reducing disparities through the MAP show:

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[8] The New Zealand Health Survey 2013/14 shows that Māori and Pacific adults were 1.3 times more likely to have arthritis than non-Māori and non-Pacific adults.

[9] Arthritis UK (2014) reports that individuals living in high deprivation are more likely to report chronic pain, and the pain they experience is likely to be more severe.

- the MAP successfully enrolled Māori, Pasifika and those living in deprived neighbourhoods;
- priority groups were less likely to remain with the MAP until discharge (Time 2). Only three MAPs achieved completion rates for Māori at or above the rate for all participants and only one achieved similar completion rates for Pasifika;
- participation rates for priority groups were generally similar to, or greater than, the estimated proportion of those populations with MSK conditions within their geographical region;
- there were few significant differences in health outcomes between priority groups and other participants, but Pasifika participants had worse outcomes on mental health and general health-related quality of life (at Time 4/12 months after discharge only);
- the MAP participant survey results show that respondents who identified as Māori were 1.9 times more likely to report learning how to manage their weight than non-Māori, 3.6 times more likely to report health improvements and 3 times more likely to report an improved ability to seek or return to working following MAP; and
- successful strategies used to target priority groups include developing relationships with iwi, Māori organisations and employers with largely Māori workforces; educating referrers on the MAP's priority groups and eligibility criteria; and employing staff with cultural competency and te reo Māori and Pasifika language skills.

Economic impact

The MAP offers value for money. The programme is projected to be highly cost-effective over a five-year horizon.

The cost-effectiveness of the MAP was assessed comparing results with the New Zealand Management of OsteoArthritis (NZ-MOA) model. The design of the MAP did not include a control group to allow an estimate of its cost-effectiveness. To assessment economic impact, MAP participant data was supplemented with previously collected randomised trial data of similar patients (predominantly early- to mid-stage OA) and a similar intervention (the MOA trial).[10] Participants in the MOA trial were randomly assigned to either a 'usual care' control group, in which they continued to receive the usual medical care provided by their GP and other healthcare providers; or an exercise therapy intervention group.

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[10] The findings should be interpreted with some caution, as the MAP and MOA interventions have key differences, including different inclusion criteria, target conditions (MOA focussed only on osteoarthritis) and baseline indicators (for example, MAP participants had higher baselines pain scores and more severe arthritis than MOA participants).

The cost-effectiveness of the MAP was estimated using the previously validated NZ-MOA computer simulation model of the disease course, health losses, and treatment costs of MSK conditions in the NZ population (see Appendix E page 89 for further details). Cost-effectiveness analyses suggested that:

- the MAP was projected to be highly cost-effective over a five-year horizon;
- there was more uncertainty in the projected longer-term outcomes, but the cumulative health gain over five years was projected to be 549 QALYs with cost savings of $4.3 million;
- total health gains were estimated to be 155 quality-adjusted life years (QALYs)[11] in the MAP cohort or 0.03 per participant; and
- costs from budgeted per-participant costs were estimated at $743 per participant ($3.6 million total), resulting in incremental net monetary benefit (INMB)[12] of $5.4 million, indicating the MAP was cost-effective over the short-term from the perspective of the healthcare system;

MAP consumer survey results offered additional support of the programme's cost-effectiveness and contributions to enhanced productivity:

- 54 percent of survey respondents stated that attending the MAP reduced their medical costs;
- 59 percent of respondents reported improvements in their ability to either work or to seek work, with those identifying as Māori three times more likely than non-Māori to report an improvement; and
- MAP participants were less likely to report negative effects of their condition on their work/volunteer time and were less likely to be unemployed for condition-related reasons.

Consumer (MAP participant) experience

The MAP mostly met consumer needs and expectations and helped them self-manage their conditions.

An anonymous survey of all MAP consumers was administered to the entire MAP cohort.[13] The purpose of the survey was to obtain quantifiable data regarding the consumer experience of the MAP. In total, 1,019 clients from a possible 3,453 (29.5 percent) completed the survey. Analysis of survey data on the consumer experience found that:

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[11] QALYs are a measure that quantifies the health effect of an intervention or programme by combining improvement in health-related quality of life and the length of time spent with improved health. One QALY equates to a year of life lived in perfect health.

[12] The INMB is a measure of the overall cost-effectiveness of an intervention, assuming a given willingness-to-pay for healthcare to achieve a given health gain.

[13] This includes both completers and non-completers.

- overall, the majority (86 percent) were happy with their MAP experience;
- wait times for enrolling in a MAP were generally between one to two months and most respondents perceived this wait time as acceptable;
- 76 percent of respondents understood the MAP's purpose before starting the programme, though some would have liked additional information about the programme, specific courses and programme availability;
- most respondents reported that programme locations and days/times of sessions suited them and their conditions; and
- nearly all were comfortable with how staff talked to them during MAP classes, appointments, and the way MAP was explained to them.

What programme characteristics/models of care work best

Features associated with programme success are group sessions, longer duration and delivered by both private providers and a mix of provider types.

Cycle 2 of the evaluation emphasised the evaluation criterion "*What works best*". The evaluation found that:

- private providers performed best in achieving improvements in participant health and offered accessibility and flexibility for MAP participants;
- a mix of provider types (e.g., DHBs and NGOs) performed better in achieving their contracted enrolment volumes;
- group sessions were more effective than individual sessions in achieving health outcomes and performed best in retaining participants until completion; and
- longer-duration programmes (10 weeks and more) had consistently larger improvements in all health outcomes and offered better healthcare gains, savings and cost-effectiveness.

Other features associated with MAP effectiveness include:

- programmes delivered by providers accustomed to interdisciplinary care models;
- providers with experience in working with the priority population groups;
- building in time at the beginning of the programme to build relationships between providers, referrers and community groups;
- ensuring there are effective triaging services at the point of programme referral;
- incorporating an equity focus into the programme, and implementing specific strategies to target priority groups and to meet their specific health, social and cultural needs;

- ensuring programmes are delivered in convenient locations, close to transport and with a range of session times including evenings or weekends;
- meeting with participants individually at the beginning of the programme to build buy-in and understanding and to collaboratively design an individual care plan;
- emphasising participant self-management of their conditions; and
- setting expectations around attendance upfront, and offering an easy-to-follow, structured programme.

Conclusion

The evaluation provides strong evidence that the MAP is an effective early intervention programme for people with MSK conditions. The MAP has resulted in health outcome gains for its participants, with the priority population groups achieving similar or better improvements in health status.

The evaluation has also demonstrated that the programme is a prudent investment, with evidence showing it was cost-effective over the short-term, achieving estimated health gains of 155 QALYs in the MAP cohort, and INMB of $5.4 million. The MAP is projected to be highly cost-effective over a five-year horizon.

The evaluation concludes that investment in early intervention programmes for MSK conditions represents value for money. The specific focus of the MAP on priority groups contributes to health equity for Māori, Pasifika and those living in areas of higher derivation.

Recommendations

Based on the findings and conclusions described in this report, the evaluation makes the following recommendations:

1. The evaluation recommends an expanded roll out of the MAP, or similar programmes.
2. Models should incorporate the features that have been shown to be effective (i.e. group sessions, longer duration, delivered by both private providers and mixed entity provider).
3. Focus on improving programme completion rates for priority populations.
4. Strategies that ensure equity of outcomes for Pasifika should be a core component of the programme.
5. Consider adapting the programme for participants with comorbidities and/or complex needs.
6. Offer opportunities for post-programme support to embed self-management behaviours.

Further details on these recommendations are provided in section 4 of this report.

1. INTRODUCTION

1.1. Background and context

As the leading cause of disability in New Zealand, MSK conditions generate a significant health, social, and economic strain on both individual quality of life and health system costs. Research indicates that one in every four adults are affected by MSK conditions, which include arthritis, osteoporosis, lower back pain, spinal disorders and injuries to the spine and limbs.[14] MSK conditions are not fatal but come at a significant cost to the physical and holistic wellbeing and quality of life of those affected.

New Zealanders affected by MSK conditions can access a range of health services through primary and secondary healthcare settings. However, the management of chronic MSK conditions is largely episodic, uncoordinated, and often lacks a strong evidence base.[15] The management and treatment of MSK conditions is costly; in 2009 it was estimated to comprise at least 25 percent of New Zealand's total annual health costs.[16]

As a health priority for the Ministry of Health (the Ministry), Budget 2015 confirmed a total of $50 million be invested over the 2015/16 to 2017/18 financial years in New Zealand to improve prevention and treatment for people with orthopaedic and MSK conditions, and to provide more New Zealanders with timely access to elective surgery. A $44 million investment aimed to support extra orthopaedic and general surgeries, and a $6 million allocation aimed to improve care for people with MSK health conditions by delivering early-intervention, community-based programmes.

The Mobility Action Programme (MAP) was developed by the Ministry as part of this $6 million investment. The MAP was designed to align with best practice approaches to early intervention programmes for MSK conditions and the five themes of the New Zealand Health Strategy.[17,18] The design of the MAP was guided by an Expert Advisory Group. The multi-disciplinary group included specialists in rehabilitation, rheumatology, exercise, nutrition, orthopaedics, physiotherapy, pharmacology, primary care, nursing, as well as representatives from ACC and consumers. The MAP aimed to deliver community-based interventions for adults experiencing MSK conditions so that high quality advice, assessment and treatment could be provided earlier than had previously been available.

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[14] Bosley, C., & Miles, K. (2009). *Musculo-skeletal Conditions in New Zealnd: The Crippling Burden*. The Bone & Joint Decade 2000-2010: Wellington.

[15] Sourced from contract service specifications between the Ministry of health and the MAP providers.

[16] Bosley, C., & Miles, K. (2009). *Musculo-skeletal Conditions in New Zealnd: The Crippling Burden*. The Bone & Joint Decade 2000-2010: Wellington.

[17] The MAP was designed based on best practice approaches for early intervention programmes such as Australia's Osteoarthritis Chronic Care Programme; Britain's National Institute for Health and Clinical Excellence; the Osteoarthritis Research Society International; and the European Action Towards Better Musculoskeletal Health.

[18] New Zealand Health Strategy strategic themes include: 1) People-powered; 2) Closer to home; 3) Value and high performance; 4) One team; and 5) Smart system.

The key objectives of the MAP were to address health inequity; reduce demand on secondary healthcare services; and improve the holistic wellbeing of adults who experience MSK conditions.

The Ministry selected a range of providers to deliver the pilot MAPs. These included Non-Government Organisations (NGOs), private providers (such as physiotherapists, occupational therapists and psychologists), Māori and Pasifika health providers, District Health Boards (DHBs) and Primary Health Organisation (PHOs). Providers were selected based on a range of criteria (e.g., ability to address inequity; and/or meet the unique socio-cultural and health needs of those who suffer from MSK conditions within their respective service areas).

The first group of MAPs, involving seven providers, was initiated in May 2016 (Tranche 1 service providers). A further ten pilot programmes were initiated late 2016/early 2017 (Tranche 2 service providers). The 17 MAPs varied in size, approach, duration, structure, price, populations targeted, conditions treated, localities and type of services provided. All MAPs were designed to provide evidence informed, community based, multidisciplinary early intervention models of care, except for one MAP pilot site that targeted individuals in the later stages of their condition.[19]

1.2. Evaluation purpose

The evaluation was commissioned by the Ministry to assess the effectiveness and impact of the MAP. The purpose was to identify the most effective ways to deliver these programmes and how to organise care so that those who need it receive it equitably. The evaluation also offers evidence on effective models of care for early treatment of MSK conditions. The results are intended to inform decisions regarding which MAP models or components of models are recommended to be sustained or scaled up beyond the pilot.

1.3. Methods

The MAP was evaluated against six key evaluation domains (or “criteria”): (1) health outcomes; (2) reach; (3) reduction in disparities; (4) economic impact; (5) consumer experience; and (6) what works best. Further to exploring the six evaluation domains, the evaluation was nested within the broader government aims of building a stronger public healthcare system and more equitable outcomes for all New Zealanders.[20]

The following key evaluation questions (KEQs) and sub-questions were framed around these criteria.

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[19] One programme targeted individuals who were in the later stages of their condition, and had already been referred for specialist assessment.

[20] See also https://www.beehive.govt.nz/feature/our-plan-modern-new-zealand-we-can-all-be-proud for the Government’s priorities for New Zealand.

Table 2: MAP evaluation criteria and questions

Evaluation criteria	Key evaluation questions and sub-questions
Health outcomes	1. What impact has the MAP had on general health status, pain, functional status, self-confidence, and ability of participants to self-manage their condition?
Reach	2. To what extent has the MAP reached its anticipated (contracted) enrolment and completion rates? 2.1. What are the reasons for non-completion?
Reduction in disparities	3. To what extent is the MAP reducing known disparities in access to health services and outcomes? 3.1. How equitable is access to the MAP across demographic variables (ethnicity, deprivation)? 3.2. To what extent has participation in the MAP reduced health outcome disparities in people with MSK health conditions?
Economic impact	4. What was the economic impact of the programme? 4.1. To what extent does the MAP offer value for money? 4.2. What economic impacts has the MAP contributed to (such as keeping people in employment, improving productivity, and enabling people to return to the workforce)? 4.3. What impact has the MAP had on health system and participant financial costs? 4.4. To what extent is the MAP a sustainable economic model that will remain viable into the future?
Consumer experience	5. How well has the programme managed patient care? 5.1. To what extent does the MAP meet patient care expectations? 5.2. How effective and appropriate is the MAP consumer experience, from service entry to exit? 5.3. What has changed for patients in the short term (on completion of the MAP, 3 months and 12 months following completion)?
What works best	6. Under what conditions does the programme work best? 6.1. Which structures, approaches and programme components provide the greatest benefits? 6.2. What enablers/barriers/factors contributed to the success or otherwise of the MAP? 6.3. What models or components should be sustained, scaled up, adopted and adapted to areas beyond the initial MAP locations?

Evaluation criteria	Key evaluation questions and sub-questions
	6.4. How could the programme be improved from a consumer, provider and funder perspective?

To answer the KEQs, the evaluation separated each criterion into standards of performance to identify the desired achievements of the MAP. The evaluation team used these performance standards to guide its assessment of whether the desired achievements of the MAP were realised. The desired achievements, performance standards, and evaluation rubric are provided in Appendix C: Desired Achievements and Evaluative Assessments.

The evaluation included both qualitative and quantitative data collection methods across two collection cycles. This report incorporates findings from both Cycle 1 and Cycle 2.

Cycle 1 occurred between April and May 2018 and involved:[21]

- 11 key informant interviews;
- five case studies;
- three virtual focus groups with MAP providers;
- development and release of a MAP consumer survey targeting all MAP participants; and
- analysis of MAP participant health outcomes data across various timepoints and participant- (e.g., gender, age, ethnicity) and programme-level (e.g., co-payment, provider location) characteristics.

Cycle 2 took place between May 2018 – December 2019 and involved:

- a follow-up interview with the Ministry's MAP stakeholders;
- four follow-up virtual focus groups with MAP providers;
- analysis of the MAP consumer survey data;

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[21] Allen and Clarke (2018). Evaluation of the Mobility Action Programme (MAP): Cycle 1 Final Report. Report prepared for the Ministry of Health.

- re-analysis of MAP participant health outcomes data with additional 12-month follow-up data across various timepoints and participant- and programme-level characteristics; and
- analysis of the health, economic and cost-effectiveness of the MAP using the New Zealand Management of Osteoarthritis (NZ-MOA) model, a population-based microsimulation model.

Cycle 2 emphasised the evaluation criterion "*What works best*" and the associated key evaluation questions depicted in Table 2 (e.g., identification of the most effective implementation approaches and examination of factors that contributed to the success or otherwise of these.). Cycle 2 categorised the 17 MAPs into four programme-level characteristics and explored how these characteristics affected outcomes across the evaluation criterion (see Appendix D):

- provider type (private rehabilitation organisation, mix of agencies including DHBs and NGOs);
- delivery method (group, individual, mix of group and individual);
- programme duration (10 or less weeks, 11 or more weeks); and
- main referral source (GP, self-referral, other referral source).

Details about the data collection and analysis methods used for Cycle 2 are provided in Appendix D: MAP Provider and MAP Characteristics

Provider	**Provider**		**Delivery method**		**Programme Duration**		**Main referral source**		
	Private rehab	Mix	Group/ Mix	Individual	Short ≤ 10 weeks	Long ≥ 11 weeks	GP	Self-referral	Other
Programme 1	✓		✓	☐	✓		✓		
Programme 2	✓	☐	✓		✓		✓		
Programme 3	☐	✓	✓	☐	✓				✓
Programme 4	☐	✓		✓		✓	✓		
Programme 5	✓		✓	☐		✓	✓		
Programme 6	☐	✓	✓		✓				✓

Programme 7	✓	☐	✓	☐	✓			✓	
Programme 8		✓	✓		✓		✓		
Programme 9		✓		✓	☐	✓		✓	
Programme 10	☐	✓	✓	☐	✓	☐			✓
Programme 11	☐	✓	✓		✓	☐	✓		
Programme 12	✓		✓	☐	☐	✓	✓		
Programme 13	✓		✓			✓			✓
Programme 14	✓		✓	☐		✓	✓		
Programme 15	✓		✓		⍰		✓		
Programme 16	✓		✓	☐	☐	✓	✓		
Programme 17	✓			✓	✓	☐	✓		

Appendix E: MAP Evaluation Cycle 2 Data collection methods and summarised in the following table.

Table 3: Summary of MAP evaluation Cycle 2 data collection methods

Data Collection method	Method summary
Follow-up interview with Ministry staff	One interview with three individuals.
Virtual focus groups with MAP providers	Four focus groups with 25 individuals across MAP service providers.
Re-analysis of MAP participant data	Re-analysis of MAP participant data across four time points: Entry into the programme (Time 1); discharge from the programme (Time 2); three-month follow-up (Time 3); and 12-month follow-up (Time 4).[22] Key participant- and programme-level characteristics across health outcomes are also explored. Statistically significant results are reported.
NZ-MOA analysis	Model utilises three data inputs to simulate MAP's potential future health, economic and cost-effectiveness: 1) MAP participant health outcome data; 2) data from a New Zealand-based, randomised control trial of exercise therapy for a similar MSK conditions intervention (the MOA trial); and 3) census data for the 2017 New Zealand population.

1.4. Limitations

Some limitations are noted for Cycle 2 of the MAP evaluation.

Firstly, as with all qualitative work, the views collected by evaluation stakeholders cannot completely representative or generalisable to all individuals involved in the programme.

Secondly, the design of the MAP did not provide for the identification of a control group. Comparison with an appropriate control group would make estimation of the programme's effectiveness and impact more statistically robust. Although true treatment effects cannot be conclusively demonstrated without inclusion of a control group, the evaluation has supplemented MAP participant data with previously collected randomised trial data of similar patients (predominantly early- to mid-stage OA) and an exercise therapy intervention (the MOA trial). While differences in the design of the two interventions means that findings should be interpreted with caution, comparison of outcomes does allow for an estimation of the cost effectiveness of the MAP.

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[22] More complete MAP participant data for Time 3 and Time 4 were available for analysis in Cycle 2 compared to Cycle 1. For further information see Section 2.1, Section 2.2 and Appendix E.

1.5. Structure of the report

Section 2 of this report presents findings from Cycle 1 and Cycle 2 in alignment with the evaluation criteria, the key evaluation questions, and the desired achievements of the programme (see Section 1.3). Section 3 provides overall conclusions and evaluative assessments for each key evaluation question.

Section 4 presents recommendations for the Ministry and other key stakeholders for potential future iterations of the programme.

2. EVALUATION FINDINGS

The following section describes the MAP cohort and details findings from evaluation of the MAP. Section 2.1 presents overall health outcome measures for the entire MAP participant cohort to December 2019 (N = 4,783 individuals). Evaluation findings are included on the general health status, pain, functional status, and ability of participants to self-manage their condition across providers and participant demographics (where relevant and where findings are available).

2.1. MAP cohort demographics

The 17 MAPs varied in participant numbers, from between 93 (Programme 3) and 486 (Programme 12) participants.

Participants' ages also varied by programme. Of those participants for whom age information was available (N = 4,645, 97 percent), most were aged between 55 and 74 years (N = 2,669; 57 percent); 1,291 (28 percent) were aged under 55 years; and 685 (15 percent) were aged 75 and older.[23]

Programme 9 (74 percent) and Programme 15 (50 percent) had substantially higher proportions of younger participants (aged under 55), while Programme 11 (29 percent), Programme 12 (27 percent), Programme 13 (27 percent), Programme 6 (27 percent) and Programme 3 (26 percent) programmes had the highest proportion of participants aged 75 and over.

Most participants were women (N = 3,141; 67 percent in the total sample); ranging from 55 percent in Programme 15 to 75 percent in Programme 13.

Most MAP participants were overweight, with a Body Mass Index (BMI) of between 25 and 30kg/m^2 (N = 1,315; 28 percent) or obese, with a BMI greater than 30kg/m^2 (N = 2,608; 56 percent).

Of those MAP participants with valid diagnosis data, the most common diagnosis was osteoarthritis or OA (N = 3,670, 77 percent), followed by back pain (N = 479; 10 percent); knee/hip pain without a recorded diagnosis (N = 252; 5 percent); and gout (N = 55; 1 percent). A total of 292 participants (6 percent) had an 'other' diagnosis that could not be matched to any of these conditions.

OA was the most common diagnosis in 13 of the 17 MAPs (

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[23] Information about age was grouped in 5-year age bands.

Table 4: MSK diagnoses of MAP participants (counts and percentages)

Table 4). Exceptions to this were programmes provided by Programme 1 (back pain); Programme 7 (back pain with large numbers of OA and ‘other’); Programme 9 (‘other’, with large numbers of OA and back pain); and Programme 10 (knee/hip pain without OA diagnosis). Programme 13 was generally split between OA and knee/hip pain without an OA diagnosis.

Table 4: MSK diagnoses of MAP participants (counts and percentages)

Programme	OA	Back pain	Knee/hip pain, no OA	Gout	Other	Total
Programme 1	6 (2%)	236 (86%)	2 (1%)	0 (0%)	31 (11%)	275
Programme 2	458 (100%)	0 (0%)	1 (0%)	0 (0%)	0 (0%)	459
Programme 3	85 (92%)	6 (7%)	1 (1%)	0 (0%)	0 (0%)	92
Programme 4	139 (93%)	0 (0%)	7 (5%)	0 (0%)	3 (2%)	149
Programme 5	291 (78%)	57 (15%)	17 (5%)	0 (0%)	7 (2%)	372
Programme 6	161 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	161
Programme 7	43 (23%)	80 (42%)	23 (12%)	2 (1%)	43 (23%)	191
Programme 8	296 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	296
Programme 9	105 (32%)	79 (24%)	0 (0%)	0 (0%)	143 (44%)	327
Programme 10	63 (27%)	3 (1%)	115 (49%)	53 (22%)	2 (1%)	236
Programme 11	333 (81%)	18 (4%)	8 (2%)	0 (0%)	51 (12%)	410
Programme 12	471 (98%)	0 (0%)	11 (2%)	0 (0%)	1 (0%)	483
Programme 13	54 (53%)	0 (0%)	47 (47%)	0 (0%)	0 (0%)	101
Programme 14	243 (99%)	0 (0%)	2 (1%)	0 (0%)	0 (0%)	245
Programme 15	309 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	309
Programme 16	364 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	364
Programme 17	249 (90%)	0 (0%)	18 (6%)	0 (0%)	11 (4%)	278
Total	**3670 (77%)**	**479 (10%)**	**252 (5%)**	**55 (1%)**	**292 (6%)**	**4748**

Note: 35 participants (1 percent) did not have diagnosis data available.

Comorbidities were common among participants, with 3,188 (67 percent) having at least one comorbid condition and 1,598 (34 percent) having at least two comorbid conditions. The most common comorbid conditions were high blood pressure (N = 1,763; 37 percent), diabetes (N = 677; 14 percent), heart disease (N = 642; 14 percent), and depression (N = 625; 13 percent).

Table 5 summarises key baseline characteristics for the 4,783 individuals in the total sample.

Table 5: Baseline characteristics of total MAP cohort (N = 4,783) (counts and percentages)

Characteristic	Value
Comorbid Health Conditions	
High Blood Pressure	1763 (37%)

Characteristic	Value
Diabetes	677 (14%)
Heart Disease	642 (14%)
Depression	625 (13%)
Lung Disease	323 (7%)
Cancer	221 (5%)
Stroke	178 (4%)
Rheumatoid Arthritis	163 (3%)
Stomach Disease	154 (3%)
Blood Disease	119 (3%)
Kidney Disease	114 (2%)
Other	725 (15%)
Number of comorbidities; Mean (SD)	1.2 (1.2%)
Age	
Under 20	17 (0%)
20–29	104 (2%)
30–39	226 (5%)
40–44	175 (4%)
45–49	316 (7%)
50–54	453 (10%)
55–59	601 (13%)
60–64	719 (15%)
65–69	716 (15%)
70–74	633 (14%)
75–79	412 (9%)
80–84	191 (4%)
85+	82 (2%)
Gender	
Male	1534 (33%)
Female	3141 (67%)

Characteristic	Value
Ethnicity	
New Zealand European/Pākehā	3365 (72%)
Māori	907 (19%)
Pasifika	435 (9%)
Asian	183 (4%)
Other	54 (1%)
Duration of Condition	
Less Than Three Months	139 (3%)
Three to Twelve Months	949 (20%)
Twelve to Twenty-Four Months	819 (17%)
Two to Five Years	1194 (25%)
More Than Five Years	1640 (35%)
Diagnosis	
OA	3670 (77%)
Knee/hip pain, no OA diagnosis	252 (5%)
Back pain	479 (10%)
Gout	55 (1%)
Other	292 (6%)
Referral Source	
GP	3180 (67%)
Māori/Pasifika Health Provider	133 (3%)
Nurse	113 (2%)
Pharmacist	23 (0%)
Public Hospital	252 (5%)
Public (Other)	186 (4%)
Self-referral	663 (14%)
Other	197 (4%)

2.2. Health outcomes

Data on 12 quantitative health outcome measures were collected by MAPs at four timepoints: baseline (Time 1); discharge (Time 2); +3 months follow-up post-discharge (Time 3); and +12 months follow-up post-discharge (Time 4). The intent was to identify changes in physical, functional, and psychological components of participants' MSK conditions (see Appendix E page 85 for methodological and demographic details). These measures are summarised in Table 6.[24]

Table 6: Overview of health outcome measures used in the MAP

Number	Full name of measure	Acronym	Description of what measure assesses
1	Timed Up and Go Test[25]	TU&G	Changes in mobility and function for participants with lower limb and back conditions.
2	The Lower Extremity Function Scale[26]	LEFS	Changes in function for participants with lower limb conditions.
3	The Oxford Hip Score[27]	OHS	Changes in pain function for participants with osteoarthritis of the hip.
4	The Oxford Knee Score[28]	OKS	Changes in pain function for participants with osteoarthritis of the knee.
5	The QuickDASH Outcome Measure[29]	QuickDASH	Changes in function for participants with hand, arm and shoulder conditions.
6	The Roland-Morris Disability Questionnaire[30]	RMDQ	Disability related to back pain.
7	The Numeric Pain Rating Scale[31]	NPRS	Current pain ratings corresponding to current, best and worst pain.

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[24] See Appendix E for MAP participants' average or mean scores on all 12 health outcome measures across each timepoint (Times 1 – 4).

[25] Podsiadlo, D., & Richardson, S. (1991). The timed "Up & Go": a test of basic functional mobility for frail elderly persons. Journal of the American Geriatrics Society,*39*(2), 142-148.

[26] Binkley, J. M., Stratford, P. W., Lott, S. A., Riddle, D. L., & North American Orthopaedic Rehabilitation Research Network (1999). The Lower Extremity Functional Scale (LEFS): Scale development, measurement properties, and clinical application. *Physical Therapy*, *79*(4), 371-383.

[27] Dawson, J., Fitzpatrick, R., Carr, A., & Murray, D. (1996). Questionnaire on the perceptions of patients about total hip replacement. *Journal of Bone and Joint Surgery*, *78*(B),185-190.

[28] Dawson, J., Fitzpatrick, R., Murray, D. & Carr, A. (1998). Questionnaire on the perceptions of patients about total knee replacement. *Journal of Bone and Joint Surgery*; *80*(B), 63-69.

[29] Beaton, D.E., Wright, J.G., Katz, J.N., and the Upper Extremity Collaborative Group (2005). Development of the QuickDASH: Comparison of three item-reduction approaches. *Journal of Bone and Joint Surgery 87A*(5), 1038-1046.

[30] Roland, M., & Morris, R. A. (1983). Study of the natural history of low back pain: Part 1. Development of a reliable and sensitive measure of disability in low-back pain. *Spine*, *8*, 141–144.

[31] McCaffery, M., & Pasero, C. (1999). 0–10 Numeric Pain Rating Scale. *Pain: Clinical manual,* 2nd Edition. St. Louis, MO: Mosby.

Number	Full name of measure	Acronym	Description of what measure assesses
8	Vernon Mior Neck Disability Index[32]	NDI	Assesses degree to which neck pain has affected participants ability to manage in everyday life
9	The SF-12 Health Survey physical health component summary measure[33]	SF-12 PSC	Physical health component summary measure of the SF-12 Health Survey
10	The SF-12 Health Survey mental health component summary measure[34,35]	SF-12 MSC	Mental health component summary measure of the SF-12 Health Survey
11	The SF-6D Health Utility Value[36]	SF-6D	Uses the SF-12 to estimate a single index measure for health using general population values
12	Stanford Self-Efficacy Scale[37]	SSES	Self-efficacy for managing chronic disease

Analysis of these health outcome measures found statistically significant improvements between the time of participants' entry into their MAP (baseline or Time 1) and all other timepoints for all outcome measures. Further, the degree of improvements in participants' scores was reasonably consistent across timepoints. Table 7 presents changes in MAP participants' scores between Time 1 and the three other timepoints (Times 2 through 4).

Table 7: Change in health outcomes relative to baseline (Score and 95% CI)

Outcome	Discharge (Time 2)	3-Month Follow-Up (Time 3)	12-Month Follow-Up (Time 4)
Numerical Pain Rating Scale	-1.1 (-1.1 to -1.0)	-1.0 (-1.1 to -1.0)	-1.0 (-1.1 to -0.9)
Timed Up and Go Test	-1.7 (-1.8 to -1.5)	-2.1 (-2.4 to -1.8)	-2.1 (-2.4 to -1.7)

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[32] Vernon, H. & Mior, S. (1991). The Neck Disability Index: A study of reliability and validity. *Journal of Manipulative and Physiological Therapeutics*. *14*, 409-415.

[33] Ware, J.E., Kosinski, M., & Keller, S.D. (1996) A 12-Item Short-Form Health Survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care*; *34*(3), 220–233.

[34] Ibid.

[35] Tools such as the mental health component of the SF-12 are not used for diagnostic purposes or to measure specific mental health conditions. In this instance, the tool measures the high-level impact of emotional concerns on participants' functioning.

[36] Brazier, J., Roberts, J., & Deverill, M. (2002). The estimation of a preference-based measure of health from the SF-36. *Journal of Health Economics*, *21*(2), 271–292.

[37] Lorig, K., Chastain, R. L., Ung, E., Shoor, S., & Holman, H. R. (1989). Development and evaluation of a scale to measure perceived self-efficacy in people with arthritis. *Arthritis & Rheumatism: Official Journal of the American College of Rheumatology*, *32*(1), 37-44.

Outcome	Discharge (Time 2)	3-Month Follow-Up (Time 3)	12-Month Follow-Up (Time 4)
SF-12 Physical Health Score	^	4.1 (3.7 to 4.4)	3.4 (3.1 to 3.7)
SF-12 Mental Health Score	^	1.6 (1.2 to 1.9)	1.0 (0.6 to 1.4)
SF-6D Health Utility Value	^	0.05 (0.04 to 0.05)	0.04 (0.03 to 0.04)
Stanford Self-Efficacy Score	0.9 (0.9 to 1.0)	0.8 (0.8 to 0.9)	0.7 (0.7 to 0.8)
Lower Extremity Function Scale	7.7 (6.3 to 9.0)	6.3 (4.8 to 7.7)	6.3 (4.9 to 7.8)
Oxford Hip Score	4.4 (3.7 to 5.1)	3.5 (2.8 to 4.2)	3.2 (2.5 to 4.0)
Oxford Knee Score	4.8 (4.4 to 5.2)	4.8 (4.4 to 5.3)	4.5 (4.1 to 5.0)
QuickDASH Score	-8.0 (-12.8 to -3.1)	-8.3 (-13.3 to -3.3)	-7.3 (-12.4 to -2.2)
Roland Morris Disability Questionnaire	-3.2 (-3.5 to -2.9)	-3.0 (-3.3 to -2.6)	-3.1 (-3.5 to -2.8)
Vernon-Moir Index	-5.7 (-7.8 to -3.5)	-6.1 (-8.9 to -3.3)	-6.1 (-9.5 to -2.7)

Note: ^ indicates no data collected; 95% confidence intervals are presented in brackets; Data for the Timed Up and Go Test were only collected for 607 participants (5 programmes) at Time 3 and 288 participants (5 programmes) at Time 4.

Demographically, younger participants and women showed greater improvement across these measures. Subsequent sections outline other key demographic differences of interest across specific MAP outcome measures.[38]

2.2.1. MAP participants' general health status, pain, functional status, self-confidence and ability to self-manage their condition

Change in behaviours

As a proxy indicator, quantitative findings regarding participant BMI suggest that participants may be modifying their behaviours (e.g., exercise or dietary habits) to improve their health outcomes.[39]

There was a reduction in cohort BMI from Time 1 to Time 2. Among the 3,450 participants who had BMI data collected at both Time 1 and Time 2, with an average reduction of 0.16 kg/m^2 (95 percent CI: 0.12 to 0.21).

All but one programme (Programme 13) had reductions in average cohort BMI between Time 1 and Time 2 (**Error! Reference source not found.**), and seven of these were statistically significant. Further, reductions in BMI were maintained or improved at Time 3, with an average

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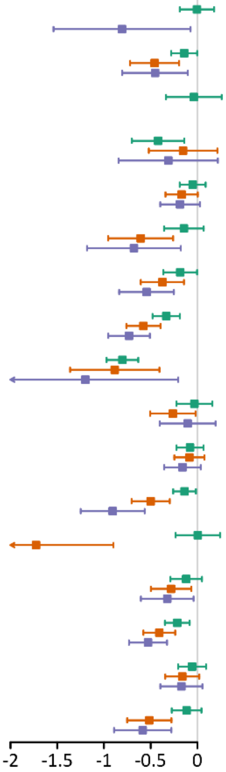
[38] Other key demographic variables analysed include age, comorbidities, and condition severity.

[39] These proxy findings should be interpreted with caution, as weight reduction cannot be directly attributed to participants' engagement in the MAP.

reduction of 0.34 kg/m^2 (95 percent CI: 0.28 to 0.39) and Time 4 (0.42; 95 percent CI: 0.36 to 0.47). All programmes with available data had reductions in BMI at both Time 3 and Time 4.

Figure 1: Change in BMI between Time 1 and Times 2 through 4, by programme

Programme 1 (N = 162/6/22)	-0.00/--/-0.81*
Programme 2 (N = 285/120/96)	-0.14*/-0.46*/-0.45*
Programme 3 (N = 62/1/4)	-0.04/--/--
Programme 4 (N = 70/61/42)	-0.42*/-0.15/-0.31
Programme 5 (N = 285/275/267)	-0.05/-0.17/-0.19
Programme 6 (N = 122/65/47)	-0.14/-0.61*/-0.68*
Programme 7 (N = 169/154/138)	-0.18*/-0.31*/0.54*
Programme 8 (N = 257/249/240)	-0.33*/-0.58*/-0.73*
Programme 9 (N = 191/36/12)	-0.80*/-0.88*/-1.20*
Programme 10 (N = 149/139/133)	-0.03/-0.28*/-0.10
Programme 11 (N = 262/317/310)	-0.08/-0.09/-0.16
Programme 12 (N = 371/197/101)	-0.14*/-0.50*/-0/91*
Programme 13 (N = 97/12/4)	0/00/-1.73*/--
Programme 14 (N = 193/175/149)	-0.12?-0.28/-0.32*
Programme 15 (N = 312/284/285)	-0.22/-0.41*/-0.53*
Programme 16 (N = 245/240/234)	-0.06/-0.16/-0.17
Programme 17 (N = 218/146/126)	-0.12/-0.51*/-0.58*



*Note: Negative values signify reduced BMI; error bars show mean and 95% confidence intervals; * indicates a statistically significant change. The green bar shows change in BMI from Time 1 to Time 2, the orange bar change from Time 1 to Time 3, and the lavendar bar change from Time 1 to Time 4.*

Evidence from the MAP consumer survey supports these findings regarding health-related behaviour changes.[40] Across all those who responded, the majority (86 percent) reported learning about exercise; with others learning about:

- back, knee, or hip pain (72 percent);
- how to manage their condition (69 percent);
- arthritis (66 percent);
- how to manage their pain (57 percent);
- treatments for their condition (45 percent);
- diet (36 percent) and weight management (32 percent).

A small proportion of survey participants learnt about quitting smoking (3.6 percent) and 3.5 percent said they did not learn anything.

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[40] See Appendices E and F for further information about the MAP consumer survey.

Table 8: Self-reported learnings from MAP (counts and percentages)

What did you learn about in your MAP	Value
Arthritis	668 (65.6%)
Back knee or hip pain	730 (71.6%)
How to manage my condition	705 (69.2%)
Treatments for my condition	462 (45.3%)
How to manage my pain	578 (56.7%)
Exercise	877 (86.1%)
Quitting smoking	37 (3.6%)
Improving my diet	369 (36.2%)
Managing my weight	324 (31.8%)
I didn't learn anything	36 (3.5%)

There were no significant differences in age and gender sub-group analyses for survey respondents who reported learning how to manage their condition and how to treat their condition.

Some statistically significant differences were found regarding referral type and ethnicity. Those survey respondents who attended group sessions or mixed individual/group MAP sessions reported a 2.5 times greater improvement in knowledge about improving their diet than those who attended individual sessions (RR = .35, $\chi^2 = 18.14$, $p < .001$).

Respondents identifying as Māori were 1.9 times more likely to report learning how to manage their weight than non-Māori (RR = .54, $\chi^2 = 5.45$, $p = .02$) and 1.6 times more for those who had self-referred than referred by a GP (RR = 1.76, $\chi^2 = 9.25$, p = .002).

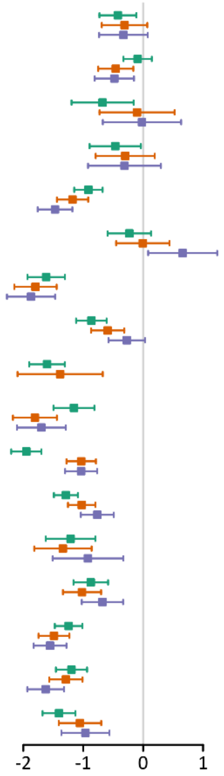
Reduction in pain

Changes in pain were measured by the Numerical Pain Rating Scale (NPRS). There was a significant reduction in pain between Time 1 and Time 2 of 1.07 points (95 percent CI: 1.00 to 1.14). All 17 MAPs had reductions in average reported pain scores at Time 2, with statistically significant reductions in all but two (Figure 2).

The reductions in pain were maintained through follow-ups at Time 3 (1.03; 95 percent CI: 0.95 to 1.10) and Time 4 (0.99; 95 percent CI: 0.92 to 1.07). All programmes at Time 3 and all but one programme (Programme 6) at Time 4 had reductions in average pain, most of which were statistically significant.

Figure 2: Change in NPRS scores between Time 1 and Times 2 through 4, by programme

Programme 1 (N = 176/133/135)	-0.42*/-0.31/-0.33
Programme 2 (N = 297/224/207)	-0.09/-0.46*/-0.48*
Programme 3 (N = 62/49/52)	-0.68*/-0.10/-0.02
Programme 4 (N = 91/79/60)	-0.47*/-0.30/-0.31
Programme 5 (N = 291/283/265)	-0.91*/-1.18*/-1.47*
Programme 6 (N = 127/97/67)	-0.23/-0.10/0.66*
Programme 7 (N = 170/154/138)	-1.62*/-1.80*/-1.87*
Programme 8 (N = 237/250/241)	-0.86*/-0.59*/-0.27
Programme 9 (N = 190/38/7)	-1.60*/-1.39*/--
Programme 10 (N = 143/143/134)	-1.15*/-1.81*/-1.70*
Programme 11 (N = 262/318/312)	-1.95*/-1.03*/-1.04*
Programme 12 (N = 419/367/295)	-1.29*/-1.05*/-0.77*
Programme 13 (N = 97/84/64)	-1.21*/-1.34*/-0.92*
Programme 14 (N = 199/189/187)	-0.87*/-1.02*/-0.68*
Programme 15 (N = 315/289/298)	-1.24*/-1.49*/-1.55*
Programme 16 (N = 246/250/236)	-1.20*/-1.29*/-1.63*
Programme 17 (N = 222/154/138)	-1.41*/-1.05*/-0.98*



Mobility and functionality

Improvements in mobility and functionality health outcomes were found across the MAP participant cohort at all follow-up points using the following assessments: Timed Up and Go (TU&G), the Lower Extremity Function Scale (LEFS), the Oxford Hip and Knee Scores (the OHS and OKS), the Disabilities of the Arm, Hand, and Shoulder (QuickDASH) questionnaire, the Roland-Morris Disability Questionnaire (RMDQ), and the Vernon-Mior Neck Disability Index (NDI). Programme-level changes for each of these outcome measures are outlined below.[41]

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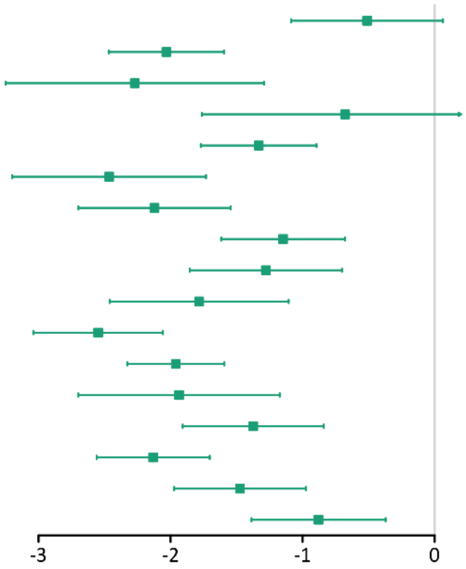
[41] The QuickDASH is excluded due to small sample sizes. A total of 24 participants in two programmes completed the QuickDASH at both Times 1 and 2 with an average improved score of 11.0 points (95% CI: 1.4 to 20.5).

Timed Up and GO (TU&G)

The average improvement in the TU&G was 1.7s (95% CI: 1.5 to 1.8) at Time 2. All MAPs had improvements in TU&G times, with statistically significant changes in 15 programmes. Figure 3 summarises the mean change in TU&G scores between Times 1 and 2). The TU&G test was not collected at Times 3 and 4.

Figure 3: Change in TU&G scores between Time 1 and Time 2, by programme

Programme 1 (N = 171)	-0.51
Programme 2 (N = 297)	-2.03*
Programme 3 (N = 59)	-2.27*
Programme 4 (N = 48)	-0.68
Programme 5 (N = 294)	-1.33*
Programme 6 (N = 105)	-2.47*
Programme 7 (N = 170)	-2.12*
Programme 8 (N = 257)	-1.15*
Programme 9 (N = 170)	-1.28*
Programme 10 (N = 123)	--1.78*
Programme 11 (N = 235)	-2.55*
Programme 12 (N = 417)	-1.96*
Programme 13 (N = 97)	-1.94*
Programme 14 (N = 198)	--1.37*
Programme 15 (N = 308)	-2.13*
Programme 16 (N = 227)	-1.47*
Programme 17 (N = 219)	-0.88*

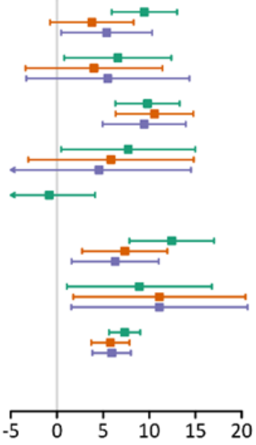


The Lower Extremity Function Scale (LEFS)

Average improvements in the LEFS were 7.7 points (95 percent CI: 6.3 to 9.0) at Time 2, 6.3 points (95 percent CI: 4.8 to 7.7), and 6.3 points (95 percent CI: 4.9 to 7.8) at Time 4. As condition-specific outcome measures were collected only from participants with certain conditions, not all programmes contributed data for this measure (or the other condition-specific measures presented below). Eight programmes contributed LEFS data at Time 2, all but one which showed statistically significant improvements in average scores (**Error! Reference source not found.**4). S even programmes contributed data at both Time 3 and Time 4; four had significant improvements at Time 3 and five at Time 4.

Figure 4: Change in LEFS scores between Time 1 and Times 2 through 4, by programme

Programme 2 (N = 59/51/45)	9.46*/3.78/5.38*
Programme 4 (N = 22/19/14)	6.59*/4.00/5.50
Programme 5 (N = 61/59/54)	9.80*/10.56*/9.44*
Programme 7 (N = 14/13/11)	7.71*/5.85/4.55
Programme 9 (N = 30/4/1)	-0.83/--/--
Programme 11 (N = 35/49/49)	12.43*/7.35*/6.31*
Programme 14 (N = 12/12/12)	8.92*/11.08*/11.08*
Programme 16 (N = 257/245/252)	7.33*/5.78*/5.93*
Programme 17 (N = 2/0/0)	--/--/--



Note: Smaller samples for which this measure was collected means all other MAPs were excluded from this analysis (see Appendix E for details).

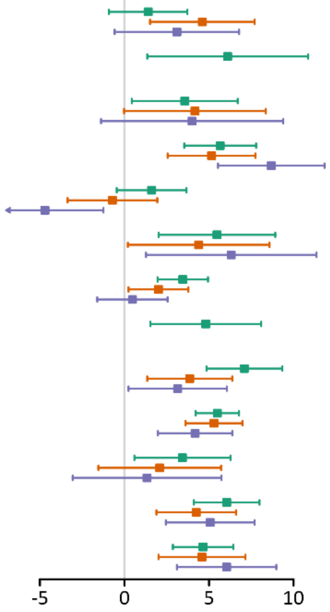
The Oxford Hip Score (OHS)

Average improvements in the OHS were 4.4 points (95 percent CI: 3.7 to 5.1) at Time 2, 3.5 points (95 percent CI: 2.8 to 4.2) at Time 3, and 3.2 points (95 percent CI: 2.5 to 4.0) at Time 4.

Thirteen programmes contributed OHS data at Time 2, all of which showed improvements in average scores, and all but two had statistically significant improvements (**Error! Reference source not found.**). Eleven programmes contributed data at both Time 3 and Time 4; all but one had improvements at both time points. One programme had statistically significant worsening in OHS scores at Time 4.

Figure 5: Change in OHS scores between Time 1 and Times 2 through 4, by programme

Programme 2 (N = 42/33/30)	1.40/4.61*/3.10
Programme 3 (N = 10/8/9)	6.10*/--/--
Programme 4 (N = 23/18/14)	3.57*/4.17/4.00
Programme 5 (N = 50/47/41)	5.66*/5.15*/8.68*
Programme 6 (N = 53/45/34)	1.60/-0.71/4.71*
Programme 7 (N = 19/18/16)	5.47*/4.39*/6.13*
Programme 8 (N = 102/101/94)	3.45*/2.01*/0.47
Programme 9 (N = 21/7/1)	4.81*/--/--
Programme 11 (N = 45/50/48)	7.09*/3.86*/3.15*
Programme 12 (N = 138/112/84)	5.49*/5.29*/4.18*
Programme 13 (N = 28/24/21)	3.43*/2.08/1.33
Programme 14 (N = 60/57/59)	6.05*/4.25*/5.07*
Programme 17 (N = 71/48/47)	4.65*/4.58*/6.04*



*Note: Higher values signify better health outcomes; error bars show 95% confidence intervals; * indicates a statistically significant change.*

The Oxford Knee Score (OKS)

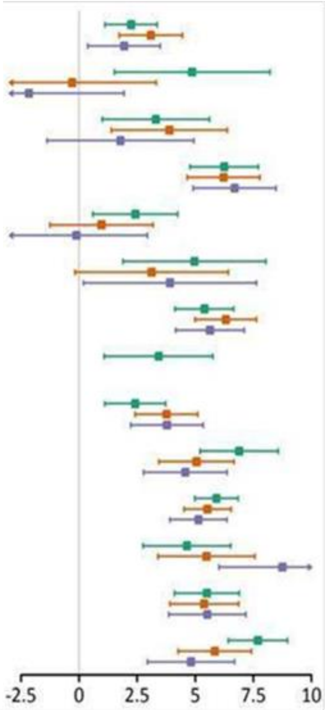
Average improvements in the OKS were 4.8 points (95 percent CI: 4.4 to 5.2) at Time 2, 4.8 points (95 percent CI: 4.4 to 5.3) at Time 3, and 4.5 points (95 percent CI: 4.1 to 5.0) at Time 4.

Of the fourteen programmes contributing data on OKS outcomes at Time 2, all but one showed statistically significant improvements (**Error! Reference source not found.**6).

Thirteen programmes contributed OKS data at each of Times 3 and 4; all showed improvements in average scores at both time points.

Figure 6: Change in OKS scores between Time 1 and Times 2 through 4, by programme

Programme 2 (N = 197/141/131)	2.24*/3.09*/1.94*
Programme 3 (N = 12/20/19)	4.86/-0.30/-2.16*
Programme 4 (N = 46/42/31)	3.30*/3.88*/1.78
Programme 5 (N = 114/107/101)	6.25*/6.21*/6.69*
Programme 6 (N = 74/53/34)	2.42*/0.96/-0.12
Programme 7 (N = 26/24/23)	4.96*/3.13*/3.91*
Programme 8 (N = 155/149/147)	5.39*/6.32*/5.63*
Programme 9 (N = 45/7/8)	3.42*/-=/--
Programme 10 (N = 143/143/132)	2.41*/3.76*/3.78*
Programme 11 (N = 87/101/99)	6.89*/5.05*/4.58*
Programme 12 (N = 283/255/211)	5.91*/5.52*/5.14*
Programme 13 (N = 69/60/43)	4.64*/5.48*/8.74*
Programme 14 (N = 127/120/116)	5.50*/5.38*/5.52*
Programme 17 (N = 151/105/91)	7.70*/5.84*/4.81*



*Note: Higher values signify better health outcomes; error bars show 95% confidence intervals; * indicates a statistically significant change.*

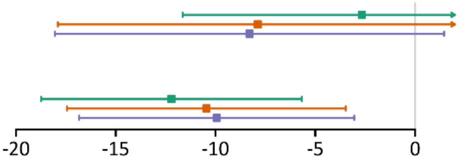
The Disabilities of the Arm, Hand, and Shoulder (QuickDASH) questionnaire

Average improvements in the QuickDASH were 8.0 points (95 percent CI: 3.1 to 12.8) at Time 2, 8.3 points (95 percent CI: 3.3 to 13.3) at Time 3, and 7.3 points (95 percent CI: 2.2 to 12.4) at Time 4.

Only two programmes contributed sufficient QuickDASH data at each follow-up point. Both had improvements at all time points; one had statistically significant improvements (**Error! Reference source not found.**).

Figure 7: Change in QuickDASH scores between Time 1 and Times 2 through 4, by programme

Programme 1 (N = 1/1/1)	--/--/--
Programme 7 (N = 18/17/17)	-2.67/-7.88/-8.29
Programme 9 (N = 2/0/0)	--/--/--
Programme 11 (N = 34/35/34)	-12.21*/-10.46*/-9.94*



*Note: Lower values signify less disability; error bars show 95% confidence intervals; * indicates a statistically significant change.*

The Roland-Morris Low Back Pain and Disability Questionnaire (RMDQ)

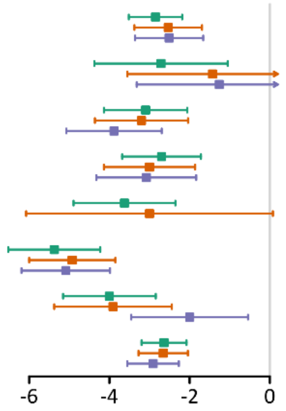
Average improvements in the RMDQ were 3.2 points (95 percent CI: 2.9 to 3.5) at Time 2, 3.0 points (95 percent CI: 2.6 to 3.3) at Time 3, and 3.1 points (95 percent CI: 2.8 to 3.5) at Time 4.

Eight programmes contributed RMDQ data at Time 2, all of which showed statistically significant improvements in average scores (**Error! Reference source not found.**).

Eight programmes contributed data at Time 3 and seven at Time 4; all had improvements and all but two had statistically significant improvements at both time points.

Figure 8: Change in RMDQ scores between Time 1 and Times 2 through 4, by programme

Programme 1 (N = 175/133/135)	-2.85*/-2.52*/-2.52*
Programme 3 (N = 28/21/23)	-2.71*/-1.43/-1.26
Programme 5 (N = 72/70/69)	-3.10*/-3.20*/-3.88*
Programme 7 (N = 80/73/63)	-2.70*/-3.00*/--
Programme 9 (N = 48/10/2)	-3.62*/-3.00/--
Programme 11 (N = 59/82/80)	-5.37*/-4.93*/-5.09*
Programme 15 (N = 58/44/46)	-4.00*/-3.91*/-2.00*
Programme 16 (N = 246/250/236)	-2.64*/-2.66*/-2.91*



*Note: Lower values signify less disability; error bars show 95% confidence intervals; * indicates a statistically significant change.*

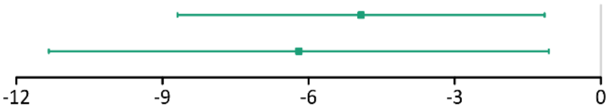
The Vernon-Mior Neck Disability Index (NDI)

Average improvements in the NDI were 5.7 points (95 percent CI: 3.5 to 7.8) at Time 2 and 6.1 points (95 percent CI: 3.3 to 8.9) at Time 3.

There were insufficient data for analysis at Time 4. Only two programmes contributed NDI data, both of which showed statistically significant improvements in average scores at Time 2 (**Error! Reference source not found.**). Neither programme had sufficient data for analysis at later time points.

Figure 9: Change in NDI scores between Time 1 and Time 2, by programme

Programme 7 (N = 13/9/8)	-4.92*/--/--
Programme 9 (N = 10/3/0)	-6.20*/--/--



*Note: Lower values signify less disability; error bars show 95% confidence intervals; * indicates a statistically significant change.*

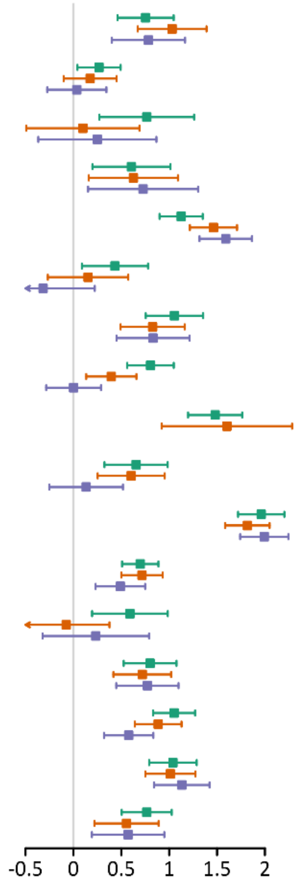
Confidence to self-manage conditions

There were statistically significant improvements in participants' perceived ability and confidence to self-manage their conditions, as measured by the Stanford Self-Efficacy Scale (SSES). Scores improved by an average of 0.93 points at Time 2 (95 percent CI: 0.86 to 1.00), 0.83 points at Time 3 (95 percent CI: 0.76 to 0.90) and 0.74 points at Time 4 (95 percent CI: 0.67 to 0.82).

Improvements were seen in all programmes at Time 2, and all but one at Times 3 and 4 (**Error! Reference source not found.**). There were similar results for the proportion of participants rating their confidence to self-manage their condition at a score of 7 out of 10 or higher, indicating a high level of self-efficacy.

Figure 10: Change in SSES scores between Time 1 and Times 2 through 4, by programme

Programme 1 (N = 176/133/135)	0.75*/1.03*/0.78*
Programme 2 (N = 297/224/207)	0.27*/0.17/0.04
Programme 3 (N = 62/49/52)	0.77*/0.10/0.25
Programme 4 (N = 91/79/60)	0.61*/0.63*/0.73*
Programme 5 (N = 291/283/265)	1.13*/1.46*/1.59*
Programme 6 (N = 127/97/67)	0.43*/0.15/-0.32
Programme 7 (N = 170/154/138)	1.05*/0.83*/0.83*
Programme 8 (N = 237/250/241)	0.80*/0.40*/0.00
Programme 9 (N = 190/38/7)	1.48*/1.60*/--
Programme 10 (N = 143/143/134)	0.65*/0.60*/0.13
Programme 11 (N = 262/318/312)	1.96*/1.82*/1.99*
Programme 12 (N = 419/367/295)	0.70*/0.72*/0.49*
Programme 13 (N = 97/84/64)	0.59*/-0.08/0.23
Programme 14 (N = 199/189/187)	0.80*/0.72*/0.77*
Programme 15 (N = 315/289/298)	1.05*/0.89*/0.58*
Programme 16 (N = 246/250/236)	1.04*/1.01*/1.13*
Programme 17 (N = 222/154/138)	0.77*/0.55*/0.57*



*Note: Higher values signify greater improvements in self-efficacy; error bars show 95% confidence intervals; * indicates a statistically significant change.*

Positive indicators of enhanced self-efficacy and confidence were echoed by MAP consumer survey respondents and virtual MAP provider focus groups. Over two-thirds (69 percent) of the MAP survey respondents reported learning how to manage their condition.[42] Further, MAP providers suggested that individual-based sessions that offered more privacy and ability to tailor personal programmes may have helped bolster participants' sense of independence and confidence to self-manage their conditions and implement their care plans.

MAP clients' general health and wellbeing

The SF-12 survey of general health-related quality of life was collected as part of the MAP participant data at Times 1, 3, and 4.

There were statistically significant improvements in all general health measures at Times 3 and 4. SF-12 Physical Component Summary (PCS) scores improved by an average of 4.1 points (95 percent CI: 3.7 to 4.4) at Time 3 and 3.4 points (95 percent CI: 3.1 to 3.7) at Time 4.

SF-12 Mental Component Summary (MCS) scores improved by an average of 1.6 points (95 percent CI: 1.2 to 1.9) at Time 3 and 1.0 points (95 percent CI: 0.6 to 1.4) at Time 4.

SF-6D health utility values improved by an average of 0.05 (95 percent CI: 0.05 to 0.05) at Time 3 and 0.04 (95 percent CI: 0.035 to 0.044) at Time 4.

All programmes had an improvement in PCS scores at Time 3, and all but two had improvements in PCS scores at Time 4 (**Error! Reference source not found.**). Most programme-level i mprovements were statistically significant at both time points. One programme had a statistically significant worsening in PCS scores at Time 4.

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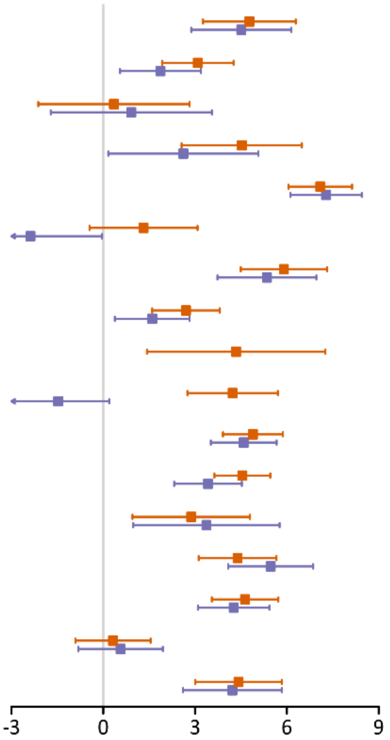
[42] No sub-group differences were found for age, gender, ethnicity or referral type.

Figure 11: Change in PCS scores between Time 1 and Times 3 and 4, by programme

Programme 1 (N = 133/135)	4.77*/4.51*
Programme 2 (N = 224/207)	3.09*/1.87*
Programme 3 (N = 50/52)	0.35/0.92
Programme 4 (N = 79/60)	4.53*/2.62*
Programme 5 (N = 283/265)	7.09*/7.28*
Programme 6 (N = 98/66)	1.32/-2.38*
Programme 7 (N = 154/138)	5.90*/5.35*
Programme 8 (N = 250/241)	2.70*/1.60*
Programme 9 (N = 36/7)	4.34*/--
Programme 10 (N = 140/130)	4.23*/-1.47
Programme 11 (N = 318/312)	4.89*/4.59*
Programme 12 (N = 367/295)	4.54*/3.42*
Programme 13 (N = 83/63)	2.87*/3.37*
Programme 14 (N = 189/187)	4.39*/5.47*
Programme 15 (N = 259/265)	4.63*/4.26*
Programme 16 (N = 202/189)	0.32/0.57
Programme 17 (N = 153/138)	4.42*/4.22*

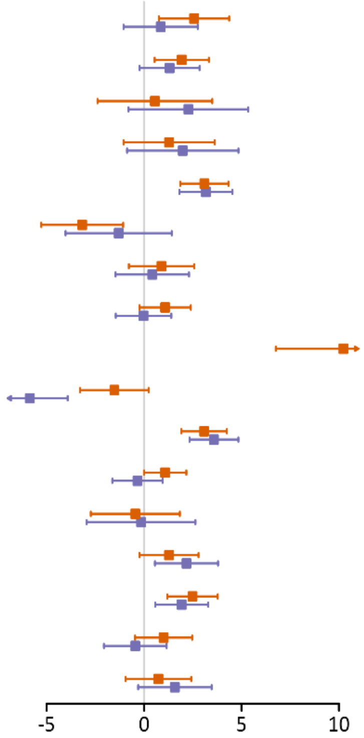


*Note: higher values signify greater improvements in general physical health; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

Most programmes had improvements in average MCS scores at both Time 3 and Time 4 (**Error! Reference source not found.**). Seven programmes had statistically significant improvements at Time 3, and five had statistically significant improvements at Time 4. One programme at each of Times 3 and 4 had a statistically significant worsening of MCS scores.

Figure 12: Change in MCS scores between Time 1 and Times 3 and 4, by programme

Programme 1 (N = 133/135)	2.57*/0.85
Programme 2 (N = 224/207)	1.94*/1.31
Programme 3 (N = 50/52)	0.56/2.28
Programme 4 (N = 79/60)	1.28/1.99
Programme 5 (N = 283/265)	3.10*/3.18*
Programme 6 (N = 98/66)	3.18*/-1.31
Programme 7 (N = 154/138)	0.90/0.42
Programme 8 (N = 250/241)	1.08/-0.03
Programme 9 (N = 36/7)	10.23*/--
Programme 10 (N = 140/130)	-1.53/-5.87*
Programme 11 (N = 318/312)	3.08*/4.59*
Programme 12 (N = 367/295)	1.08/-0.34
Programme 13 (N = 83/63)	-0.45/-0.15
Programme 14 (N = 189/187)	1.28/2.18*
Programme 15 (N = 259/265)	2.49*/1.93*
Programme 16 (N = 202/189)	-1.00/-0.45
Programme 17 (N = 153/138)	0.74/1.58

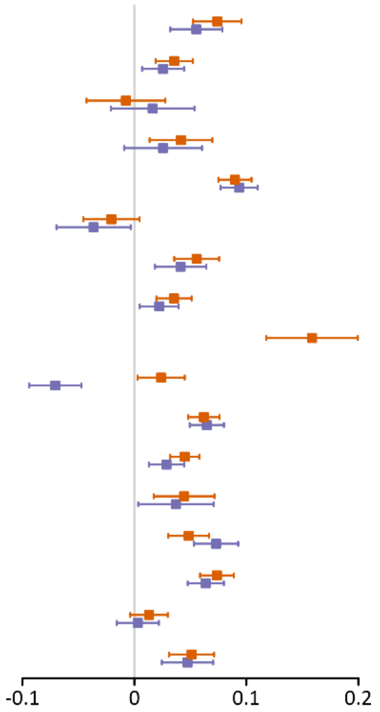


*Note: higher values signify greater improvements in general mental health; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

All but two programmes at each of Times 3 and 4 had improvements in average SF-6D health utility values (Figure 13). Most programme-level improvements were statistically significant at both time points. Both programmes with worse SF-6D values at Time 4 were statistically significant.

Figure 13: Change in SF-6D values between Time 1 and Times 3 and 4, by programme

Programme 1 (N = 133/135)	0.074*/0.055*
Programme 2 (N = 224/207)	0.036*/0.026*
Programme 3 (N = 50/52)	-0.008/0.016
Programme 4 (N = 79/60)	0.042*/0.026
Programme 5 (N = 283/265)	0.090*/0.094*
Programme 6 (N = 98/66)	-0.021/-0.036*
Programme 7 (N = 154/138)	0.056*/0.041*
Programme 8 (N = 250/241)	0.035*/0.022*
Programme 9 (N = 36/7)	0.159*/--
Programme 10 (N = 140/130)	0.024*/-0.071*
Programme 11 (N = 318/312)	0.062*/0.065*
Programme 12 (N = 367/295)	0.045*/0.029*
Programme 13 (N = 83/63)	0.044*/0.037*
Programme 14 (N = 189/187)	0.048*/0.073*
Programme 15 (N = 259/265)	0.074*/0.064*
Programme 16 (N = 202/189)	0.013/0.003
Programme 17 (N = 153/138)	0.051*/0.047*



*Note: higher values signify greater improvements in health-related quality of life; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

Consumer survey findings generally supported the above findings related to general health and wellbeing. The majority of respondents reported 'some' or 'lots of' improvements in their overall health (N = 759, 86.7 percent) compared to 13.3 percent who said their overall health had not improved. Further, sub-group analyses found that respondents who identified as Māori were 3.6 times more likely to report health improvements than non-Māori (RR = .28, $\chi^2 = 4.36$, $p = .04$). Survey respondents also reported improvements in their overall quality of life (N = 765, 89.4 percent), with female participants 1.8 times more likely to report improved life quality than males (RR = .55, $\chi^2 = 6.30$, $p = .012$).

Secondary healthcare services

Secondary healthcare services include specialist level care, often based in a hospital setting. For MSK conditions, this may include services provided by orthopaedic surgeons or rheumatologists.

Quantitative and qualitative data were collected to determine the extent to which involvement in the MAP reduces clients' need for secondary healthcare services. Findings were favourable. MAP participant data analyses found statistically significant reductions in:

- specialist referrals, with an average of 0.08 fewer referrals in Time 2 compared to Time 1 (95 percent CI: 0.06 to 0.10);
- specialist visits (0.04 fewer; 95% CI: 0.01 to 0.07); and
- emergency department visits (0.01 fewer; 95% CI: 0.002 to 0.03).

There was no significant change in the number of hospital admissions in Time 2 compared to Time 1.[43]

Reductions in secondary healthcare utilisation were largely sustained through Times 3 and 4. Participants reported an average of 0.12 fewer specialist referrals (95 percent CI: 0.10 to 0.14) at Time 3 and 0.11 fewer at Time 4 (95 percent CI: 0.08 to 0.13). There were also 0.02 fewer reports of emergency department visits (95 percent CI: 0.004 to 0.03) at Time 3 and 0.03 fewer at Time 4 (95 percent CI: 0.01 to 0.04). Last, there was a small but statistically significant increase in the reported number of hospital admissions at Time 4 (0.01; 95 percent CI: 0.0001 to 0.02).

Most programmes had reductions in the number of specialist referrals, specialist visits and emergency department visits reported at all follow-up time points, but few changes were found to be statistically significant due to the small number of participants reporting any secondary healthcare utilisation.

See Section for further information on MAP's likely impact on healthcare service utilisation.

2.2.2. Health outcomes summary

Overall evaluation findings indicate that participation in the MAP (across either all or most MAPs) contributed to:

- a maintained reduction in BMI;
- significant improvements in health-related behaviour changes;
- significant reductions in pain and improvements in mobility and functionality;
- significant improvements in participants' perceived ability and confidence to self-manage their conditions;
- significant improvements in general health and wellbeing; and
- significant reductions in visits to specialists and other secondary healthcare services.

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[43] Few admissions were reported in T1 and T2.

2.3. Reach

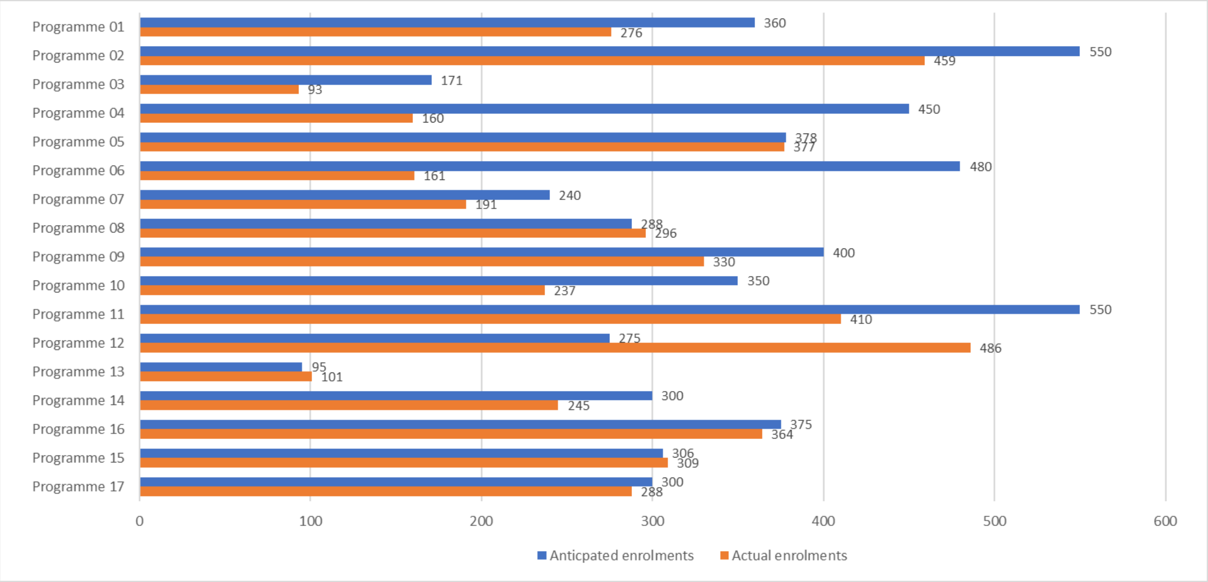
In the context of this evaluation, the criterion of "reach" is defined as the extent to which the MAPs achieved their contracted participant enrolment volumes and completion rates.

Section 0 discusses the extent to which the MAP reduced disparities in access and health outcomes for priority groups experiencing MSK conditions (Māori, Pasifika, and those living in areas of higher deprivation).

Participant enrolment rates

The figure below displays actual enrolments against contracted enrolment numbers for each MAP provider. Eleven of the 17 providers achieved at least 80 percent of their enrolment target; two achieved less than 50 percent of their target.

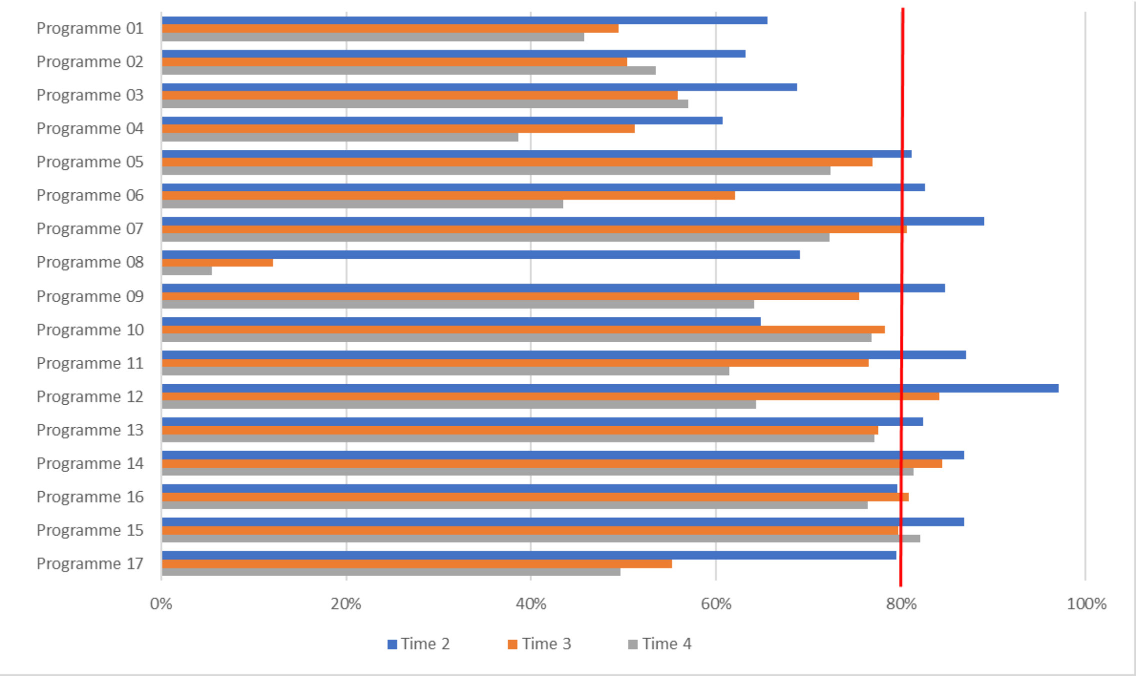
Figure 14: Contracted vs actual enrolment numbers, by programme



Completion rates

Across all programmes, 78 percent of participants completed their programme to the point of discharge (Time 2). Nine programmes achieved completion rates of at least 80 percent (Figure 15).[44]

Figure 15: MAP completion rates, by time point and programme



2.3.1. Reasons for non-completion and mitigation strategies

MAP providers and stakeholders provided insights into factors that contributed to non-completion rates for their programmes. 'Inappropriate referrals' were a key reason for participants not completing the programme. Examples of inappropriate referrals included:

- participants experiencing more severe OA than what was intended by MAP's early-intervention philosophy, who found the programme difficult to undertake and/or continue to participate in;
- participants experiencing more severe OA who were on the waitlist for surgery and who viewed the MAP as a 'tick box' item pre-surgery, which may have demotivated them to complete the programme or take it seriously;
- participants who had not really 'bought into' the self-management philosophy of the MAP or who lacked confidence in their ability to improve their self-management skills; and

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[44] Time points 3 and 4 are data collection points at which participant monitoring data was collected to inform the evaluation.

- participants with limited computer literacy who had been referred onto the programme, which made completing virtual/online components of MAPs challenging or led to them withdrawing.

Other barriers for completion included:

- participants with comorbidities, such as pre-existing physical and/or mental health issues;
- practical issues such as participants not having transport to the programme, or not having childcare; and
- participants not understanding or buying into the MAP's self-management approach to MSK conditions, having previously experienced clinician-led management of their conditions.

Providers that used group, rather than individual, sessions had the strongest completion rates – all nine providers that reached 80 percent completion rates used a group format. Providers also stated it was important to build rapport with participants to enhance buy-in, set expectations around attendance, and offer an easy-to-follow, structured programme.

Programme length did not impact on completion rates: five of the MAPs that reached 80 percent completion were longer than 11 weeks and four were shorter than 11 weeks.

2.3.2. Reach summary

Evaluation findings about the reach of the MAP indicate that:

- most providers achieved at least 80 percent of their enrolment target;
- nine providers achieved completion rates (discharge at Time 2) of at least 80 percent;
- factors contributing to non-completion included inappropriate referrals; participants with comorbidities and complex needs; and participants not understanding or buying into the self-management aspects of the MAP; and
- providers' strategies to enhance reach and mitigate non-completion included that offering group sessions, building rapport with participants to enhance buy-in, setting upfront expectations around attendance, and providing an easy-to-follow, structured programme.

2.4. Reducing disparities

The MAP aimed to reduce disparities in access and health outcomes and work towards achieving equity by engaging Māori, Pasifika and those living in areas of high deprivation.

During the contracting process, the Ministry prioritised MAP providers with a strong focus on delivery to priority population groups. All MAPs provided plans to the Ministry outlining how they would address health disparities in these priority groups.[45,46,47]

The following section details evaluation findings regarding the strategies MAPs used to access priority groups, and the extent to which these strategies contributed to more equitable access and health outcomes.

2.4.1. Access to health services and outcomes

Accessing and meeting the needs of priority groups

Enrolment

Analysis of participant enrolment data found strong enrolment from priority groups. Participation by priority groups was higher than the ethnic distribution of the population amongst all people with OA in New Zealand.

Nineteen percent of MAP participants (N = 907) were Māori, who comprise 11 percent of all people with OA in New Zealand. Nine percent of participants (N = 435) identified as Pasifika, who comprise 4 percent of the total New Zealand population with OA. Twenty-seven percent of participants (N = 1,228) were from the most deprived quintile of neighbourhoods, who comprise 21 percent of all people with OA in New Zealand. There was wide variation in the participation by priority groups across programmes (

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[45] Ministry of Health (2017). *Mobility Action Programme (MAP) Tranche 1 Providers: Assessment of equity for access to the MAP*. Ministry of Health: Wellington.

[46] Ministry of Health (2017). *Mobility Action Programme (MAP) Providers: Assessment of equity for access to the MAP (second report)*. Ministry of Health: Wellington.

[47] The first equity report pertains to data collected to 9 May 2017, and the second report pertains to data collected to 27 October 2017.

Table 9).

Table 9: Enrolment by provider and priority groups (counts and percentages)

Programme	Māori	Pasifika	Most deprived areas
Programme 1 (N = 276)	25 (9%)	26 (9%)	43 (16%)
Programme 2 (N = 459)	61 (13%)	143 (31%)	180 (39%)
Programme 3 (N = 93)	44 (47%)	1 (1%)	58 (62%)
Programme 4 (N = 160)	11 (7%)	0 (0%)	30 (19%)
Programme 5 (N = 377)	61 (16%)	3 (1%)	65 (17%)
Programme 6 (N = 161)	16 (10%)	1 (1%)	19 (12%)
Programme 7 (N = 191)	30 (16%)	2 (1%)	37 (19%)
Programme 8 (N = 296)	102 (34%)	5 (2%)	91 (31%)
Programme 9 (N = 330)	274 (83%)	28 (8%)	192 (58%)
Programme 10 (N = 237)	10 (4%)	140 (59%)	95 (40%)
Programme 11 (N = 410)	137 (33%)	6 (1%)	165 (40%)
Programme 12 (N = 486)	24 (5%)	9 (2%)	33 (7%)
Programme 13 (N = 101)	1 (1%)	0 (0%)	5 (5%)
Programme 14 (N = 245)	8 (3%)	6 (2%)	25 (10%)
Programme 15 (N = 309)	26 (8%)	5 (2%)	43 (14%)
Programme 16 (N = 364)	46 (13%)	21 (6%)	85 (23%)
Programme 17 (N = 288)	31 (11%)	39 (14%)	62 (22%)
Total = 4,783	**907 (19%)**	**435 (9%)**	**1228 (26%)**

Most programmes had participation rates for priority groups similar to or greater than that group's proportion of the total population with OA within their geographical region (Table 10).[48] In particular, Programme 3, Programme 7, Programme 9 and Programme 11 enrolled a high portion of Māori participants. Programme 2 and Programme 10 enrolled a high portion of Pasifika.

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[48] These data were calculated by combining Statistics New Zealand 2018 Census data on the population sizes for each priority group with Ministry of Health NZ Health Survey on OA prevalence.

Table 10: Percentage of each priority population in the MAP participant cohort compared to the estimated proportion of the total population with OA within the geographic area

Programme	Māori	Pasifika	Most deprived areas
Programme 1	9% of MAP cohort (7% of total popn with OA in this area)	9% (8%)	17% (14%)
Programme 2	13% (12%)	31% (17%)	44% (40%)
Programme 3	47% (25%)	1% (2%)	65% (52%)
Programme 4	7% (16%)	0% (1%)	19% (31%)
Programme 5	16% (17%)	1% (1%)	19% (22%)
Programme 6	10% (6%)	1% (1%)	12% (7%)
Programme 7	16% (7%)	1% (4%)	20% (5%)
Programme 8	34% (42%)	2% (2%)	31% (55%)
Programme 9	83% (17%)	8% (2%)	60% (25%)
Programme 10	4% (16%)	59% (2%)	44% (31%)
Programme 11	33% (25%)	1% (2%)	43% (52%)
Programme 12	5% (6%)	2% (1%)	7% (7%)
Programme 13	1% (4%)	0% (0%)	6% (12%)
Programme 14	3% (6%)	2% (1%)	11% (12%)
Programme 15	8% (6%)	2% (1%)	15% (3%)
Programme 16	13% (12%)	6% (3%)	24% (26%)
Programme 17	11% (8%)	14% (6%)	22% (9%)
Total	**19% (11%)**	**9% (4%)**	**27% (21%)**

Overall, these findings suggest that the MAP has been successful in enrolling participants from priority groups. Because few programmes had specific enrolment targets based on priority groups, it is not meaningful to make comparisons between anticipated and achieved enrolment rates for these populations.

Completion

The evaluation also assessed the extent to which MAP participants remained with the programme until completion (Time 2). Findings suggest MAP was less successful in retaining participants from priority groups.

Completion rates of 67 percent for Māori, 66 percent for Pasifika, and 69 percent for those in the most deprived neighbourhoods were significantly lower than the overall 78 percent completion rate for all participants.

Programmes which achieved completion rates for Māori at or above the rate for all participants were Programme 7 (90% of Māori participants reached discharge), Programme 8 (82%), and Programme 12 (83%).

For Pasifika, only Programme 10 achieved completion rates at or above the rate for all participants (82%).[49] The number and percentages of the priority groups the remained with the MAP until completion for each programme are shown in Table 11.

Table 11: Discharge volumes (and percentages of baseline enrolment) by provider and priority population

Programme (Total completion volume; percentage)	Māori	Pasifika	Most deprived areas
Programme 1 (N = 179; 65)	15 (60%)	9 (35%)	21 (49%)
Programme 2 (N = 301; 66)	30 (49%)	77 (54%)	94 (52%)
Programme 3 (N = 64; 69)	26 (59%)	0 (0%)	38 (66%)
Programme 4 (N = 96; 60)	8 (73%)	^	18 (60%)
Programme 5 (N = 306; 81)	43 (70%)	3 (100%)	52 (80%)
Programme 6 (N = 133; 83)	9 (56%)	1 (100%)	13 (68%)
Programme 7 (N = 170; 89)	27 (90%)	2 (100%)	34 (92%)
Programme 8 (N = 257; 87)	84 (82%)	3 (60%)	71 (78%)
Programme 9 (N = 228; 69)	189 (69%)	19 (68%)	135 (70%)
Programme 10 (N = 201; 85)	8 (80%)	115 (82%)	78 (82%)
Programme 11 (N = 266; 65)	70 (51%)	6 (100%)	102 (62%)
Programme 12 (N = 423; 87)	20 (83%)	6 (67%)	23 (70%)
Programme 13 (N = 98; 97)	1 (100%)	^	5 (100%)
Programme 14 (N = 202; 82)	8 (100%)	3 (50%)	19 (76%)
Programme 15 (N = 246; 80)	20 (77%)	3 (60%)	35 (81%)

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[49] Programmes that had fewer than eight participants in each population group have not been included, as the small sample size may distort the finding

Programme (Total completion volume; percentage)	Māori	Pasifika	Most deprived areas
Programme 16 (N = 316; 87)	32 (70%)	14 (67%)	75 (88%)
Programme 17 (N = 229; 80)	21 (68%)	24 (62%)	38 (61%)
Total (N = 3715; 78)	**611 (67%)**	**285 (66%)**	**851 (69%)**

Note: cell counts report: count (% age of baseline enrolment); ^ indicates no baseline enrolment

Provider strategies to engage MAP's priority groups

Providers implemented a range of strategies to help attract priority groups (i.e., Māori, Pasifika, and people living in high deprivation areas) and keep them engaged in the MAP. These strategies varied across providers and programme types (e.g., provider type, delivery method, programme duration, referral source), as outlined in the following table (overleaf).

Table 12: Provider strategies to retain MAP priority groups

Provider type			Delivery method		Programme duration		Referral source		
Private	**Non-profit**	**DHB**	**Individual**	**Group**	**Less 10 weeks**	**Over 10 weeks**	**GP**	**Self-referral**	**Other**
• Liaised with employers with high Māori population • Met iwi groups and visited marae	• Relied on GPs and physios to referral priority groups • Held education sessions in DHBs and primary care practices on how to engage priority groups	• Developed relationship with iwi providers to access Māori population	• Worked with specific Māori providers • Designed self-led programme to more accessible, relatable and comfortable (“more of a Te Ao Māori way”)	• Provided free gym memberships • Engaged with GPs • Visited Māori and Pasifika health centres	• Engaged with Māori organisations	• Started with aim to reduce the inequality in our community • Set up fund to address individual financial barriers • Had Work and Income pay for personal equipment/clothing • Established relationships and foundations for future work	• GPS did early intervention screening	• Held evening groups so people could work during day	• Staff with cultural competency and language skills • Used “local heroes” to continue motivation and engage participants

Barriers for engaging priority groups were also noted. One provider commented,

> *"we have a good Māori health organisation in the region [but it is] not an organisation that we had done a lot of work with before prior to the launch of the MAP… we underestimated the time it takes to build those relationships and the trust and mutual respect which is so important in this space."*

Other factors preventing better engagement with MAP's priority groups included:

- a lack of ethnic diversity and (in some instances) a lack of cultural awareness amongst healthcare workers and providers; and
- societal norms and self-beliefs of how people understand MSK conditions and improvement (e.g., surgery as the only way forward; MSK conditions are just going to get worse; it's just 'old age').

Providers who offered individual sessions sometimes encountered challenges delivering lessons to women (e.g., having only male trainers available to train women when this might not be acceptable for religious or cultural reasons). These providers considered that having a more diverse workforce would have helped mitigate such, highlighting a wider systemic issue of the need for greater diversity in the allied health workforce.

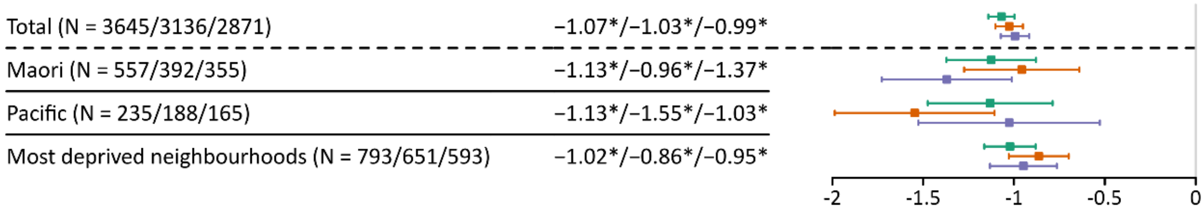
Priority groups and equity of outcomes

Overall, findings indicate health outcomes were the same or better for priority groups compared to other participants. However, Pasifika participants had worse outcomes on some measures, especially mental health and general health-related quality of life (at Time 4 only). These findings are described in further detail below.

Numerical Pain Rating Scale (NPRS)

The figure below illustrates the degree of change between NPRS scores at Time 1 and Times 2 through 4. All groups showed statistically significant reductions at all time points. Māori at Time 4 and Pasifika at Time 3 had larger improvements in pain than non-Māori/non-Pasifika.

Figure 16: Change in NPRS scores between Time 1 and Times 2 through 4, priority groups

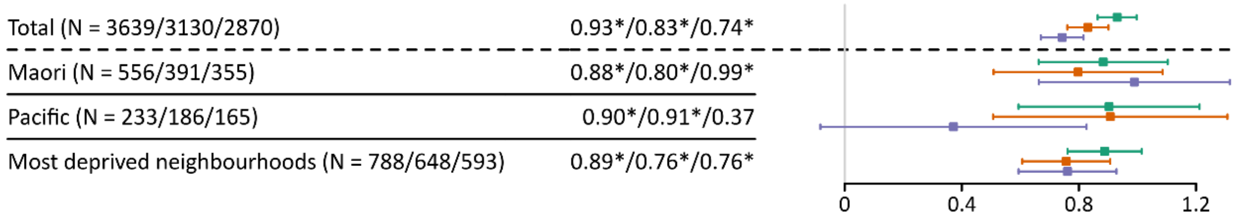


*Note: lower values signify less pain; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

Stanford Self-Efficacy Scale (SSES)

All priority groups except for Pasifika (at Time 4 only) had statistically significant improvements in SSES scores. None of the differences between groups were statistically significant.

Figure 17: Change in SSES scores between Time 1 and Times 2 through 4, priority groups

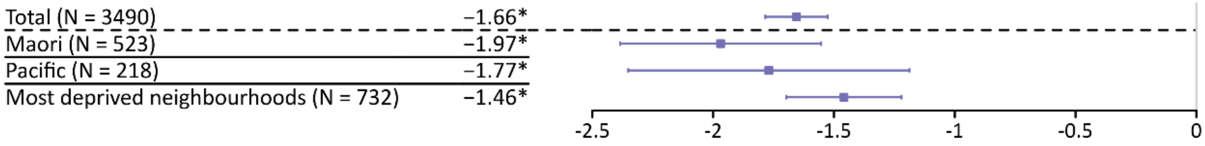


Note. Higher values signify higher self-efficacy; error bars show 95% confidence intervals.

Timed Up and Go (TU&G)

All priority groups had statistically significant improvements in TU&G times at Time 2. There were no statistically significant differences between groups.

Figure 18: Change in TU&G scores between Time 1 and Times 2 through 4, priority groups

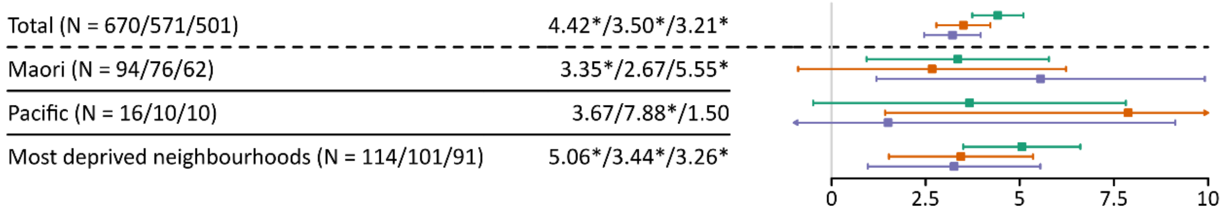


Note. Shorter times signify better mobility; error bars show 95% confidence intervals.

The Oxford Hip Score (OHS)

All priority groups had improvements in OHS scores at all time points. There were no statistically significant differences between groups.

Figure 19: Change in OHS scores between Time 1 and Times 2 through 4, priority groups



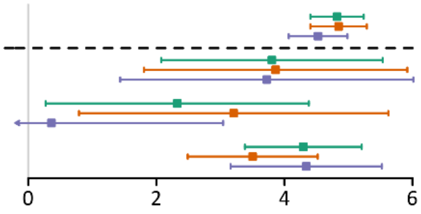
*Note: higher values signify better health outcomes; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

The Oxford Knee Score (OKS)

All priority groups had improvements in OKS scores at all time points. Pasifika had significantly smaller improvements than other participants at Time 2 and Time 4. Participants from the most deprived neighbourhoods had significantly smaller improvements than other participants at Time 3 only.

Figure 20: Change in OKS scores between Time 1 and Times 2 through 4, priority groups

Total (N = 1575/1347/1210)	4.82*/4.85*/4.53*
Maori (N = 194/145/142)	3.81*/3.86*/3.73*
Pacific (N = 166/142/124)	2.33*/3.21*/0.36
Most deprived neighbourhoods (N = 312/270/238)	4.30*/3.51*/4.34*



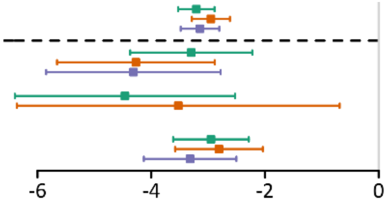
*Note: higher values signify better health outcomes; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

The Roland-Morris Low Back Pain and Disability Questionnaire (RMDQ)

All priority groups had statistically significant improvements in RMDQ scores at all time points. There were no statistically significant differences between groups.

Figure 21: Change in RMDQ scores between Time 1 and Times 2 through 4, priority groups

Total (N = 778/687/660)	−3.21*/−2.95*/−3.14*
Maori (N = 133/96/88)	−3.30*/−4.27*/−4.31*
Pacific (N = 20/10/8)	−4.46*/−3.52*/--
Most deprived neighbourhoods (N = 181/149/144)	−2.95*/−2.81*/−3.32*



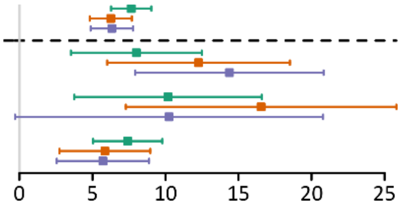
*Note: lower values signify less disability; error bars show 95% confidence intervals; and * indicates a statistically significant change.*

The Lower Extremity Function Scale (LEFS)

All priority groups had improvements in LEFS scores at all time points. Māori participants had significantly greater improvements at Time 4 and Pasifika participants at Time 3.

Figure 22: Change in LEFS scores between Time 1 and Times 2 through 4, priority groups

Total (N = 508/455/442)	7.65*/6.25*/6.33*
Maori (N = 82/56/54)	8.00*/12.26*/14.38*
Pacific (N = 33/25/20)	10.17*/16.55*/10.24
Most deprived neighbourhoods (N = 134/107/101)	7.41*/5.85*/5.72*



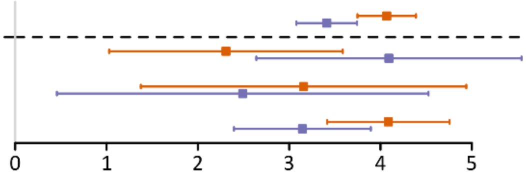
*Note: higher values signify better function; error bars show 95% confidence intervals; and * indicates statistically significant change.*

General health-related quality of life (SF-12)

All priority groups had improvements in SF-12 PCS scores at both Time 3 and Time 4.

Figure 23: Change in SF-12 PCS scores between Time 1 and Times 2 through 4, priority groups

Total (N = 3089/2820)	4.07*/3.41*
Maori (N = 385/351)	2.31*/4.09*
Pacific (N = 183/160)	3.16*/2.49*
Most deprived neighbourhoods (N = 630/579)	4.09*/3.14*

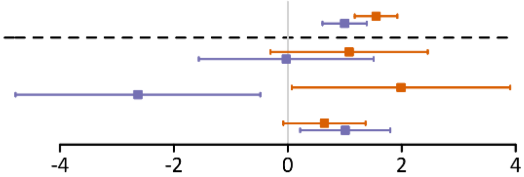


*Note: higher values signify better general physical health; error bars show 95% confidence intervals; and * indicates statistically significant change.*

All priority groups had improvements in SF-12 MCS scores at Time 3. Pasifika participants had significantly worse scores at Time 4 than Time 1.

Figure 24: Change in SF-12 MCS scores between Time 1 and Times 2 through 4, priority groups

Total (N = 3089/2820)	1.55*/1.00*
Maori (N = 385/351)	1.08/−0.03
Pacific (N = 183/160)	1.99*/−2.63*
Most deprived neighbourhoods (N = 630/579)	0.64/1.01*



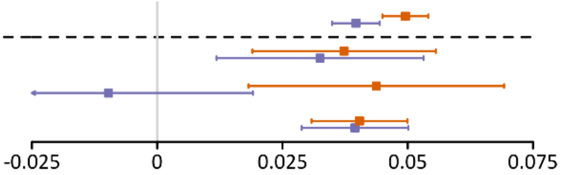
*Note: higher values signify better general mental health; error bars show 95% confidence intervals; and * indicates statistically significant change.*

Two programmes (Programme 2 and Programme 10) performed better than other programmes on Pasifika general health and mental health indicators (data not presented). These programmes both had a large Pasifika population, and tried to tailor the programme to suit the cultural needs of Pasifika groups (for example, by starting sessions with prayer and having staff who spoke Pacific languages).

All priority groups had improvements in SF-6D values at Time 3. All priority groups other than Pasifika had significant improvements in SF-6D values at Time 4. Pasifika participants had a non-significant worsening in SF-6D values and significantly worse outcomes than non-Pasifika participants at Time 4.

Figure 25: Change in SF-6D values between Time 1 and Times 2 through 4, priority groups

Total (N = 3106/2843)	0.05*/0.04*
Maori (N = 388/351)	0.04*/0.03*
Pacific (N = 184/164)	0.04*/−0.01
Most deprived neighbourhoods (N = 637/581)	0.04*/0.04*



*Note: higher values signify better general health-related quality of life; error bars show 95% confidence intervals; and * indicates statistically significant change.*

2.4.2. Reduction in disparities summary

Evaluation findings regarding reducing disparities through the MAP show:

- the MAP successfully enrolled Māori, Pasifika and participants living in deprived neighbourhoods when compared to wider population proportions with OA;
- priority groups were less likely to remain with the MAP until completion;

- participation rates for priority groups were generally similar to or greater than the estimated share of those populations among people with OA within their geographical region; and
- there were few significant differences in health outcomes between priority group participants and other participants. However, Pasifika participants had worse outcomes on some measures, particularly mental health and general health-related quality of life (at Time 4).
- MAPs that had a high portion of Pasifika participants and tailored the programme to Pasifika cultural needs performed better on these outcomes.

2.5. Economic impact

2.5.1. Economic impact of the MAP

The following section presents the economic impact of the MAP, including value for money considerations; potential health system savings; and wider economic impacts the MAP on employment/return to the workforce and work productivity.

E1. Value for money

Within the context of the MAP, 'value for money' for participants included:

- improved quality of life, both with and without workforce participation;
- decreased need for surgical intervention and reduced need for pain relief; and
- increased community involvement.

Providers and Ministry stakeholders considered that value for money was achieved by:

- offering the MAP within a setting accustomed to providing interdisciplinary care to provide consistent communication, management and assessment processes;
- offering group sessions (so long as the participant count is high enough) to enhance socialisation, a sense of belonging and enhanced awareness of one's condition through comparison with others;
- embedding the principles of self-management, self-care and education into the core of the programme;
- providing the MAP in a setting with enough internal capacity to ensure succession planning and project continuity; and
- creating resources and raising awareness of what people can access to help self-manage their condition.

Providers and Ministry stakeholders considered that better value for money could have been achieved if:

- participants were offered more efficient triaging services to determine primary OA concerns (versus other comorbidities) to ensure referrals were appropriate and to effectively triage to different service pathways;
- participants were provided longer-term opportunities to embed new learnings on how to manage their condition and become involved in longer-term settings (e.g., an ongoing class or support group);
- Telehealth was better utilised for 'booster' sessions;
- PHOs were more closely engaged to help implement education sessions; and
- MAP health outcome measures were streamlined.

E2. Financial costs and savings for the health system and people with MSK conditions

MAP participant data analysis used the following indicators of the MAP's potential financial costs and savings to the health system: number of GP visits; specialist referrals; specialist visits; other visits; emergency department (ED) visits; admissions; and medical tests.

As proxy measures, it was assumed that reductions in these events over time would signify savings. As described in Section 2.2.1 (H6), there were small but statistically significant reductions in specialist referrals, specialist visits, and emergency department visits at Times 2 through 4 compared to Time 1.

Analysis of participant data also found significant reductions in the number of GP visits and diagnostic tests. Participants reported an average of 0.51 fewer GP visits (95 percent CI: 0.46 to 0.56) in the three months to Time 2 compared to the same period to Time 1; 0.70 fewer (95 percent CI: 0.65 to 0.75) at Time 3, and 0.72 fewer (95 percent CI: 0.66 to 0.77) at Time 4. They also reported 0.23 fewer diagnostic tests (95 percent CI: 0.20 to 0.26) at Time 2, 0.30 fewer (95 percent CI: 0.32 to 0.27) at Time 3, and 0.29 fewer (95 percent CI: 0.26 to 0.32) at Time 4.

Conversely, there was an increase in reported 'other visits' to healthcare services at Time 2 compared to Time 1 (1.08 more; 95 percent CI: 0.95 to 1.21): this may reflect some participants recording MAP visits. Otherwise, there was a significant reduction in other visits reported at Time 3 (0.37 fewer; 95 percent CI: 0.23 to 0.50) and Time 4 (0.49 fewer; 95 percent CI: 0.34 to 0.63) compared to Time 1.

Table 13: Change in mean number of medical events reported between Time 1 and Times 2 through 4 (mean and 95% CI)

Status	Time 2	Time 3	Time 4
GP Visits	-0.51 (-0.56 to -0.46)	-0.70 (-0.75 to -0.65)	-0.72 (-0.77 to -0.66)
Specialist Referrals	-0.08 (-0.10 to -0.06)	-0.12 (-0.14 to -0.10)	-0.11 (-0.13 to -0.08)
Specialist Visits	-0.04 (-0.07 to -0.01)	-0.09 (-0.12 to -0.05)	-0.03 (-0.07 to 0.002)
Other Visits	1.08 (0.95 to 1.21)	-0.37 (-0.50 to -0.23)	-0.49 (-0.63 to -0.34)
ED Visits	-0.01 (-0.03 to -0.002)	-0.02 (-0.03 to -0.004)	-0.03 (-0.04 to -0.01)
Admissions	0.002 (-0.01 to 0.01)	0.01 (-0.002 to 0.02)	0.01 (0.0001 to 0.02)
Tests	-0.23 (-0.26 to -0.20)	-0.30 (-0.32 to -0.27)	-0.29 (-0.32 to -0.26)

Cost-effectiveness

Evidence of potential savings for the health system and MAP participants was also found through a cost-effectiveness analysis (see Appendix E) using the following outcome measures: the NPRS; TU&G; SF-12 PCS; SF-12 MCS; SF-6D; and number of GP visits.

To estimate the treatment effect of the MAP, relative to expected outcomes without the programme, health outcomes of the MAP cohort were compared with those from another New Zealand-based OA intervention programme (the MOA trial).

The MOA trial had a 'usual care' control group and an exercise therapy programme intervention. The exercise therapy intervention was similar to the exercise components of the MAP (and was explicitly used as the basis for several of these programmes). The MOA trial included a randomised control group and a longer follow-up period. Comparison of the MAP and MOA outcomes can be used to inform estimates of the expected longer-term outcomes of the MAP. The key assumption underlying these analyses is that the relationship between short-term and long-term outcomes observed in the MOA trial is similar to that yet to be observed in the MAP.

There were some important difference between the interventions. MOA trial participants were predominantly Pākehā/New Zealand European, and had slightly less severe pain and better TU&G test times than the MAP cohort at baseline (Table 15). MOA and MAP participants had similar health service use (GP visits) and SF-6D health utility (the primary health outcome used in the cost-effectiveness analysis).

Table 14: Baseline characteristics of the MAP and MOA trial samples (score and S.E.)

Outcome measure	MAP	MOA trial (usual care)	MOA trial (exercise therapy)
Numeric Pain Rating Scale	4.5 (2.0)	3.2 (2.0)	3.5 (2.0)
Timed Up and Go test	11.0 (6.3)	7.8 (3.3)	7.5 (3.2)
SF-12 Physical Component Summary	36.2 (9.0)	36.0 (10.4)	36.5 (10.7)
SF-12 Mental Component Summary	48.2 (10.8)	51.6 (10.1)	53.4 (10.1)
SF-6D health utility	0.65 (0.12)	0.68 (0.14)	0.70 (0.15)
Number of GP visits	1.3 (1.5)	1.2 (0.9)	1.1 (0.8)

To account for these differences, all comparisons of improvements in the MAP and MOA cohorts were adjusted for baseline health measures. These adjusted analyses showed that the overall effect size of the MAP on participants health-related quality of life was approximately 70 percent as large as observed in the MOA trial (see Appendix E). Based on these values, a validated computer simulation model of OA management was used to estimate the projected MAP cohort health improvements, healthcare costs, and cost-effectiveness at different time horizons to 15 years.[50] [51]

Health gains were assessed using quality-adjusted life years (QALYs), a measure that combines both the magnitude of improvement in health-related quality of life (measured in this analysis by the SF-6D) and the length of time spent in the health state. (A gain of 1 QALY is equivalent to an additional year of life lived in perfect health.) As shown in

Figure 26, total health gains over the short-term one-year horizon were estimated to be 155 QALYs in the MAP cohort (90 percent uncertainty interval [UI]: 104 to 204), or 0.03 QALYs per participant (90 percent UI: 0.022 to 0.043).

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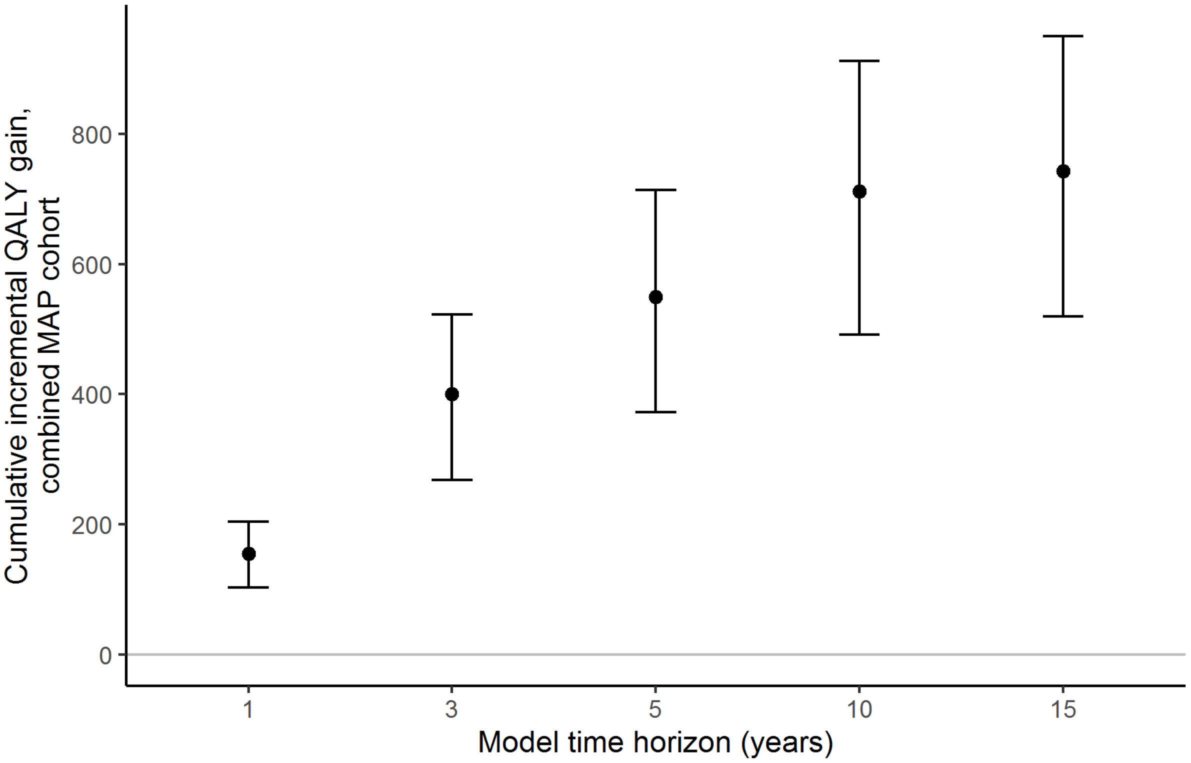
[50] MAP data could not be used to estimate longer-term healthcare costs (e.g., cost savings due to reductions in other health service use). An assumption was therefore made that costs would be proportional to savings observed in the long-term follow-up of MOA participants (i.e., 70 percent of cost savings observed in the MOA trial exercise therapy group aligned with 70 percent relative effectiveness in overall health-related quality of life outcomes).

[51] Cost savings were assumed to be realised from the second year and onwards (as only small reductions in health service use were observed in Time 4 data, which is consistent with MOA trial results). Further, direct programme costs were used for the first year of MAP only, and were based on budgeted per-participant costs using provider contracts. Results may therefore not reflect the actual costs of service delivery. As approximately 20 percent of providers' budgets were allocated for data collection activities that would not be required in an operational model for the MAP, direct treatment costs were assumed to be 80 percent of budgeted per-participant costs.

Costs from budgeted per-participant costs (excluding the cost of data collection) were estimated at $3.6 million (90 percent UI: $3.2 to $3.9 million), or $743 per participant (90 percent UI: $668 to $823). The resulting incremental net monetary benefit (INMB) was $5.4 million (90% UI: $2.3 to $8.3 million),[52] indicating the MAP was cost-effective over the short-term from the perspective of the healthcare system.

Figure 26: Projected MAP cohort health gains; 1-, 3-, 5-, 10-, and 15-year time horizons



There was more uncertainty in the projected longer-term outcomes, as these rely on the observed longer-term outcomes from the MOA trial with a much smaller sample size (50 participants in each of the usual care and exercise therapy groups) than the MAP. Over five years, the cumulative health gain in the MAP cohort was projected to be 549 QALYs (90 percent UI: 372 to 713), or 0.11 per participant (90% UI: 0.08 to 0.15), with cost savings of $4.3 million (90 percent UI: $17.6 million saving to $9.5 million increase), or $891 per participant (90% UI: $6,371 saving to $1,993 increase).

Findings on projected costs are very tentative due to the inherent variability in healthcare costs in small groups of individuals. However, the MAP was projected to be cost-effective over all time horizons with a high degree of confidence, as the large health gains outweigh the uncertainty in cost savings. As shown in Figure 27, the INMB over five years was $35.9 million (90 percent UI: $19.4 to $52.1 million).

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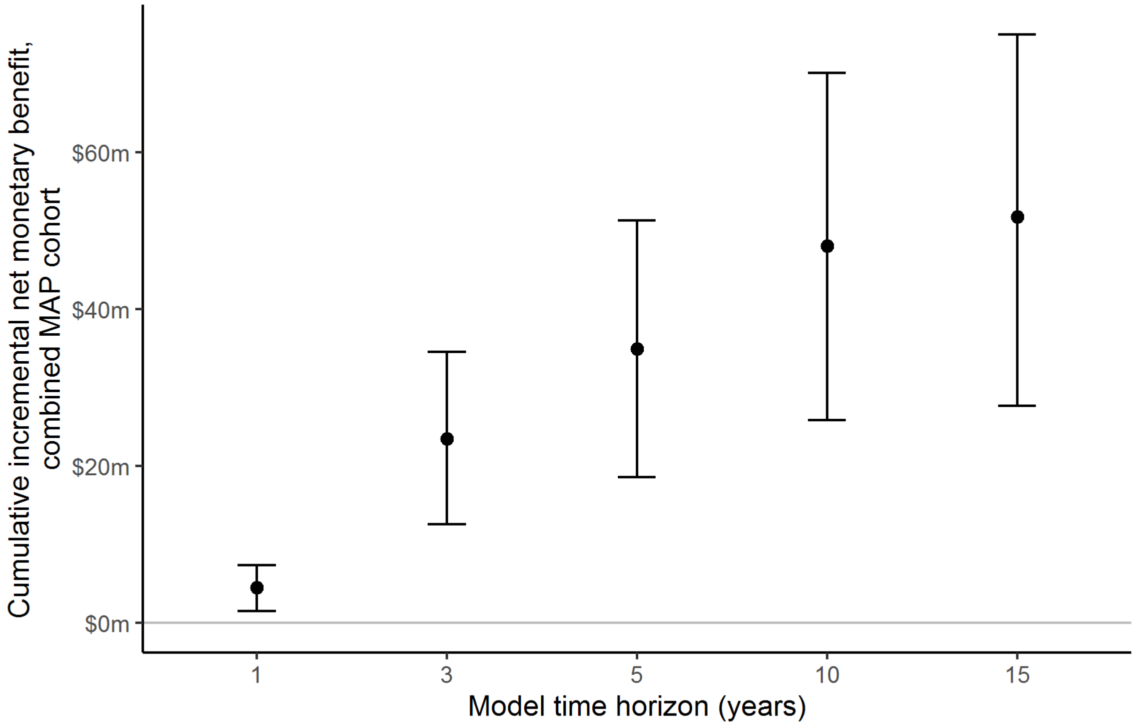
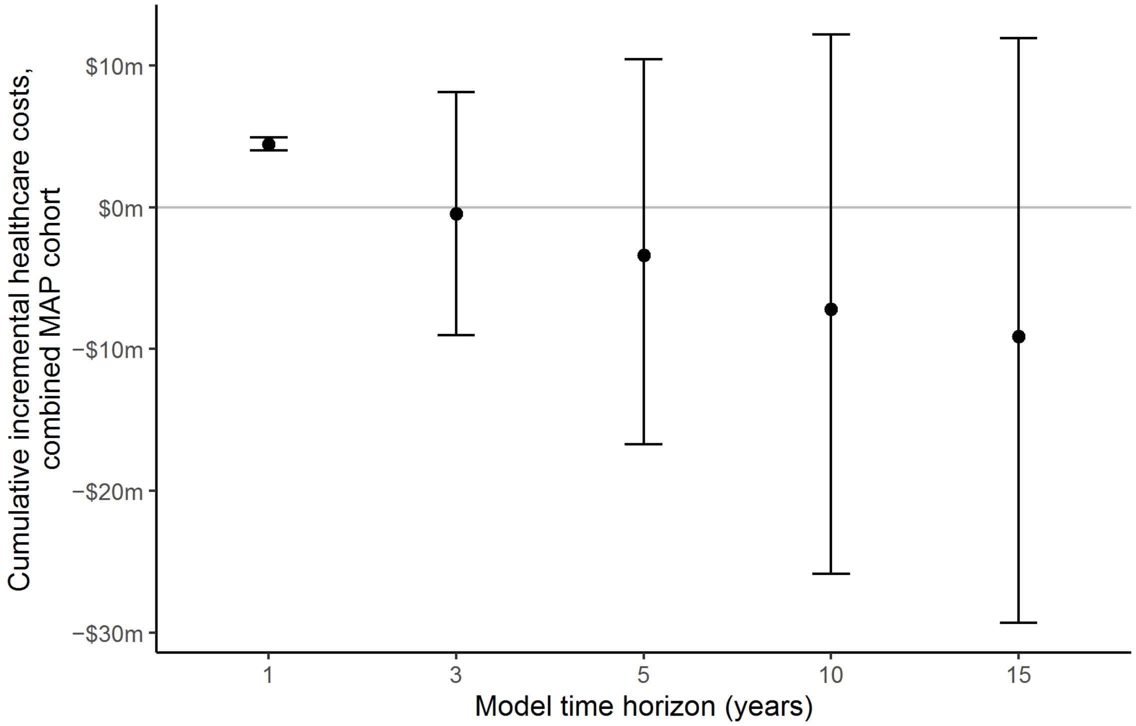
[52] The INMB is a measure of the overall cost-effectiveness of an intervention from the perspective of the healthcare system, assuming a given level of willingness-to-pay (WTP) for healthcare to achieve a given health gain – in this analysis, WTP was assumed to be equivalent to Gross Domestic Product (GDP) per capita ($57,500 in 2017), as recommended by the WHO.

Figure 27: Projected MAP cohort incremental healthcare costs; 1-, 3-, 5-, 10-, and 15-year time horizons



Further, a sensitivity analysis (see Appendix E for details) using data from MAP participants with OA only gave almost identical results.[53]

Figure 28: Projected MAP cohort incremental net monetary benefit; 1-, 3-, 5-, 10-, and 15-year time horizons



MAP consumer survey results offered additional support of the aforementioned findings. Over half (54 percent) of respondents stated that attending the MAP reduced their medical costs. This effect was greater for those aged under 60, who were 1.4 time more likely to report paying less in medical costs as a result of attending the MAP than those aged 61 years or more (RR = 1.43, χ^2 = 5.52, *p* = .02).

E3. Employment and productivity of MAP participants

In addition to examining the potential cost-effectiveness of MAP, further assessment of MAP participant data suggested that the MAP helped increase participants' productivity (Table 15). Specifically, MAP participants were less likely at Time 2, compared to Time 1, to report negative effects of their condition on the hours they were able to work (8 percent fewer participants; 95 percent CI: 6 to 9 percent) or type of work they were able to do (9% fewer; 95% CI: 7% to 10%).

MAP participants were also slightly less likely to report being unemployed for condition-related reasons at Time 2 (0.8 percent fewer participants; 95 percent CI: 0.1 to 1.5 percent).

There were no significant changes between Time 2 compared to Time 1 in the proportion of participants in full-time or part-time work.

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[53] MAP participants with OA only were selected to align with MOA trial participants who had hip and knee OA.

Similar improvements were also seen at later time points:

- At Time 3, 8 percent fewer participants (95 percent CI: 6 to 10 percent) reported that their hours of work were affected by their condition, and 9 percent fewer (95 percent CI: 7 to 11 percent) reported that their type of work was affected.
- At Time 4, 10 percent fewer participants (95 percent CI: 8 to 11 percent) reported that their hours of work were affected by their condition, and 12 percent fewer (95 percent CI: 10 to 14 percent) reported that their type of work was affected.
- At Time 4, there were also reductions in the proportion of participants reporting being unemployed either for reasons related (0.8 percent; 95 percent CI: 0.1 to 1.6 percent) or unrelated (0.9 percent; 95 percent CI: 0.2 to 1.7 percent) to their condition.

Conversely, analysis of MAP participant data also found a small reduction in the proportion of participants employed either full-time (1.4 percent fewer; 95 percent CI: 0.6 to 2.3 percent) or part-time (1.1 percent fewer; 95 percent CI: 0.1 to 2.0 percent) at Time 4; however, this decrease may reflect expected patterns of retirement in this age group rather than condition-related outcomes.

Table 15: Change in MAP participants' work status between Time 1 and Times 2 through 4 (percentages and 95% CI)

Status	Time 1	Time 2	Time 3	Time 4
Full-time	28.2	0.1 (-0.7 to 0.9)	-0.5 (-1.3 to 0.3)	-1.4 (-2.3 to -0.6)
Part-time	14.0	-0.6 (-1.5 to 0.3)	-0.8 (-1.7 to 0.2)	-1.1 (-2.0 to -0.1)
Retired	38.5	1.5 (0.7 to 2.4)	2.4 (1.5 to 3.3)	4.4 (3.4 to 5.3)
Unemployed (related to condition)	8.2	-0.8 (-1.5 to -0.1)	-0.4 (-1.1 to 0.3)	-0.8 (-1.6 to -0.1)
Unemployed (unrelated to condition)	5.7	-0.6 (-1.2 to 0.1)	-0.7 (-1.4 to 0.05)	-0.9 (-1.6 to -0.2)
Duration of work affected (if in full- or part-time work)	50.8	-8 (-9 to -6)	-8 (-10 to -6)	-10 (-12 to -8)
Type of work affected (if in full- or part-time work)	50.6	-9 (-10 to -7)	-9 (-11 to -7)	-12 (-14 to -10)

Productivity results from the MAP participant data were generally supported by results from the MAP consumer survey. Slightly over half of survey respondents (59 percent) reported that the MAP had improved their ability to seek or return to work. Respondents identifying as Māori three times more likely than non-Māori to report an improvement in ability to seek or return to work (RR = .338, $\chi^2 = 4.38$, $p = .04$).

Consumer survey results regarding MAP-related increases in the number of participants' work and/or volunteer time were more ambiguous. Slightly less than half (41 percent) reported that the MAP increased their work and/or volunteer time, and non-Māori were 2.7 times more likely to report increased work and/or volunteer time than Māori (RR = 2.67, χ^2 5.61, $p = .018$).

Those who attended grouped/mixed MAP sessions reported 2.5 times more likely to report increased work/volunteer time than those attending individual sessions (RR = 2.51, $\chi^2 = 6.19$, $p = .01$).

2.5.2. Economic impact summary

Evaluation findings about the economic impact of the MAP indicate that:

- the programme's value for money for participants was perceived to include improved quality of life, a decreased need for surgical intervention and reduced need for pain relief and increased community involvement;
- the programme's value for money for providers and the Ministry was best achieved through service environments with pre-existing processes and systems for interdisciplinary care, group (as opposed to individual) sessions, shorter-term (versus longer-term) programmes and settings with strong internal capacity and capability; and
- value for money also involved embedding the principles of self-management, self-care and education into the core of the programme from the outset, including the provision of accessible resources participants could access to further help self-manage their condition.

The cost-effectiveness of MAP was favourable regarding potential financial savings to the healthcare system through (as proxy indicators) small but statistically significant reductions in specialist referrals, specialist visits, and emergency department visits over time.

Cost-effectiveness analyses suggested that:

- total health gains were estimated to be 155 QALYs in the MAP cohort or 0.03 per participant;
- costs from budgeted per-participant costs were estimated at $743 per participant ($3.6 million total), resulting in INMB of $5.4 million. This indicates the MAP was cost-effective over the short-term from the perspective of the healthcare system; and
- there was more uncertainty in the projected longer-term outcomes, but the cumulative health gain in the MAP cohort over five years was projected to be 549 QALYs (0.11 per participant) with cost savings of $891 per participant ($4.3 million total); and
- the MAP was projected to be cost-effective over a five-year horizon and large health gains were seen to outweigh uncertainty in cost savings.

Lastly, MAP consumer survey results and qualitative information offered additional support of the programme's cost-effectiveness and contributions to enhanced productivity. In sum:

- 54 percent of survey respondents stated that attending the MAP reduced their medical costs;
- 59 percent of respondents reported improvements in their ability to either work or to seek work. Those identifying as Māori were three times more likely than non-Māori to report an improvement; and
- MAP participants were less likely to report negative effects of their condition of their work/volunteer time and were less likely to be unemployed for condition-related reasons.

2.6. Consumer experience

This section describes the experiences of MAP participants via the consumer survey.[54] Survey findings should be interpreted with some caution due to response bias. Comparisons of responses across programmes cannot be made due to variations in provider delivery, client demographics and programme locations.

C1. The consumer experience

MAP wait times and perceived acceptability of wait times

Of those responding to the consumer survey (Table 16), over a third (36 percent) waited less than a week to start their programme. Nearly three-quarters (73 percent) started within a month, and the majority (91 percent) started within two months. Of some concern were the 35 clients (3.6 percent) for whom it took more than four months from being referred to starting the programme.

Table 16: MAP wait times before starting the programme (counts and % responding)

Wait times	Count
Less than two weeks	347 (36%)
Less than one month	350 (36%)
Less than two months	173 (18%)
Less than four months	57 (5.9%)
More than four months	35 (3.6%)

As shown in Figure 29 most providers started their clients in the programme within one month of referral,[55] with only three programmes dropping below this (Programme 5 started 58 percent of respondents within a month; Programme 6 started 46 percent within a month; and Programme 13 started 21 percent of respondents within a month). Virtually all providers had started respondents within four months, although seven respondents from Programme 13 reported that it had taken more than four months to start the programme.

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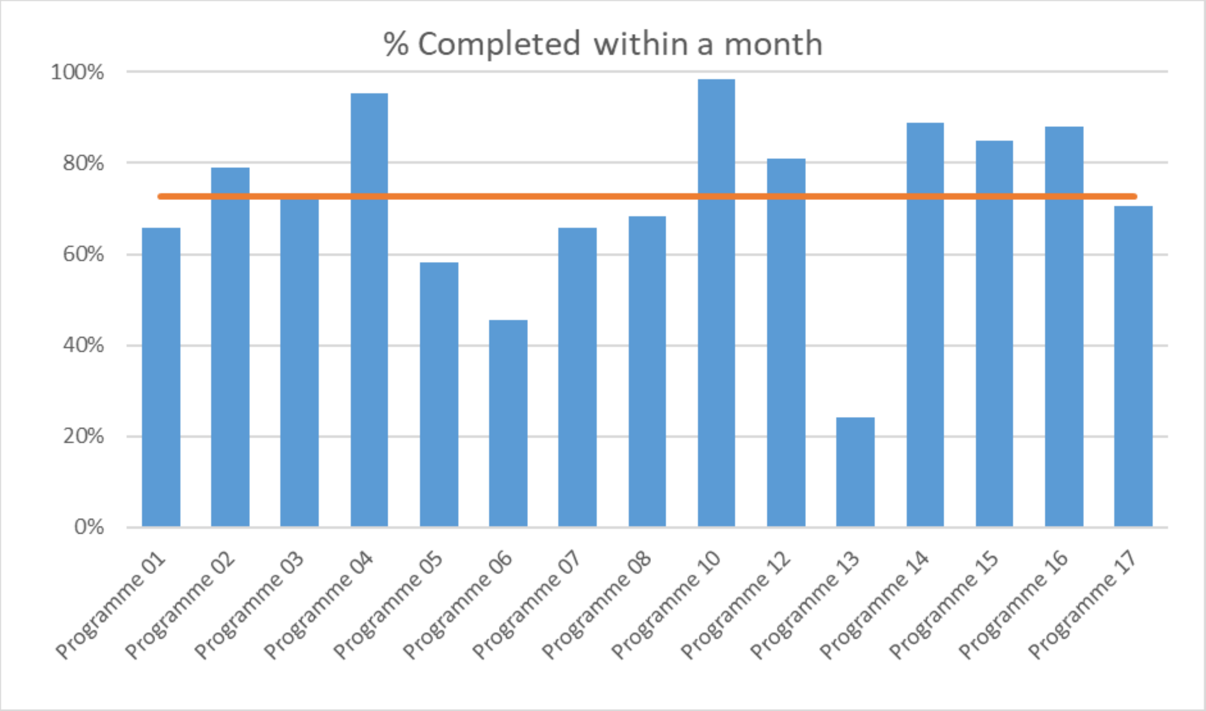
[54] Appendix E providers further information about the survey's development and distribution, as well as demographic details of the final survey sample.

[55] These exclude practices with less than ten consumer survey respondents: Programme 9 (N = 7) and Programme 11 (N = 1).

Figure 29: MAP wait times per provider



Most respondents felt that the wait time was totally acceptable (67 percent) or acceptable (30 percent), with women 1.5 times more likely to report totally acceptable wait times (RR = .68, χ^2 = 6.41, p = .01).

Those attending MAPs via non-private rehabilitation providers (e.g., DHBs and NGOs) or MAPs run via a mix of providers were 1.7 times more likely to report acceptable wait times than those in MAPs run by private rehabilitation providers (RR = 1.71, χ^2 = 7.2, p =.01). Last, those who were referred by their GP were 1.7 times more likely to report acceptable waiting times than those not referred by their GP such as self-referrals (RR = .59, χ^2 = 7.52, p = .006).

Participants' understanding of MAP pre-enrolment

Three-quarters of respondents (76 percent) said they understood what the MAP was about. However:

- 24 respondents wanted a fuller description of the programme pre-enrolment;
- 15 respondents would have liked to know more about programme availability; and
- 4 respondents would have preferred receiving an outline of programme courses/sessions pre-enrolment.

Accessibility and attendance

The majority of survey respondents perceived the MAP's accessibility as very favourable. A very high proportion reported the MAP was:

- held at a place that was easy for them to get to (93 percent);
- suited for people with their health conditions (98 percent); and

- offered on days of the week that suited them (94 percent) and times that suited them (93 percent).

Eight respondents that said their MAP's times did not suit and wanted them held outside of work hours.

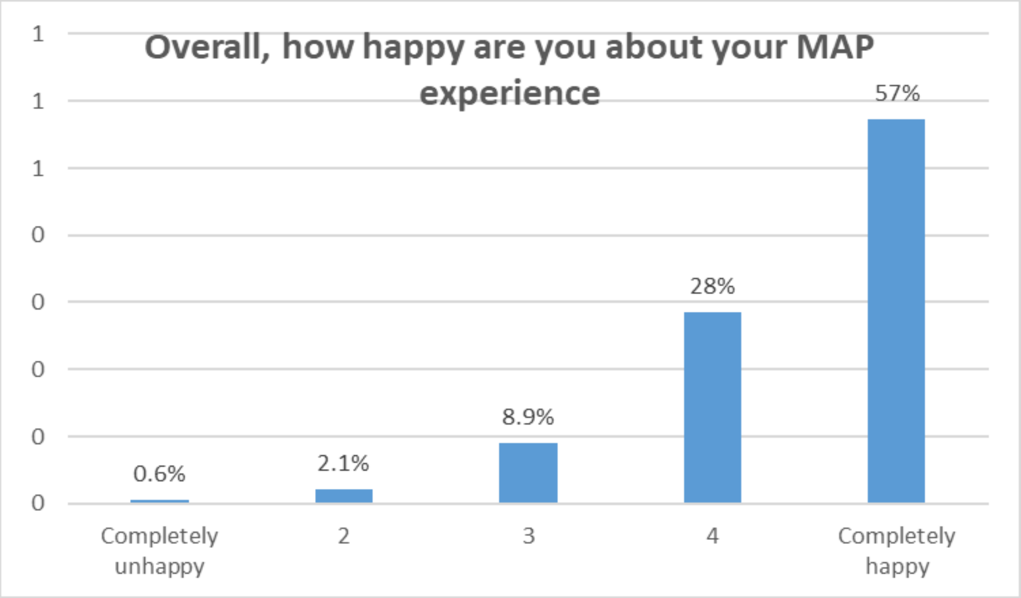
Respondents also report very high programme attendance. Three-quarters attended all the MAP exercise sessions (73 percent) and education sessions (74 percent). Reasons for non-attendance in all sessions included:

- work commitments (24 percent);
- health problems (22 percent); and
- personal issues (17 percent).

Care decisions and overall consumer experience of MAP

Respondents were generally satisfied with the care decisions made with and for them in the MAP. Most (84 percent) felt that they were involved in decisions about their care, in contrast to 4.5 percent who said they were not included and would have liked to have been. A small proportion (8 percent) preferred decisions to be made by others. Further, nearly all respondents were comfortable with how staff talked to them during MAP classes and at appointments (98 percent) and with how MAP was explained to them (99 percent).

Figure 30: Happiness with MAP experience



Overall, the majority (86 percent) of respondents were happy with their experience of the MAP (Figure 30). There were no significant differences by age, gender, ethnicity, or provider type.

2.6.1. Consumer experience summary

Respondents from the consumer survey overwhelmingly reported multiple health benefits from participation in the MAP (reported in Section **Error! Reference source not found.**0). In terms of s urvey respondents' perceptions of MAP reported in the above section:

- wait times for starting the MAP were generally between one to two months and most respondents perceived this to be acceptable;
- a small number of respondents (N = 35) reported waiting more than four months to begin the programme;
- 76 percent of respondents understood the MAP's purpose before starting the programme, though some would have liked additional information about the programme, specific courses and its availability;
- accessibility of the MAP was viewed very positively, with the majority of respondents reporting that locations and days/times of sessions suited them and their conditions;
- respondents reported high attendance to MAP exercise and education sessions, with some unable to attend all sessions due to work commitments, health or personal issues;
- most respondents felt they helped make decisions about their care and nearly all were comfortable with how staff talked to them during MAP classes, appointments, and how the MAP was explained to them; and
- overall, the majority (86 percent) were happy with their MAP experience.

2.7. What works best

As mentioned in Section 1.3, Cycle 2 of the evaluation emphasised the evaluation criterion "*What works best*", particularly through consideration of the following four programme characteristics (see also Appendix D):

- provider type;
- delivery method;
- programme duration; and
- main referral source.

With this in mind, the following section outlines the conditions in which the MAP was found to work best with specific consideration of the:

- structures, approaches and programme components that provide the most benefits;
- other factors that contributed to the success of the MAP, and that should be retained if the programme is rolled out to areas beyond the initial MAP locations.

2.7.1. Structures, approaches and programme components providing greatest benefits

Provider type

The evaluation found that MAPs delivered by private providers were more likely to achieve statistically significant improvements in health outcomes than those delivered by a mix of provider types (e.g., DHBs and non-profits).

Private providers were also found to offer the best accessibility and flexibility for MAP participants. Private rehabilitation agencies offered participants a wide range of MAP locations and several different session times and days. Private rehabilitation organisations also offered the greatest flexibility: they could change how they delivered their MAPs to suit participants and could more easily hire additional resources when required (e.g., pharmacists, additional trainers).

MAPs delivered by a mix of provider types (e.g., DHBs and non-profits) performed better in achieving their anticipated enrolment volumes. These programmes were seen to offer the benefit of drawing on existing networks of primary health care practitioners and other referrers. There is also some evidence that mixed providers, including NGOs, are more effective in enrolling and retaining Māori and Pasifika participants.

Delivery method

The evidence shows that group sessions are the most effective delivery mechanism for achieving health outcomes, and that programmes offering group sessions performed best in retaining participants until completion.

Group sessions enhanced participants' sense of belonging and offered opportunities for socialising and making connections with people with similar conditions. Group sessions also enabled participants to establish support networks to help keep them involved in exercises and other self-management routines post-discharge.

On the other hand, individual-based programmes offered the benefit for tailoring advice and addressing individual participant needs, which was particularly critical at the beginning stage of the programme. This ability to better tailor personal programmes helped bolster participants' sense of ease, independence and confidence to self-manage their conditions, to better implement their care plans and to offset challenges encountered when participants had more complex needs. Individual sessions also offered participants more privacy, and the ability to collaborate and engage with physios and other trainers one-on-one.

Programme duration

The evaluation findings show that longer-duration programmes (10 weeks and more) had consistently larger improvements in all health outcomes and offered (compared to shorter-term programmes) better healthcare gains, savings and cost-effectiveness.

Longer-term programmes were less intensive for participants (e.g., fewer programme-related meetings or commitments per week) and offered them and providers more of an opportunity to address longer-term lifestyle changes, or more complex or severe health issues. Longer-term programmes also created more windows of opportunity to build rapport and relationships with community-based groups.

Qualitative data from participants and MAP providers suggested that shorter-term programmes enabled people to commit more easily and helped sustain their motivation to complete the programme. However, this is not evidenced in the quantitative data which shows no clear trend in enrolment or completion rates by programme duration.

Referral source

There was no observable difference in performance on health outcomes, programme reach, or cost effectiveness of programmes with GP referrals compared to those with other referral sources.

Qualitative data suggests that using a mix of referral sources offered the greatest benefits for both participants and providers. A broad referral network ensured information about and awareness of the MAP was distributed in a timely and less time-consuming way. A mix of referral sources also enhanced the accessibility of the programme.

MAP providers perceived that GP referrals were successful at recruiting participants into MAP if GPs: 1) knew about the MAP; 2) bought into the programme's philosophy; 3) had existing relationships with the MAP provider; 4) understood and applied the programme's enrolment criteria; and 5) were willing to spend the additional time with clients to discuss the MAP and make the programme referral.

2.7.2. Models or components that should be sustained, scaled up and adapted

The following summary outlines components of the MAP that should be sustained, scaled up or adapted based on both quantitative and qualitative evaluation analyses.

Selection of MAP service providers

As well as evidence supporting the effectiveness of MAPs delivered by private providers, the evaluation found that it is important to select providers accustomed to interdisciplinary care. It is also important that providers have capability and experience in working with the priority population groups, to ensure that programme delivery is accessible and culturally appropriate.

Awareness raising

Achieving strong enrolment rates relies on good referrer and consumer awareness of the programme. It is important to allow time to build relationships between providers, referrers and the target population groups before the programme begins. Relationship building and referrals can be expedited by using existing links with primary care providers, other (ideally community-based) healthcare providers and the local community.

Eligibility criteria and triage processes

Effective triaging services at the point of referral are an enabler for participants to get the most out of the MAP. Triaging should determine primary MSK condition (versus other comorbidities) to effectively triage to different service pathways. Equally important is to ensure referred participants meet the eligibility criteria for the programme; those with more severe MSK conditions were less likely to experience benefits from the MAP and emphasis should be placed on those with early-stage conditions.

Equity focus

MAPs that were most successful in enrolling and retaining priority groups were those that incorporated an equity focus from the beginning, using specific strategies to target these groups. Feedback from Māori and Pasifika participants also indicates that a MAP workforce with ethnic diversity and/or cultural competence increased their likelihood of remaining in the programme. Offering support to get financial assistance (e.g., via Work and Income) for participants in areas of high deprivation to purchase resources such as appropriate clothing was an enabler to participation for some groups.

Programme accessibility

The most effective MAPs made efforts to enhance programme availability and accessibility, by holding sessions in central community locations, delivering sessions in evenings or weekends, providing transport, and supporting participants with childcare options. Charging a fee to participate was a barrier to programme access.

Programme delivery

Successful programme delivery features included meeting with participants individually at the beginning of the programme to build buy-in and understanding, and to collaboratively design an individual care plan.

During programme delivery, providers who emphasised self-management principles were more successful than those who implemented a 'hands on' approach that decreases participants' locus of control. In terms of the programme delivery model, tiered treatment pathways were underutilised and overly complex with single pathways likely to be a better approach.

Completion rates

Completion rates were strongest for programmes that held individual meetings at the outset to build rapport with participants, enhance buy-in into the programme, and set expectations around attendance. Successful MAPs also offered an easy-to-follow, structured programme for participants.

3. EVALUATION CONCLUSIONS

Overall conclusion

The evaluation provides strong evidence that the MAP is an effective early intervention programme for people with MSK conditions. The MAP has resulted in health outcome gains for its participants, with the priority population groups achieving similar or better improvements in health status.

The evaluation has also demonstrated that the MAP is a prudent investment, with evidence showing it was cost-effective over the short-term, achieving estimated health gains of 155 quality-adjusted life years (QALYs) in the MAP cohort and incremental net monetary benefit (INMB) of $5.4 million. The MAP is projected to be highly cost-effective over a five-year horizon.

The evaluation concludes that investment in early intervention programmes for MSK conditions represents good value for money. The specific focus of the MAP on priority groups contributes to health equity for Māori, Pasifika and those living in areas of higher derivation.

KEQ1: What impact has the MAP had on general health status, pain, functional status, self-confidence and ability of participants to self-manage their condition?

HEALTH OUTCOMES

- **Exceeded expectations**
- Met expectations
- Below expectations (with some positive achievements)
- No change or detrimental

There is strong evidence that participation in the MAP results in an increase in health-enhancing behaviours, reduced pain, enhanced mobility and functionality, enhanced wellbeing and reduced need for secondary healthcare services. **Based on these evaluative criteria, the programme's effectiveness in improving participants' health outcomes have exceeded expectations**.

Quantitative evidence from the evaluation shows that there was a reduction in the MAP cohort BMI from the beginning of the programme to completion, and that this was maintained or improved at subsequent measurement points. The analysis also found statistically significant improvements for pain, mobility and functionality as well as significant improvements in general health and wellbeing between the time of entry into their MAP (baseline) and all other timepoints.

Importantly, the MAP was also shown to be effective in its objectives of reducing demand on secondary healthcare services. MAP participant data analyses found statistically significant reductions in specialist referrals, specialist visits and emergency department visits. These health outcome findings were observed across most of the MAP pilot sites, indicating that the programme model is effective in supporting improved health outcomes amongst participants.

KEQ2: To what extent has the MAP reached its anticipated enrolment and completion rates?

REACH	
Exceeded expectations	Most MAPs met anticipated enrolment rates and over half of the MAPs achieved acceptable completion rates. **Based on these evaluative criteria, programme reach met expectations**.
Met expectations	
Below expectations (with some positive achievements)	
No change or detrimental	

On average, the MAP is performing well at enabling access to the programme. The majority of MAPs (11 out of 17 programmes) reached least 80 percent of their target enrolment numbers. Completion rates were slightly lower, with nine of the MAPs achieving completion rates of at least 80 percent. Across all programmes, 78% of participants completed their programme to the point of discharge (Time 2).

Effective practices that increased enrolment and completion rates included a triaging system to ensure those referred to the programme are eligible (i.e., early stage MSK conditions), meeting individually with participants are the beginning to ensure buy in and set expectations, and offering practical assistance such as transport or childcare.

KEQ3: To what extent is the MAP reducing known disparities in access to health services and outcomes?

REDUCTION IN DISPARITIES	
Exceeded expectations	The MAP effectively enrolled Māori, Pasifika and those living in high deprivation. It did not effectively retain these priority groups to completion. Health outcomes for these groups were relatively similar to the general MAP cohort. **Based on these evaluative criteria, reduction in disparities met expectations**.
Met expectations	
Below expectations (with some positive achievements)	
No change or detrimental	

The evaluation found the MAP has been successful in enrolling participants from priority groups. Māori, Pasifika and people living in areas of higher deprivation were enrolled in the MAP at a higher rate than these groups' proportion of the total population with arthritis in New Zealand.

However, the MAP was less successful in retaining priority groups in the programme. The percentage of Māori, Pasifika and those in the most deprived neighbourhoods that remained with the programme until completion were lower than the overall completion rate for all participants.

Health outcomes were similar for participants from priority groups compared to other participants. On some indicators, people from priority groups achieved larger improvements than average; for example, Māori and Pasifika participants had larger reductions in pain than non-Māori/non-Pasifika.

However, Pasifika participants had worse outcomes on some measures, especially mental health and general health-related quality of life. Programmes with a high Pasifika enrolment numbers that were tailored to suit the cultural needs of Pacific peoples performed better on these outcomes.

Participant survey data also shows positive outcomes for priority groups, particularly Māori. Respondents identifying as Māori were 3.6 times more likely to report health improvements than non-Māori. Māori were also more likely to report they learned how to manage their weight and were more likely to report an improved ability to seek or return to working following MAP.

KEQ4: What was the economic impact of the MAP?

ECONOMIC IMPACT	
Exceeded expectations	The MAP achieved an estimated health gain of 155 QALYs in the MAP cohort and an INMB of $5.4M. It is projected to be cost-effective over a five-year horizon. **Based on these evaluative criteria, the programme's economic impact met expectations**.
Met expectations	
Below expectations (with some positive achievements)	
No change or detrimental	

The evaluation findings were favourable regarding the MAP's potential financial savings to the healthcare system through (as proxy indicators) small but statistically significant reductions in specialist referrals, specialist visits, and emergency department visits over time.

Total health gains were estimated to be 155 quality-adjusted life years (QALYs) in the MAP cohort or 0.03 per participant.

Costs from budgeted per-participant costs were estimated at $743 per participant ($3.6 million total), resulting in incremental net monetary benefit (INMB) of $5.4 million. This indicates the MAP was cost-effective over the short-term from the perspective of the healthcare system.

While there is more uncertainty in the projected longer-term outcomes, the MAP is projected to be highly cost-effective over a five-year horizon. The cumulative health gain over five years was projected to be 549 QALYs with cost savings of $4.3 million.

KEQ5: How well has the programme managed patient care?

CONSUMER EXPERIENCE

Exceeded expectations

Met expectations

Below expectations (with some positive achievements)

No change or detrimental

The MAP mostly meets consumer needs and expectations and helped them self-manage their conditions. **Based on these evaluative criteria, the programme's consumer experience met expectations**.

The evaluation found that most MAP participants were happy with their experience. They experienced acceptable wait times to start the MAP, were well informed about the programme's purpose, and reported that locations and days/times of sessions suited them and their conditions. Participants considered that they MAP had helped then to better manage their MSK conditions.

KEQ6: Under what conditions does the programme work best?

The evaluation found that MAPs delivered by **private providers** performed best in achieving statistically significant improvements in participant health and offered better accessibility and flexibility for participants.

MAPs delivered by a **mix of provider types** (e.g. DHBs and NGOs) performed better in achieving their anticipated enrolment volumes.

Group sessions were the most effective delivery mechanism for achieving health outcomes and performed best in retaining participants until discharge.

Longer-duration programmes (10 weeks and more) had consistently larger improvements in all health outcomes and offered (compared to shorter-term programmes) better healthcare gains, savings and cost-effectiveness.

There was **no observable difference** in performance on health outcomes, programme reach, or cost effectiveness of that only accepted **GP referrals compared to those with that accepted referrals from other sources.**

Other features associated with MAP effectiveness include:

- programmes delivered by providers accustomed to interdisciplinary care models;
- provider experience in working with the priority population groups;
- building in time at the beginning of the programme to build relationships between providers, referrers and community groups;
- ensuring effective triaging services at the point of programme referral;
- incorporating an equity focus, and implementing specific strategies to target priority groups;

- ensuring MAPs were delivered in convenient locations, close to transport and with a range of session times including evenings or weekends;
- meeting with participants individually at the beginning of the programme to build buy-in and understanding and to collaboratively design an individual care plan;
- emphasising participant self-management of their conditions; and
- setting expectations around attendance upfront, and offering an easy-to-follow, structured programme.

4. RECOMMENDATIONS

Based on the findings and conclusions described in this report, the evaluation makes the following recommendations

1. The evaluation recommends an expanded roll out of the MAP or similar programmes.

The pilot phase of the MAP has demonstrated that the programme offers health improvements to people with early stage MSK conditions, is effective at reaching its targeted population groups, is cost-effective and is well regarded by its participants. This provides a strong rationale for a wider roll out of the programme.

2. Models should incorporate the features that have been shown to be effective.

While there remains a need to target the design of individual MAPs to the context in which they are being delivered, programme design should be mindful of the evidence identified through this evaluation. This suggests that programmes should prioritise holding group sessions (with an initial individual meeting to gain buy in and design a care plan) and should generally be of longer duration. Private providers and mixed provider programmes both offered advantages and should continue to be supported.

In addition, programme design needs to incorporate enablers of success that include a triaging system for referrals, implementation of evidence informed strategies to target priority groups, holding sessions at convenient locations and times, flexibility around times, emphasising self-management of conditions.

3. Focus on improving programme completion rates for priority groups.

Completion rates were lower than anticipated for priority groups. The evaluative evidence shows MAPs that embedded an equity focus and developed strategies to recruit and retain priority groups from the start were most successful in retaining these groups. Success factors for retaining priority groups included having previous experience in working with the priority population, culturally diverse and culturally competent staff, and ensuring accessibility of the programme by holding the sessions at convenient locations and times.

4. Strategies that ensure equity of outcomes for Pasifika should be a core component of the programme.

Pasifika participants had worse outcomes on some measures, especially mental health and general health-related quality of life. MAPs in areas with high Pasifika populations should tailor the programme to ensure it meets their needs. This might include contracting Pasifika providers to deliver the service, and working with Pasifika health advisors or community representatives to ensure the programme is delivered in a culturally appropriate manner (for example, by starting sessions with prayer).

5. Consider adapting the programme for participants with comorbidities/complex needs.

The evaluation found that the MAP in its current design works best for those in the early stages of osteoarthritis as their primary health concern. Those with comorbidities (such as diabetes or cardiovascular conditions) are also likely to benefit from the MAP but struggled to participate in some programme activities and were more likely to leave the programme before completion. The evaluation recommends investigating the feasibility of offering specific programmes or add-on/booster sessions targeting participants with comorbidities or more complex health needs.

6. Offer opportunities for post-programme support to embed self-management behaviours.

Engagement with MAP participant found that they valued the social aspect of MAP group sessions and were motivated by the ongoing contact and support from other participants and MAP staff. However, this typically ceased after the programme ended. The evaluation recommends investigating the development of post-MAP support networks or other longer-term opportunities post-programme to embed new self-management behaviours.

APPENDIX A: GLOSSARY

Term	Description
MAP	The Mobility Action Programme (the programme). The Mobility Action Programme is a pilot initiative established to improve treatment for people who are prone to or live with orthopaedic and MSK conditions. MAP contract holders each deliver tailored, individualised MAPs (see below) under the wider programme.
MAPs	The pilot sites contracted by the Ministry of Health to deliver the MAP (N = 17 total). The 17 MAP pilot programmes or MAPs vary in size, approach, duration, structure, price, populations targeted, conditions treated, localities, and type of services provided.
Service providers	The individuals and organisations who hold a contract with the Ministry of Health as one of the 17 MAPS to deliver the wider programme.
MAP participants	People with MSK health conditions who have participated in one of the 17 MAPs.
Key informants	Individuals identified as having a key role in the design, development, implementation and outcomes of the MAP. This includes Ministry of Health staff, sector experts and representatives who belong to professional bodies and advocacy groups.
Document review	A review of MAP documents including programme design information, contracts and relevant research. The document review was initially undertaken during evaluation planning and design and is continually updated as additional information is received.
Case study	A data collection activity used in the first evaluation cycle that includes interviews, focus groups, focus group questionnaires and review of site-specific information. Five MAP site visits were conducted to document and examine their unique contexts, characteristics, and experiences with delivering the MAP.
MAP participant focus group	Part of the case study data collection method where a group of MAP participants were brought together to discuss their experience of the MAP
Case study MAP participant focus group questionnaire	A short questionnaire designed as part of the case studies for MAP focus group participants to complete during the focus group session.
Virtual focus group with non-case study service providers	An online focus group designed to collect information about the MAP from non-case study service providers.
MAP participant data	All 17 MAPs were required to provide data to the Ministry of Health about MAP participants at four different time points (baseline or entry into the programme, discharge from the programme, three-months after discharge and 12-months after discharge). These data include clinical information (e.g., height, diagnosis, referral source, comorbid health conditions); health status (quality of life, condition-specific measures); and demographic information (e.g., age, ethnicity, work status).

Term	Description
MAP consumer survey	A survey developed by *Allen + Clarke* in collaboration with the Ministry of Health to assess MAP participants' perceptions and experience of the MAP. The survey includes the entire MAP cohort.
IDI data	The Integrated Data Infrastructure is a large research database containing microdata about people and households in New Zealand. The data are sourced from a range of government agencies, Statistics New Zealand surveys, and non-government agencies. An application process was required for the MAP evaluation team to access and utilise IDI data.
OA	Osteoarthritis.
OAHK	Osteoarthritis of the Hip and Knee.
LBP	Lower Back Pain.
The Green Prescription programme	Written advice from a health professional for a patient to become more active and improve diet. Referrals for Green Prescription help support prevention and management in patients with chronic disease and long-term conditions such as osteoarthritis.

APPENDIX B: ABOUT THE MOBILITY ACTION PROGRAMMES

The table below was developed using information from the contracts between the Ministry and service providers with the exception of treatment target figures.[56]

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
Programme 1	Four treatment pathways: • Advice and an exercise prescription, referral back to GP with recommendation for Green Prescription • Stage 1: Physio-led group programme 2.5hrs * six weeks, including exercise and education Stage 2: (as required) The Stanford Model of Self-Management of Chronic Pain Programme: 2.5hrs * six weeks, to build confidence to self-manage • Mild to moderate LBP: Pathway 2, plus up to 3 interventions with MDT member(s) • More severe LBP: Pathway 2, plus advice and an exercise prescription with referral to GP recommending referral to secondary care).	One-on-one; Group	OAHK	360	Nil
Programme 2	Four treatment pathways: • Assessment, advice, home exercise programme	Group	Osteoarthritis of the hip and knee (OAHK)	550	Nil

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[56] Treatment targets listed in the table were taken from those outlined in the contract between the Ministry and *Allen + Clarke.*

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
	• Assessment, advice, group physio and education programme • Pathway 2 is preceded by brief individual psychological, medical, nutritional, and/or physical therapy • Not suited to MAP: referred back to referrer				
Programme 3	Four treatment pathways: • Advice and exercise prescription; referral back to GP for Green Prescription • Six-week exercise and education, using instructional videos • One-to-one intervention (as necessary), then to Pathway 2. • Advice and exercise prescription, recommendation to GP to refer to secondary care	Group	OAHK; low back pain (LBP)	171	Nil
Programme 4	Eight self-management modules and a personal health coach (accessed fortnightly), delivered over 16 weeks. Coaching includes: Goal setting; understanding osteoarthritis; symptom/pain management; physical activity; health y eating; emotional wellness; sleep; communication for self-management	Web-based	OAHK	450	Not specified
Programme 5	Four treatment pathways:	Group; one-on-one	Osteoarthritis (OA) /Rheumatoid	378	Yes, for pathway 4

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
	• One-on-one 60-minute self-management session: condensed education, handouts supporting 12 weeks home-based exercise • Monthly 1.5 hr group session for three months, covering exercise and education; two one-hour exercise sessions per week for three months; up to two one-hour private physiotherapy sessions • 12-week programme: Exercise and education sessions, supplemented by 1 hour sessions with nutritionist and a one-hour session with an occupational therapist; and up to six 30-minute appointment with a physiotherapist • Up to six surcharged physiotherapy sessions, and a discounted short-term gym or pool membership or assistance to attain a green prescription		arthritis of the lower limbs and LBP		
Programme 6	Ten-week programme includes one hour of exercise and one hour of education	Group	Chronic and severe OAHK	480	Nil
Programme 7	Two treatment pathways: • Eight-week education and exercise programme, each session being for two hours, with follow-up sessions at + one month and +two months; two 90-minute sessions with occupational therapists and physiotherapists are intended	Group; one-on-one	Mild to moderate MSK conditions	240	Nil

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
	for whānau/partners, and run concurrent with programme; • For people with more severe conditions, an assessment with MDT; personal goal setting; up to 10 sessions with allied health workers (aligned with personal needs).				
Programme 8	Six-week programme, one session of 90 minutes per week, including 15-minute presentations from allied health professionals; plus, a 30-minute cultural heritage walk for people referred through a kaupapa Māori provider; and a one-off follow-up consultation three months after completion. At the discretion of the physiotherapist, additional manual therapy may be offered.	Group: 6 people per group	Mild to moderate OAHK	288	Nil
Programme 9	Physiotherapy component (three months); plus, a self-management course of six to eight weeks (which may run in parallel with the physiotherapy programme); 10-weeks access to Māori health programme	One-on-one; group	Mild to moderate MSK conditions	400	Nil
Programme 10	Four treatment pathways: • Four weeks with access as needed to physiotherapist review, weekly group exercise and nutrition sessions, monthly community education and exercise; reassessment by MDT for possible referral for specialist treatment	One-on-one; Group	OAHK; gout	350	Nil

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
	• Eight week programme: as above, plus nutrition review, medication review, pain management plan • Twelve week programme: as above, plus individualised home-based exercise plan, weight-loss / nutrition plan • Not suited to MAP: referred back to GP with recommendation for specialist referral				
Programme 11	Three treatment pathways: • Individual strength and conditioning programme: five one-hour sessions over 8 – 10 weeks; Green Prescription for swimming pool or gym; clinical pharmacist review; weight management; Brief Motivational Interviewing with physiotherapist at every session; referral to MDT as required • Physiotherapy-led small-group sessions (up to 10 sessions over 3 months), weight management, clinical pharmacist review; Green Prescription; and where appropriate: intra-articular or ultrasound-guided corticosteroids, mental health counselling if appropriate, walking assessment • Physiotherapy-led strength and condition programme – up to 20 sessions over 4 months; fortnightly weigh-in, medication and pain	Individual; Group	Mild to moderate MSK conditions, including OAHK, shoulder pain, LBP, and other MSK conditions such as bursitis, tendinopathy, impingement syndrome	550	Nil

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
	review, walking assessment, and where appropriate: intra-articular or ultrasound-guided corticosteroids, mental health counselling if appropriate, balneotherapy, walking assessment				
Programme 12	Two treatment pathways: • Mild: Individually tailored home exercise programme with ongoing support over 12 weeks; education via videos/podcasts/handouts/internet links, covering understand osteoarthritis, managing osteoarthritis, physical activity for osteoarthritis, diet and weight management, pain management, pacing load management and aids for managing your environment. • Moderate: Up to five hours one-on-one with physiotherapist, developing individually tailed rehab programme; progressing to group strength and conditioning sessions – small groups over six weeks, and including 15 mins education + 45 mins exercise; tailed home exercise programme; education and self-management tools as for Pathway 1; pain management; referral to allied health services as appropriate; referral for Green Prescription etc	One-on-one	Chronic OAHK (mild to moderate)	275	Nil

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
Programme 13	A 12-week, one-hour group exercise class, with individualised exercises according to need; an education session at week 6; four weeks home exercise supported by weekly phone calls by class physiotherapist; face-to-face review at 17 weeks; phone reviews at 3, 12, and 24 months; referral to MDT as required	Group	Early to moderate OAHK	95	Yes: non-community service card holders charged part payment of $150
Programme 14	Core programme: education programme covering disease management; individualised exercise programme; pharmacological assessment; links to community groups Additional services (if indicted): manual therapy; home visit for functional assessment; psychological management, weight loss support	One-on-one; Group	OAHK	300	Nil
Programme 16	Four treatment pathways, each varying by the number of sessions that follow an initial assessment • 3 – 8 sessions • 9 – 25 sessions • 13 – 30 sessions, and • 19 – 38 sessions Core components of the sessions include: physiotherapy assessment; education modules (individual and groups); supervised and grade exercise and functional reactivation; community-based activity; individualised sessions as required with MDT members; referral to community support networks, follow session.	One-on-one; Group	Chronic OAHK; LBP; and Chronic OAHK	375	50% to pay 25% of the cost for services

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
Programme 15	Primary Care Training: Modules facilitated by an orthopaedic spine specialist, to improve GP understanding, assessment and non-pharmacological treatment of LBP at primary health care level. Community MSK Advice: Two Pathways: • Remote Care: Weekly telehealth support (up to one hour), for six weeks; access to on-line resources covering education, exercise-based applications and electronic exercise resources • Group Rehab: six-week exercise programme in a group of 6 – 12 people, covering strengthening, stretching and cardio fitness, informal education, access to in-line resources Remote Care and Group Rehab pathways both include group education evenings held quarterly, each comprising four 20-minute presentations from allied health professionals (spine specialist, physiotherapist, psychologist, and dietician); ongoing support management and follow-up consultation.	On-line; Group	LBP	306	Non-community service card holder charged a maximum of $15 per session of individualised rehab, and $5 per session for group exercise programme
Programme 17	Two treatment pathways: • Simple: up to five sessions with physiotherapist focusing on strength and conditioning training and wellness education	One-on-one	Mild to moderate OAHK	300	No co-payment required from people referred through three designated GP practices, but

MAP Provider	Structure (treatment pathway)	Mode of delivery	Conditions being treated	Treatment target	Co-payment
	• Complex: up to eight sessions with MDT members for additional assessment, treatment, rehabilitation, wellness				referrals from other sources to pay equivalent of an ACC co-payment (amount not specified); and of these, those with a community services card to pay a lower rate

APPENDIX C: DESIRED ACHIEVEMENTS AND EVALUATIVE ASSESSMENTS

Criteria	Desired achievements	Performance indicators	Sources of information
KEQ1: How effective is the MAP in improving health outcomes?			
Health outcomes (H)	(H1) MAP participants modify behaviours in order to improve health outcomes	• MAP participants report increased physical activity, which they attribute to the MAP • Analysis of MAP participant data shows a reduction in cohort BMI from entry to completion of the MAP • MAP participants report increased knowledge of health behaviours (e.g., reduced tobacco use, better diet and weight management) gained through the MAP	• Interviews • MAP participant data • Consumer survey • Consumer focus groups • Virtual provider focus groups
	(H2) Participation in the MAP results in reduced reported pain for people with MSK health conditions	• Analysis of MAP participant data shows improvement in patient assessment in the Numeric Pain Scale from entry to completion of the MAP • MAP participants report reduced pain, which they attribute to the MAP	• Interviews • MAP participant data • Consumer survey • Consumer focus groups

	(H3) Participation in the MAP results in enhanced mobility and functionality for people with MSK health conditions	• Analysis of MAP participant data shows improvement in patient assessment in the Timed Up and Go test score, pre- and post-MAP
		• Analysis of MAP participant data shows improvement in patient assessment, pre- and post-MAP, in the:
		  • Oxford Hip Score (hip conditions)
		  • Oxford Knee Score (knee conditions)
		  • Lower Extremity Functional Scale (LEFS) (lower limbs)
		  • Vernon Moir Neck Disability Index (neck)
			• MAP participant data
			• Consumer survey
			• Consumer focus groups

Criteria	Desired achievements	Performance indicators	Sources of information
		- Roland Morris Low Back Pain Disability Questionnaire (lower back) - Quick DASH Disability Symptom Score (arm and shoulder) - MAP participants report improved mobility and function, which they attribute to the MAP	
	(H4) Participation in the MAP enhances patient ability and confidence to self-manage their conditions	- MAP participants have increased understanding about their condition - MAP participants know how to manage their condition - MAP participants rate their confidence in controlling and managing their MSK health condition as 7/10 or higher[57] - MAP providers offer effective information, advice and resources to support self-management of MSK conditions - MAP participants report that the information, advice and resources meet their needs - Analysis of MAP participant data shows improvement in patient scores in the Stanford Self Efficacy questionnaire from entry to completion of the MAP	- Interviews - Consumer focus groups - Consumer survey - MAP participant data - Virtual provider focus groups

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[57] Adapted from the FNX Corporation and Dartmouth College *Tool to Assess Health Confidence*. Patients are asked to respond to the question 'how confident are you that you can control and manage most of your health problems?' by rating their confidence on a scale from 0 (not very confident) to 10 (very confident). A score of 7 or higher is the desired response.

Criteria	Desired achievements	Performance indicators	Sources of information
	(H5) Participation in the MAP supports clients' general health and wellbeing	• Analysis of MAP participant data shows improvement in patient assessment in the SF-12 pre- and post-MAP • MAP participants report increased ability to participate in activities which they enjoy	• Interviews • MAP participant data • Consumer survey • Consumer focus group

	(H6) Participation in the MAP reduces client need for secondary healthcare services	• Analysis of health data for the MAP participant cohort shows a pre- and post-MAP reduction in:
		  • Initial specialist assessments for hip and knee replacement surgeries
		  • Demand for hospital physiotherapy services (as recorded in the National Non-Admitted Patient Collection)
			• Interviews
			• MAP participant data
			• NZ-MOA analysis
			• Virtual provider focus groups

KEQ2: To what extent has the MAP reached its anticipated enrolment and completion rates?			
Reach (R)	(R1) MAPs are achieving anticipated participant enrolment volumes	• The 17 MAP pilot projects meet their contracted enrolment numbers • MAP providers report that enrolment numbers for their targeted priority groups (Māori, Pasifika, and those living in high deprivation) are meeting expectations	• Interviews • MAP participant data
	(R2) MAPs are achieving anticipated completion rates	• 80% of those who enrol in a MAP complete their programme • Completion rates for priority groups are comparable to the general MAP cohort	• Interviews • MAP participant data
KEQ3: To what extent is the MAP reducing disparities in access to health services and outcomes?			
Reduction in disparities (D)	(D1) MAP providers implement a range of appropriate strategies	• MAP providers develop and implement a range of strategies to reach the priority groups	• Interviews • Document review

Criteria	Desired achievements	Performance indicators	Sources of information
	to reach Māori, Pasifika[58] and those living in high deprivation [59] (the 'priority groups')	• MAP providers tailor programme delivery to meet the needs of the priority groups	• Virtual provider focus groups
	(D2) MAP providers effectively reach and meet the needs of the priority groups	• The priority groups' participation rates in the MAP are comparable to these groups' population-level rates of MSK conditions • Māori and Pasifika clients report that the MAP was delivered in a culturally appropriate way	• Interviews • MAP participant data • Consumer focus groups • Virtual focus groups • NZ-MOA analysis
	(D3) The priority groups experience equity of outcomes to the general MAP cohort	• The priority groups' achievement of health outcomes (desired achievements H1–H6) are comparable to the general MAP cohort	• MAP participant data • NZ Census data analysis
KEQ4: What was the economic impact of the MAP?			
Economic impact (E)	(E1) MAP resources are allocated efficiently and effectively according to outputs (what was delivered) and outcomes (what was achieved), providing value for money	• Agreed programme outputs are delivered • MAP is enabling the achievement of health outcomes (desired achievements H1–H6) and productivity gains (desired achievement E2) • The MAP's outcomes and impacts are considered by the Ministry and sector experts to be value for money • MAP providers consider offering the MAP service to be of value to their business	• Interviews • Document review • MAP participant data • Virtual provider focus groups • NZ-MOA analysis

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[58] The New Zealand Health Survey 2013/14 shows that Māori and Pasifika adults were 1.3 times more likely to have arthritis than non-Māori and non-Pasifika adults.

[59] Arthritis UK (2014) reports that those living in high deprivation are more likely to report chronic pain, and the pain they experience is likely to be more severe.

Criteria	Desired achievements	Performance indicators	Sources of information
		• The overall burden of MSK health conditions, measured by health-related quality of life data, is improved over time in the MAP cohort	
	(E2) The MAP contributes to financial savings for both the health system and people with MSK health conditions	• Estimated decrease in future demand for health services (desired achievement H6) is likely to result in savings for the health system • MAP participants report reduced costs in medications, general practitioner visits, and physiotherapy	• Interviews • Document review • MAP participant data • MAP consumer survey • Virtual provider focus groups • NZ-MOA analysis
	(E3) Participation in the MAP results in increased productivity of the MAP cohort	• Analysis of MSD data shows a decrease in MAP participant receipt of government income support benefits pre- and post-MAP • Analysis of IRD data and consumer reporting shows a reduction in income losses due to MSK conditions in the MAP cohort pre- and post-MAP • MAP participants report fewer days absence from work due to their MSK conditions pre- and post-MAP	• MAP consumer survey • Consumer focus group • NZ-MOA analysis
	(E4) The MAP is a sustainable economic model that is likely to remain viable into the future	• The actual costs to deliver the MAP service, to providers and the Ministry, are in line with budgeted costs • Economic forecasts suggest that the costs of service provision are unlikely to rise substantially in the next 5 years • MAP providers report that they would re-tender for the service, should the opportunity become available	• Interviews • Virtual provider focus groups • NZ-MOA analysis

Criteria	Desired achievements	Performance indicators	Sources of information
KEQ5: How well has the MAP managed patient care?			
Consumer experience (C)	(C1) MAP consumers report that MAP services meet their expectations against key indicators of consumer experience[60]	- MAP participants report that their MAP provider offers acceptable wait times for appointments - MAP participants report that their MAP provider's services are affordable and accessible - MAP participants report that their MAP provider scheduled the services/programmes at convenient times (e.g., after work, on weekends) - MAP participants report that they are treated with respect and dignity by their MAP provider - MAP participants report that they have as much involvement as wanted in their care decisions	- MAP consumer survey - Consumer focus groups
	(C2) The consumer experience of MAP, from entry to exit, is focused and streamlined	- MAP providers can articulate how their model of care is relevant and customised to the local environment - MAP participants have an accurate understanding of what the service offers - MAP participants report that care is well-coordinated across the various providers and services that consumers use	- Interviews - Consumer focus groups - MAP consumer survey - Virtual provider focus groups

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[60] Adapted from the Health Quality and Safety Commission's *Primary Care Patient Experience Survey* tool

Criteria	Desired achievements	Performance indicators	Sources of information
	(C3) MAP consumers experience short-term changes after participation in the MAP	• MAP participants report that their health, economic and other life circumstances have improved after completing the MAP • Analysis of MAP participant data shows positive change on health indicators pre- and post-MAP • Analysis of IDI data shows change on indicators (desired achievements H1–H6) and productivity gains (desired achievement E2) pre- and post-MAP	• Consumer focus groups • Consumer survey • MAP participant data • NZ-MOA analysis
KEQ6: Under what conditions does the programme work best?			
What works best	This question will be addressed through synthesis and analysis of all the information collected during the course of the evaluation, and by comparing performance of the 17 MAPs against the standards outlined above.		• Interviews • Document review • MAP participant data • Consumer focus groups • MAP consumer survey • NZ-MOA analysis

Evaluation rubrics are tools that provide an assessment framework for the kinds of evidence we expect to see at different levels of performance for each of the evaluation criteria and KEQs. The rubrics below established the standards against which MAP was evaluated. These identified what was considered to have "exceeded expectations", "met expectations", was "below expectations", or had "no change" or was "detrimental" under each performance criterion.

Additionally, all criteria included a category "unable to be determined", which was used when insufficient and/or adequate evidence was available to make a robust evaluative judgement.

Table 17: MAP evaluation rubric

Criteria	Exceeded expectations	Met expectations	Below expectations (with some positive achievements)	No change or detrimental
Generic performance standards	Excellent performance against all performance standards and no substantive weaknesses. Clear examples of exemplary performance.	Reasonably good performance overall; may have a few slight weaknesses but nothing serious.	Fair performance, some serious, but non-fatal, weaknesses on a few aspects.	Clear evidence of unsatisfactory functioning; serious weaknesses on crucial aspects.
Health outcomes	There is strong evidence that participation in the MAP results in an increase in health-enhancing behaviours, reduced pain, enhanced mobility and functionality, enhanced wellbeing and reduced need for secondary healthcare services.	Participation in the MAP results in improvement in most of the expected outcomes (increase in health-enhancing behaviours, reduced pain, enhanced mobility and functionality, enhanced wellbeing and reduced need for secondary healthcare services). Performance lower than expected on one or two expected outcomes.	Participation in the MAP results in improvement in less than half of the expected outcomes (increase in health-enhancing behaviours, reduced pain, enhanced mobility and functionality, enhanced wellbeing and reduced need for secondary healthcare services).	Very few, if any, of the expected health outcomes and impacts have been achieved.
Reach	The MAP is exceeding its anticipated enrolment and completion rates.	The MAP is meeting its anticipated enrolment and completion rates.	While some MAP pilot sites are meeting the anticipated enrolment and completion rates, in most sites the numbers are below expectations.	All, or nearly all, of the MAP pilot sites are failing to achieve anticipated enrolment and completion rates.

Criteria	Exceeded expectations	Met expectations	Below expectations (with some positive achievements)	No change or detrimental
Reduction in disparities	The MAP is effectively reaching and meeting the needs of Māori, Pasifika and those living in high deprivation. Health and economic outcomes for these groups are better than for the general MAP cohort.	The MAP is mostly effective in reaching and meeting the needs of Māori, Pasifika and living in high deprivation. Health and economic outcomes for these groups are similar to the general MAP cohort.	There is low participation in the MAP by Māori, Pasifika and those living in high deprivation. Achievement of health and economic outcomes for those that do participate are lower than for the general MAP cohort.	Very few Māori, Pasifika and those living in high deprivation participate in the MAP. For those that do, there are substantial inequities in outcomes achieved compared to the general MAP cohort.
Economic impact	There is strong evidence that the MAP has enhanced participant productivity, reduced reliance on government supports, and created financial savings for the health system.	The MAP has made progress towards enhanced participant productivity, reduced reliance on government supports, and created financial savings for the health system.	The MAP has made some progress towards its expected economic outcomes, but its impact could be enhanced.	Very few, if any, of the expected economic outcomes and impacts have been achieved.
Consumer experience	The MAP meets consumer needs and expectations, providing a streamlined experience that equips them to self-manage their conditions. The consumer experience is consistently positive across all MAPs.	The MAP mostly meets consumer needs and expectations. Most consumers received a streamlined experience that equips them to self-manage their conditions. There is some minor variation in the quality of consumer experience across the MAPs.	The MAP meets the needs and expectation of some consumers, but many are not satisfied with the service. The consumer experience is varied, with some experiencing disjointed and/or ineffective services that did not equip them to self-manage their conditions.	The MAP did not meet the needs and expectations of the majority of consumers, the experience was disjointed and/or the MAP did not equip them to self-manage their conditions.

APPENDIX D: MAP PROVIDER AND MAP CHARACTERISTICS

Provider	**Provider**		**Delivery method**		**Programme Duration**		**Main referral source**		
	Private rehab	Mix	Group/ Mix	Individual	Short ≤ 10 weeks	Long ≥ 11 weeks	GP	Self-referral	Other
Programme 1	✓		✓	☐	✓		✓		
Programme 2	✓	☐	✓		✓		✓		
Programme 3	☐	✓	✓	☐	✓				✓
Programme 4	☐	✓		✓		✓	✓		
Programme 5	✓		✓	☐		✓	✓		
Programme 6	☐	✓	✓		✓				✓
Programme 7	✓	☐	✓	☐	✓			✓	
Programme 8		✓	✓		✓		✓		
Programme 9		✓		✓	☐	✓		✓	
Programme 10	☐	✓	✓	☐	✓	☐			✓
Programme 11	☐	✓	✓		✓	☐	✓		
Programme 12	✓		✓	☐	☐	✓	✓		
Programme 13	✓		✓			✓			✓
Programme 14	✓		✓	☐		✓	✓		

Programme 15	✓		✓		⍰	▪	✓		
Programme 16	✓		✓	☐	☐	✓	✓		
Programme 17	✓			✓	✓	☐	✓		

APPENDIX E: MAP EVALUATION CYCLE 2 DATA COLLECTION METHODS

The following information details the data collection methods used in Cycle 2 of the MAP evaluation.

Key informant interview

Allen + Clarke interviewed Ministry staff involved in the planning, governance, and management of the MAP (e.g., key informants). The interview lasted approximately 90 minutes. We interviewed face-to-face, and the interview was semi-structured around an interview guide which addressed the evaluation criteria. The interview followed a thorough informed consent process and were audio-recorded with permission so that written notes made during the interview could be verified.

Virtual focus group interviews with MAP providers

Two members of the evaluation team conducted four virtual focus-group interviews using Zoom (an online web platform), with key people from all service providers categorised into the four programme/provider areas of provider type, delivery type, programme duration and referral type. The virtual focus groups were approximately 60 minutes in duration. The virtual focus group programme was based on a sub-set of the interview guide questions used in the case studies. Participants were able to provide verbal, written feedback both during and after the focus group.

MAP participant data: Methodological and demographic information

Methodological information

An important component of the MAP was to collect health information from all participants at four points of their treatment experience: baseline (Time 1); discharge (Time 2); +3 months follow-up post-discharge (Time 3); and +12 months follow-up post-discharge (Time 4). MAP providers collected this health information and provided it to the Ministry. In turn, the Ministry provided the evaluation team with participants' de-identified data for analysis both across the cohort and across the MAPs.

For this report, data on 4,762 individuals who participated in the MAP were analysed. Of these individuals, 21 had participated in more than one MAP (i.e., had gone from one provider/programme to another during the course of the evaluation). For the purposes of the current analysis, these participants' data are considered as separate observations (i.e., resulting in a total of 4,783 observations analysed).

For each observation, the following basic clinical data were provided at Time 1:

- height;
- clinical diagnosis;
- referral source (e.g., GP, hospital, self-referral);
- duration of the condition; and
- comorbid health conditions.

Other data were collected for all participants across the other timepoints, including:

- weight;

- work status;
- healthcare utilisation;
- general health-related quality of life (i.e., SF-12 questionnaire; not collected at Time 2);
- condition-specific health-related quality of life and pain severity; and
- self-efficacy.

Condition-specific health-related quality of life measures included the Oxford Knee Score or OKS (2,023 patients, 14 programmes); the Oxford Hip Score or OHS (843 patients, 13 programmes); the Lower Extremity Function Scale or LEFS (670 patients, 11 programmes); the Roland Morris Low Back Pain Disability Questionnaire or RMDQ (1,045 patients, 9 programmes); the QuickDASH score for disorders of the arm and shoulder (95 patients, 5 programmes); and the Vernon Moir score for neck disorders (28 patients, 3 programmes). See also Section 2.2.1 for further details.

Data preparation

Of the 4,783 participants, 3,715 (78 percent) had reported data at Time 2; 3,178 (66 percent) at Time 3; and 2,900 (61 percent) at Time 4. Complete data on all variables was less: 4,340 participants (91 percent) had complete data for Time 1; 3,273 participants (68 percent) at Time 2; 2,426 (51 percent) participants at Time 3; and 2,131 (45 percent) participants at Time 4. Excluding weight, which was not collected for all participants at the later follow-ups, complete data were collected from 4,363 participants (91 percent) at Time 1; 3,544 (74 percent) at Time 2; 3,056 (64 percent) at Time 3; and 2,780 (58 percent) at Time 4.

Several issues with the raw data required data cleaning to ensure the dataset was correct, consistent and usable prior to undertaking any analysis. First, height and weight data were entered incorrectly for several patients. Heights of 0 (N =14), 1 (N = 2), 5 (N = 1), and 7.72 (N = 1) were considered to be data entry errors and treated as missing data. Recorded heights of between 1 and 2 (in cm) were assumed to be height in metres and corrected accordingly (N = 29). Seven further participants had heights of less than 100 (and calculated BMI > 100), which were treated as errors and removed. Recorded weights of 0 (N = 25), 1 (N = 1), 5 (N = 2), and 7.3 (N = 1) were assumed to be errors and treated as missing data. Where individuals' recorded weights changed dramatically, these were examined manually to identify likely data errors; some were assumed to be recorded in pounds and corrected accordingly.

Further, diagnosis data was coded as free-text, and as such had inconsistent notation, spelling errors, and multiple diagnoses for some participants. Data analysts attempted to group these into diagnosis categories by extraction of relevant key words, which was successful for the majority of observations; however, it is possible that some coding errors may remain. Diagnoses were coded, in priority order, as:

(1) osteoarthritis, if the recorded diagnosis text included the words 'OA' or 'arthritis' (or obvious misspellings of these);

(2) back pain if the text contained the words 'LBP', 'back' or 'spine';

(3) gout, if the text contained 'gout'; and

(4) knee/hip pain, not otherwise diagnosed, if the text contained the words 'knee' or 'hip' and none of the previous key words.

Diagnoses that did not match any of the specified key words were coded as 'other'.

In addition, SF-12 summary score data were incorrectly calculated as the sum of all SF-12 question responses. The SF-12 Physical Component Summary (PCS), Mental Component Summary (MCS), and SF-6D health utility values were recalculated correctly from the individual SF-12 questions. Stanford Self-Efficacy scores and Numerical Pain Rating Scale scores were incorrectly calculated as the sum of the question scores, instead of the average, for Programme 15 participants; these were recalculated accordingly.

Last, several participants had a value of less than 0 (N = 269) recorded for the Timed Up and Go test; these were treated as missing values. A further 15 participants had a value less than 2; these were considered to be errors and treated as missing values.

The following table provides total MAP participant observations across all data timepoints per programme.

Table 18: Number of MAP participants with recorded data, by programme and time point

MAP provider	Time 1: Baseline	Time 2: Discharge	Time 3: 3-month follow-up	Time 4: 12-month follow-up
Programme 1	276	179	138	138
Programme 2	459	301	227	210
Programme 3	93	64	52	53
Programme 4	160	96	81	61
Programme 5	377	306	290	273
Programme 6	161	133	100	70
Programme 7	191	170	154	138
Programme 8	296	257	250	241
Programme 9	330	228	40	18
Programme 10	237	201	179	152
Programme 11	410	266	321	315
Programme 12	486	423	372	299
Programme 13	101	98	85	65
Programme 14	245	202	190	189
Programme 15	309	246	250	236
Programme 16	364	316	290	299
Programme 17	288	229	159	143
Total	**4783**	**3715**	**3178**	**2900**

As previously described above and in Section 2.2., data on 12 quantitative health outcome measures were collected by MAPs to identify any changes in physical, functional and psychological components of participants' MSK conditions. The following table presents participants' mean or average scores for each of these measures across all four timepoints.

Table 19: Health outcomes at each time point (number of respondents in brackets)

Outcome	Baseline (Time 1)	Discharge (Time 2)	3-Month Follow-Up (Time 3)	12-Month Follow-Up (Time 4)
Numerical Pain Rating Scale	4.5 (4710)	3.3 (3645)	3.4 (3136)	3.3 (2871)
Timed Up and Go test	11.0 (4585)	9.0 (3490)	^	^
SF-12 Physical Health Score	36.2 (4651)	^	40.2 (3089)	39.8 (2820)
SF-12 Mental Health Score	48.3 (4651)	^	50.5 (3089)	50.1 (2820)
SF-6D Health Utility Value	0.65 (4674)	^	0.70 (3106)	0.70 (2843)
Stanford Self-Efficacy Score	6.0 (4704)	7.0 (3639)	6.9 (3130)	6.9 (2870)
Lower Extremity Function Scale	38.7 (667)	47.5 (508)	45.5 (455)	46.0 (442)
Oxford Hip Score	26.3 (840)	31.5 (670)	31.1 (571)	31.2 (501)
Oxford Knee Score	26.7 (2019)	31.8 (1575)	32.1 (1347)	32.2 (1210)
QuickDASH Score	38.5 (80)	27.9 (67)	35.0 (58)	37.3 (53)
Roland Morris Disability Questionnaire	9.6 (1044)	6.1 (778)	6.5 (687)	6.4 (660)
Vernon-Moir Index	16.5 (28)	11.5 (25)	13.0 (13)	16.8 (8)

Note: ^ indicates that no data were collected.

MAP participant data: Regression modelling and data adjustment

The MAPs recruited patients with different socio-demographic characteristics, from different referral sources and clinical history, and with a variety of MSK conditions and baseline health status. As these characteristics may be expected to affect participants' subsequent health outcomes as measured at subsequent follow-ups, it was important to adjust for differences in baseline characteristics when attempting to compare outcomes across programmes – particularly in the absence of any randomly-allocated control group (a non-MAP treatment control group would allow for comparison of trajectories between these two similar groups of patients).

Programme outcomes were estimated using linear regression, controlling for participant-level characteristics measured at Time 1: baseline health status (for the outcome measure being evaluated), age, gender, length of condition, obesity, diagnosis, socioeconomic deprivation, urban/rural residence, ethnicity, comorbid health conditions, and provider-level characteristics including whether providers were private rehabilitation agencies or DHB/non-profit organisations, whether the programme was delivered individually or in groups of participants, the duration of the programme, and the main referral source of the programme.

Adjusted outcomes for priority groups (Section 2.4 D3) and other demographic groups were then calculated using the Effects package in R to predict what would have been observed if the participants had the characteristics of the total sample (e.g., the same age distribution etc.). This adjustment allowed for unbiased comparison of outcomes across groups.

Economic modelling

As the design of the MAP did not include a control group to allow us to estimate the programme's effectiveness and cost-effectiveness, the MAP participant data was supplemented with previously-collected randomised trial data of similar patients (predominantly early- to mid-stage OA) and a closely-related exercise therapy intervention (the MOA trial). [Abbott JH, Robertson MC, Chapple C, et al. (2013) *Manual therapy, exercise therapy, or both, in addition to usual care, for osteoarthritis of the hip or knee: a randomized controlled trial. 1: clinical effectiveness*, Osteoarthritis and Cartilage 21:525-34; Abbott JH, Wilson R, Pinto D, et al. (2019) I*ncremental clinical effectiveness and cost effectiveness of providing supervised physiotherapy in addition to usual medical care in patients with osteoarthritis of the hip or knee: 2-year results of the MOA randomised controlled trial*, Osteoarthritis and Cartilage 27:424-34]

The MOA trial was a randomised controlled trial investigating the clinical- and cost-effectiveness of providing an individually tailored, supervised exercise physiotherapy intervention for people with hip or knee osteoarthritis. Participants were randomly assigned to either a 'usual care' control group, in which they continued to receive the usual medical care provided by their GP and other healthcare providers; an exercise therapy intervention group, who participated in a multi-model, supervised programme of warmup/aerobic, muscle strengthening, muscle stretching, and neuromuscular exercises delivered by a physiotherapist, as well as a home exercise programme to be completed three times per week; or manual therapy or combined manual and exercise therapy interventions, which were not considered in this analysis.

Health outcomes at baseline and follow-ups in the MAP and MOA trial were compared graphically to determine the baseline similarity and health outcome trajectories of the cohorts. Data collected in a comparable manner in both data sources and used for comparative analysis were self-rated pain (NPRS), Timed Up and Go test, SF-12 physical, mental, and general health-related quality of life, and the number of GP visits made for participants' MSK conditions.

To adjust for differences in baseline characteristics between samples, data from the MAP and the MOA trial were pooled and linear regression models estimated for each outcome. Baseline covariates used in the regression models were restricted to those measured in a similar manner in both data sources: age, gender, baseline health outcomes, and BMI.

Over the follow-up period, MAP participants had rapid improvements up to Time 3 on most outcomes that were similar to or greater than those seen in the MOA trial exercise therapy group, but slightly smaller long-term improvements at Time 4. MAP participants' outcomes for most measures and across all time points were better than the MOA trial usual care control group.

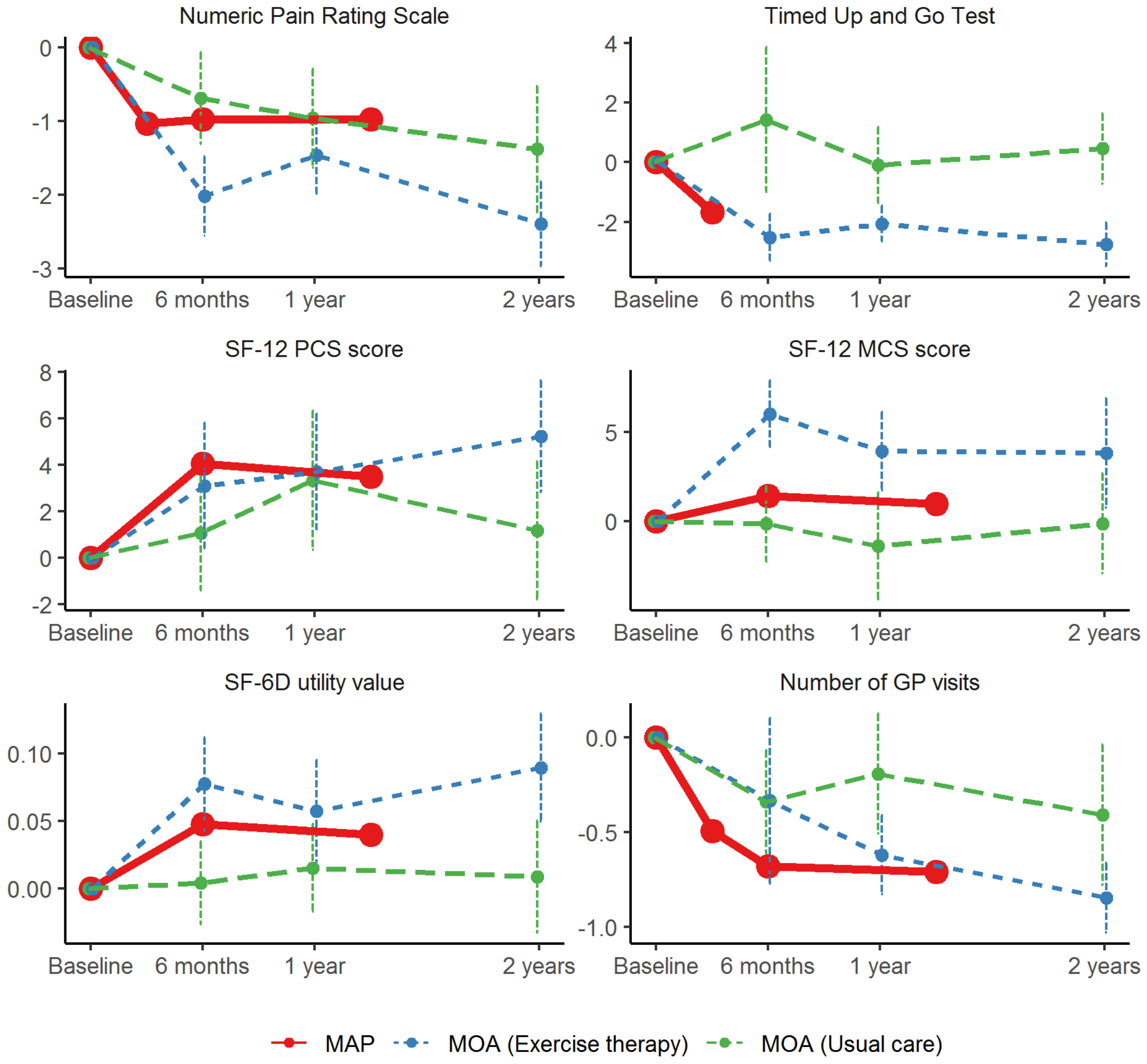
Further, MAP participants' pain levels (NPRS) improved at a similar rate to MOA trial exercise therapy group participants until Time 2 and remained approximately constant thereafter, while the MOA trial groups showed some continued improvement in pain until a two-year follow-up.

TU&G times improved rapidly for MAP participants from Time 1 to Time 2, at a similar rate to that seen in the MOA trial exercise therapy group. The TU&G test was not used at later follow-up points in the MAP, so no longer-term comparison can be made.

SF-12 PCS scores also improved rapidly from Time 1 to Time 3 in the MAP participant cohort at a similar rate as the MOA trial exercise therapy group but declined somewhat by Time 4. SF-12 MCS scores were slightly worse at baseline in the MAP participant cohort than the MOA trial groups, improved slightly at Time 3 and remained approximately constant at Time 4. SF-6D values were slightly worse at baseline in the MAP cohort, improved at a similar rate to the MOA trial exercise therapy group at Time 3, and deteriorated slightly by Time 4.

The number of reported GP visits was the only healthcare measure comparable between the MAP and MOA trial cohorts: MAP participants reported fewer GP visits than both MOA trial groups at all follow-up points (Figure 31).[61]

Figure 31: Change in health outcomes from baseline to follow-up, MAP and MOA trial samples



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[61] The data shows improvements in the usual care group of the MOA trial on some health outcomes. This is likely due to mean reversion. Outcomes in osteoarthritis fluctuate over time, and as people are more likely to be recruited into the programmes at a point when they have more severe symptoms, they tend to improve afterwards (at least over the short term) regardless of the effectiveness or otherwise of treatment.

Regression findings showed that the MAP's 'treatment effectiveness' (i.e., improvement relative to usual care) was positive for most outcomes, but smaller than the trial exercise therapy intervention.[62]

Overall, the MAP was estimated to have a relative effectiveness on health-related quality of life of 70 percent compared to the MOA trial exercise therapy intervention.[63,64]

Simulation modelling

The cost-effectiveness of the MAP was estimated using a previously-validated computer simulation model (the NZ-MOA model) of the disease course, health losses, and treatment costs of osteoarthritis in the NZ population. [Wilson R, Abbott JH (2018) *Development and validation of a new population-based simulation model of osteoarthritis in New Zealand*, Osteoarthritis and Cartilage 26:531-9.] In brief, the NZ-MOA model is a state-transition microsimulation model of the disease course of OA in the NZ population, including radiographic disease incidence and progression, fluctuation and gradual progression of disease symptoms and health-related quality of life impacts, and treatment pathways and their costs and health-related quality of life effects. By running the same simulated cohort through different hypothetical treatment pathways, the incremental costs and health gains of treatments can be estimated.

For evaluation of the MAP, the model was specified for a baseline population matching the age, gender, ethnic, and obesity distribution of the MAP cohort. All participants were assumed to have osteoarthritis at baseline, with disease progression and impact on health-related quality of life (without the impact of MAP participation) similar to those of all people with osteoarthritis in the NZ population. The 'treatment effect', or the incremental effect of participation in the MAP relative to this population trajectory, was estimated using the regression models specified in the pooled MAP and MOA trial data. Health-related quality of life was measured and valued using the SF-6D instrument, derived from the SF-12 data collected in both the MAP and MOA trial samples. As the data collected in the MAP could not be used to estimate longer-term healthcare cost impacts (e.g. cost savings due to reduction in other health service use), it was assumed that these would be proportional to the cost savings observed in long-term follow-up of the MOA trial participants, adjusted for differences in the relative effectiveness of the two interventions (as measured by general health-related quality of life).

For the primary analysis, data from all MAP participants were used to estimate model input parameters. As a sensitivity analysis, since the NZ-MOA model is designed to model the course of

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[62] Regression models were adjusted for differences in baseline characteristics between groups.

[63] MAP data could not be used to estimate longer-term healthcare costs (e.g., cost savings due to reductions in other health service use). An assumption was therefore made that costs would be proportional to savings observed in the long-term follow-up of MOA participants (i.e., 70 percent of cost savings observed in the MOA trial exercise therapy group aligned with 70 percent relative effectiveness in overall health-related quality of life outcomes).

[64] Cost savings were assumed to be realised from the second year and onwards (as only small reductions in health service use were observed in Time 4 data, which is consistent with MOA trial results). Further, direct programme costs were used for the first year of MAP only, and were based on budgeted per-participant costs using provider contracts. The budgeted per-participant costs also include an allocation for data collection to support programme evaluation, which would not be required in an operational programme. Results may therefore not reflect the actual costs of service delivery.

osteoarthritis only, treatment effects were estimated using only data from MAP participants with a diagnosis of OA (approximately 77 percent of the MAP cohort).

The simulated cohort was run through two scenarios, reflecting 'usual care' assumed to be received in the absence of MAP participation, and observed and projected outcomes for participants having been through the MAP; the difference between these scenarios gives the estimated incremental effect of MAP participation.

Projected impacts of the MAP were estimated for follow-up time horizons of one, three, five, 10, and 15 years to look at short-, medium-, and long-term impacts. The outcome measures evaluated for the cost-effectiveness analysis were health gains (quality-adjusted life years, or QALYs; a measure combining both quality and quantity of time spent with health impairments/gains), total healthcare costs, and incremental net monetary benefit (INMB). The INMB is a measure of the overall cost-effectiveness of a treatment from the perspective of the healthcare system, assuming a given level of willingness-to-pay (WTP) for healthcare to achieve a given health gain. There are several methods available to choose this WTP level and little consensus on what approach should be used; for this analysis, a value of $57,500 per QALY gained, equivalent to NZ GDP per capita in 2017, was used (as recommended by the WHO).

Uncertainty in the simulation modelling results is assessed using probabilistic sensitivity analysis (PSA). This involves re-running the model for a large number of simulated cohorts; in each separate simulation run, the parameter inputs (treatment effects on SF-6D health utility, healthcare costs, and BMI) are drawn as random values from the distributions estimated by the regression models. Each simulation run therefore gives a different resulting cost-effectiveness estimate, based on the uncertainty in model inputs, and the resulting distribution of cost-effectiveness results is used to estimate the uncertainty in these outcomes. The uncertainty analysis is used to generate 90% uncertainty intervals around each estimated result, as well as to construct a cost-effectiveness plane to visually examine the uncertainty in the key outcomes of incremental healthcare costs, QALY gains, and net monetary benefit.

Consumer survey

An anonymous survey of all MAP consumers was administered using SurveyMonkey and a paper-based version of the survey to the entire MAP cohort[65] during Cycle 1 to obtain quantifiable data on the prevalence of the views, issues and impacts regarding the consumer experience of the MAP. The survey asked questions about each of the evaluation themes using mainly closed questions with some open-text responses. In total, 1,019 clients from a possible 3,453 (29.5 percent) completed the survey. There were clients from 17 Mobility Action Programme (MAP) providers. The majority (57.3 percent) completed the survey using paper with remaining online (42.7 percent). Data was initially aggregated and cleaned using Microsoft Excel and key variables were transformed to binary indicators for analysis (Table 20).

Logistic regression modelling

A logistic regression model in SPSS was used to test for differences by age, gender, ethnicity, and provider characteristics (Table 20**Error! Reference source not found.**) for each of the outcome v ariables. If there were less than 10 responses in one of the two outcome categories in the proposed model, a logistic regression was not attempted.

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[65] This includes both completers and non-completers.

Table 20. Logistic Regression Coding.

Variable	Category	Coding
Referral	GP	1
	Not GP	0
Age	18 to 60 (working age)	1
	61+	0
Ethnicity	Māori	1
	Not Māori	0
MAP type	Private rehab	1
	Mixed	0
Duration	Short	1
	Long	0
Delivery method	Group or mix	1
	Individual	0
Gender (gender diverse coded as missing)	Female	1
	Male	0

There were more females (71%) than males and 28% were 60 years of age or younger. Fewer Māori (6.6%) and Pacific than may be expected responded (5.1%).

Table 21: Consumer survey demographic breakdown: Age x Gender.

Age	Female	Gender diverse	Male	Prefer not to say	Missing	Grand Total
18 - 30 years	7					**7**
31 - 40 years	12		4			**16**
41 - 50 years	41		19			**60**
51 - 60 years	150		43			**193**
61 - 70 years	265	1	107	1	2	**376**
71 - 80 years	189		91		4	**284**
81 - 90 years	20		21		3	**44**
91 years or more	1					**1**
Prefer not to say	1					**1**
Missing					37	**37**
Grand Total	**686**	**1**	**285**	**1**	**46**	**1019**

Table 22. Consumer survey demographic breakdown: Ethnicity (counts and percentages).

Ethnicity	Count
Māori	67 (6.6%)
Pacific peoples	52 (5.1%)
Asian	13 (1.3%)
Indian	2 (0.2%)
MELAA	1 (0.1%)
European	837 (82%)
Other	1 (0.1%)
Did not answer	46 (4.5%)

Table 23. Time since MAP completion (counts and percentages).

Time since completion	Count
Still doing the MAP	127 (13%)
Less than 3 months ago	232 (23%)
Less than 12 months ago	387 (39%)
More than 12 months ago	259 (26%)

The overall response rate saw almost a third of the possible 3,453 clients respond to the survey, this varied by provider with very few clients from Programme 9 (7 clients) and Programme 11 (1 client) responding.

Table 24. Consumer survey provider response rates (counts and percentage of that programme's total participant numbers)

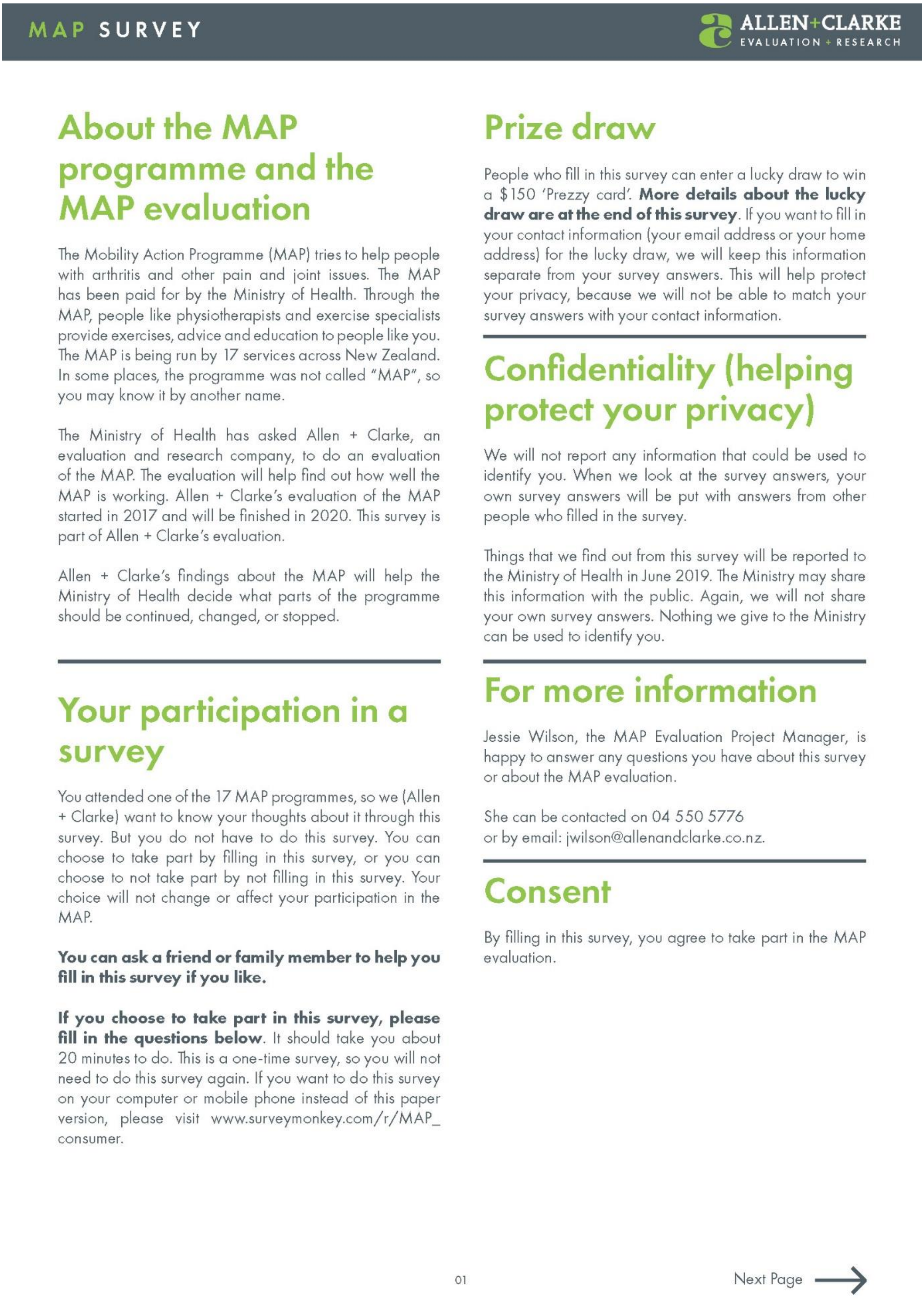
Provider	Count
Programme 1	30 (18%)
Programme 2	39 (10%)
Programme 3	20 (38%)
Programme 4	15 (13%)
Programme 5	106 (29%)
Programme 6	71 (64%)
Programme 7	67 (81%)
Programme 8	72 (37%)
Programme 9	7 (7.4%)
Programme 10	67 (67%)
Programme 11	1 (0.3%)

Provider	Count
Programme 12	142 (30%)
Programme 13	35 (44%)
Programme 14	64 (38%)
Programme 15	34 (47%)
Programme 16	85 (27%)
Programme 17	109 (43%)

APPENDIX F: COPY OF MAP CONSUMER SURVEY

MOBILITY ACTION PROGRAMME (MAP) SURVEY

A survey to find out about your experience of the Mobility Action Programme



MAP SURVEY

ALLEN+CLARKE
EVALUATION + RESEARCH

About the MAP programme and the MAP evaluation

The Mobility Action Programme (MAP) tries to help people with arthritis and other pain and joint issues. The MAP has been paid for by the Ministry of Health. Through the MAP, people like physiotherapists and exercise specialists provide exercises, advice and education to people like you. The MAP is being run by 17 services across New Zealand. In some places, the programme was not called "MAP", so you may know it by another name.

The Ministry of Health has asked Allen + Clarke, an evaluation and research company, to do an evaluation of the MAP. The evaluation will help find out how well the MAP is working. Allen + Clarke's evaluation of the MAP started in 2017 and will be finished in 2020. This survey is part of Allen + Clarke's evaluation.

Allen + Clarke's findings about the MAP will help the Ministry of Health decide what parts of the programme should be continued, changed, or stopped.

Your participation in a survey

You attended one of the 17 MAP programmes, so we (Allen + Clarke) want to know your thoughts about it through this survey. But you do not have to do this survey. You can choose to take part by filling in this survey, or you can choose to not take part by not filling in this survey. Your choice will not change or affect your participation in the MAP.

You can ask a friend or family member to help you fill in this survey if you like.

If you choose to take part in this survey, please fill in the questions below. It should take you about 20 minutes to do. This is a one-time survey, so you will not need to do this survey again. If you want to do this survey on your computer or mobile phone instead of this paper version, please visit www.surveymonkey.com/r/MAP_consumer.

Prize draw

People who fill in this survey can enter a lucky draw to win a $150 'Prezzy card'. **More details about the lucky draw are at the end of this survey**. If you want to fill in your contact information (your email address or your home address) for the lucky draw, we will keep this information separate from your survey answers. This will help protect your privacy, because we will not be able to match your survey answers with your contact information.

Confidentiality (helping protect your privacy)

We will not report any information that could be used to identify you. When we look at the survey answers, your own survey answers will be put with answers from other people who filled in the survey.

Things that we find out from this survey will be reported to the Ministry of Health in June 2019. The Ministry may share this information with the public. Again, we will not share your own survey answers. Nothing we give to the Ministry can be used to identify you.

For more information

Jessie Wilson, the MAP Evaluation Project Manager, is happy to answer any questions you have about this survey or about the MAP evaluation.

She can be contacted on 04 550 5776
or by email: jwilson@allenandclarke.co.nz.

Consent

By filling in this survey, you agree to take part in the MAP evaluation.

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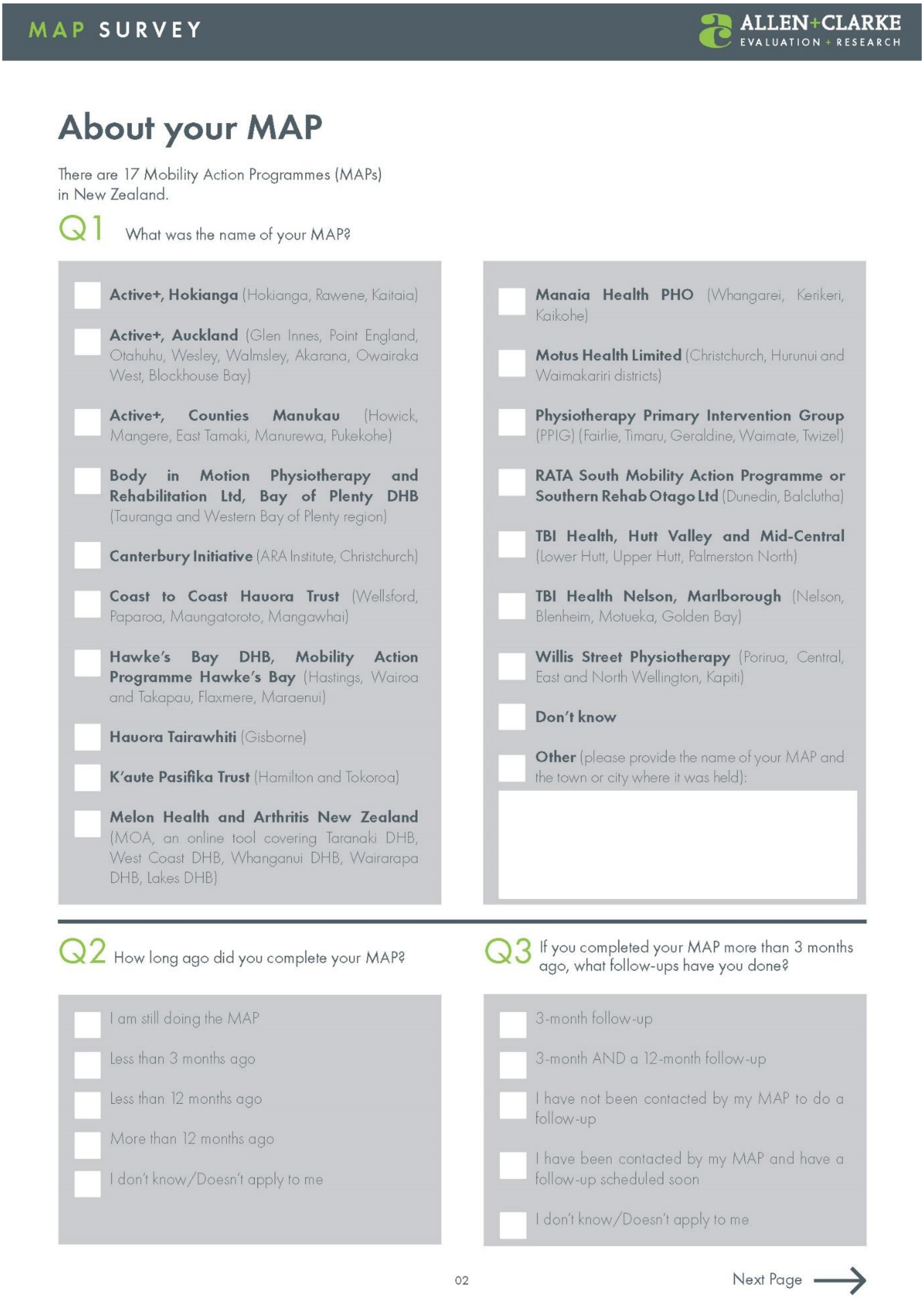

MAP SURVEY

ALLEN+CLARKE
EVALUATION + RESEARCH

About your MAP

There are 17 Mobility Action Programmes (MAPs) in New Zealand.

Q1 What was the name of your MAP?

- ☐ **Active+, Hokianga** (Hokianga, Rawene, Kaitaia)
- ☐ **Active+, Auckland** (Glen Innes, Point England, Otahuhu, Wesley, Walmsley, Akarana, Owairaka West, Blockhouse Bay)
- ☐ **Active+, Counties Manukau** (Howick, Mangere, East Tamaki, Manurewa, Pukekohe)
- ☐ **Body in Motion Physiotherapy and Rehabilitation Ltd, Bay of Plenty DHB** (Tauranga and Western Bay of Plenty region)
- ☐ **Canterbury Initiative** (ARA Institute, Christchurch)
- ☐ **Coast to Coast Hauora Trust** (Wellsford, Paparoa, Maungatoroto, Mangawhai)
- ☐ **Hawke's Bay DHB, Mobility Action Programme Hawke's Bay** (Hastings, Wairoa and Takapau, Flaxmere, Maraenui)
- ☐ **Hauora Tairawhiti** (Gisborne)
- ☐ **K'aute Pasifika Trust** (Hamilton and Tokoroa)
- ☐ **Melon Health and Arthritis New Zealand** (MOA, an online tool covering Taranaki DHB, West Coast DHB, Whanganui DHB, Wairarapa DHB, Lakes DHB)
- ☐ **Manaia Health PHO** (Whangarei, Kerikeri, Kaikohe)
- ☐ **Motus Health Limited** (Christchurch, Hurunui and Waimakariri districts)
- ☐ **Physiotherapy Primary Intervention Group** (PPIG) (Fairlie, Timaru, Geraldine, Waimate, Twizel)
- ☐ **RATA South Mobility Action Programme or Southern Rehab Otago Ltd** (Dunedin, Balclutha)
- ☐ **TBI Health, Hutt Valley and Mid-Central** (Lower Hutt, Upper Hutt, Palmerston North)
- ☐ **TBI Health Nelson, Marlborough** (Nelson, Blenheim, Motueka, Golden Bay)
- ☐ **Willis Street Physiotherapy** (Porirua, Central, East and North Wellington, Kapiti)
- ☐ **Don't know**
- ☐ **Other** (please provide the name of your MAP and the town or city where it was held):

Q2 How long ago did you complete your MAP?

- ☐ I am still doing the MAP
- ☐ Less than 3 months ago
- ☐ Less than 12 months ago
- ☐ More than 12 months ago
- ☐ I don't know/Doesn't apply to me

Q3 If you completed your MAP more than 3 months ago, what follow-ups have you done?

- ☐ 3-month follow-up
- ☐ 3-month AND a 12-month follow-up
- ☐ I have not been contacted by my MAP to do a follow-up
- ☐ I have been contacted by my MAP and have a follow-up scheduled soon
- ☐ I don't know/Doesn't apply to me

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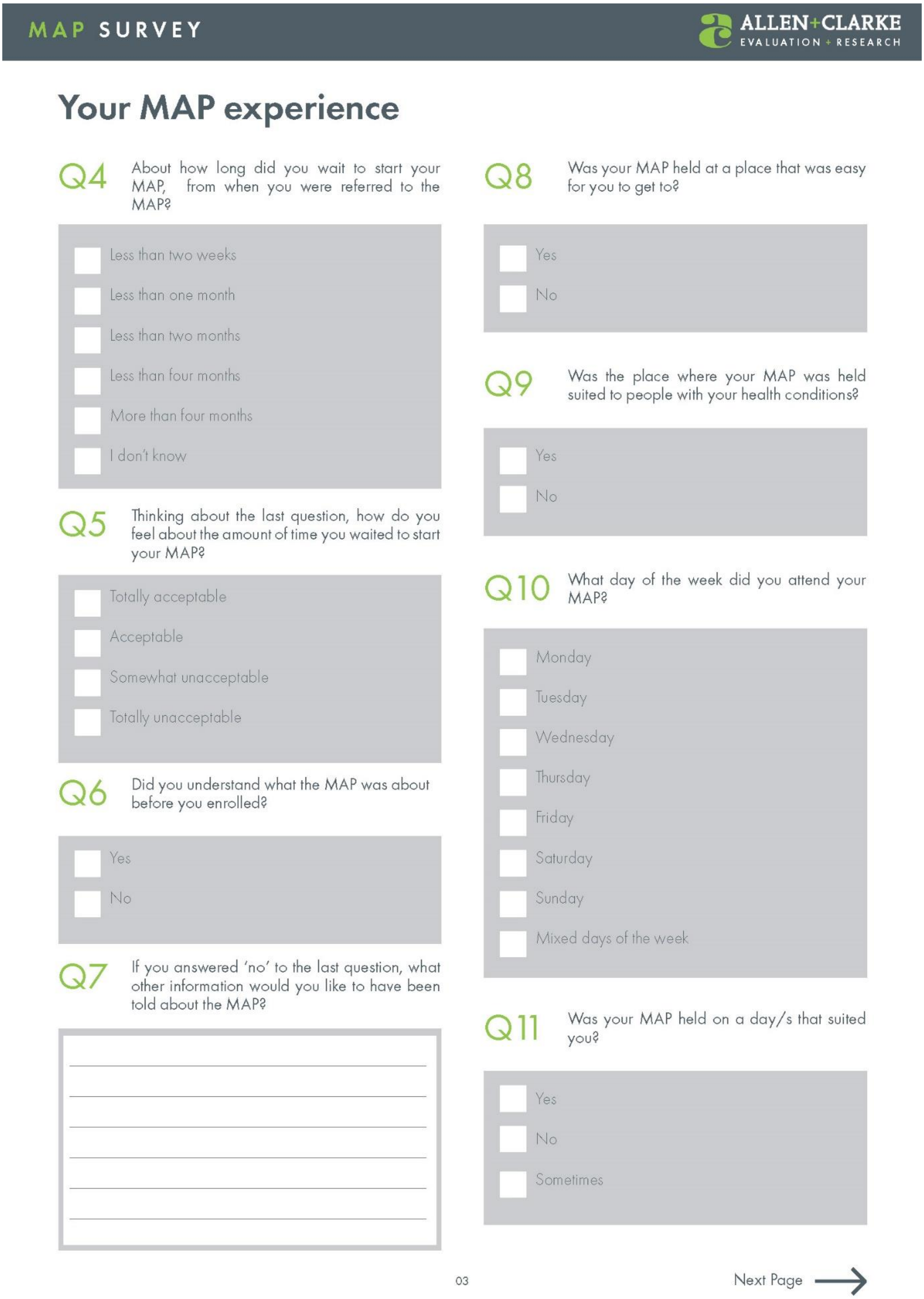

MAP SURVEY

ALLEN+CLARKE
EVALUATION + RESEARCH

Your MAP experience

Q4 About how long did you wait to start your MAP, from when you were referred to the MAP?

☐ Less than two weeks
☐ Less than one month
☐ Less than two months
☐ Less than four months
☐ More than four months
☐ I don't know

Q5 Thinking about the last question, how do you feel about the amount of time you waited to start your MAP?

☐ Totally acceptable
☐ Acceptable
☐ Somewhat unacceptable
☐ Totally unacceptable

Q6 Did you understand what the MAP was about before you enrolled?

☐ Yes
☐ No

Q7 If you answered 'no' to the last question, what other information would you like to have been told about the MAP?

Q8 Was your MAP held at a place that was easy for you to get to?

☐ Yes
☐ No

Q9 Was the place where your MAP was held suited to people with your health conditions?

☐ Yes
☐ No

Q10 What day of the week did you attend your MAP?

☐ Monday
☐ Tuesday
☐ Wednesday
☐ Thursday
☐ Friday
☐ Saturday
☐ Sunday
☐ Mixed days of the week

Q11 Was your MAP held on a day/s that suited you?

☐ Yes
☐ No
☐ Sometimes

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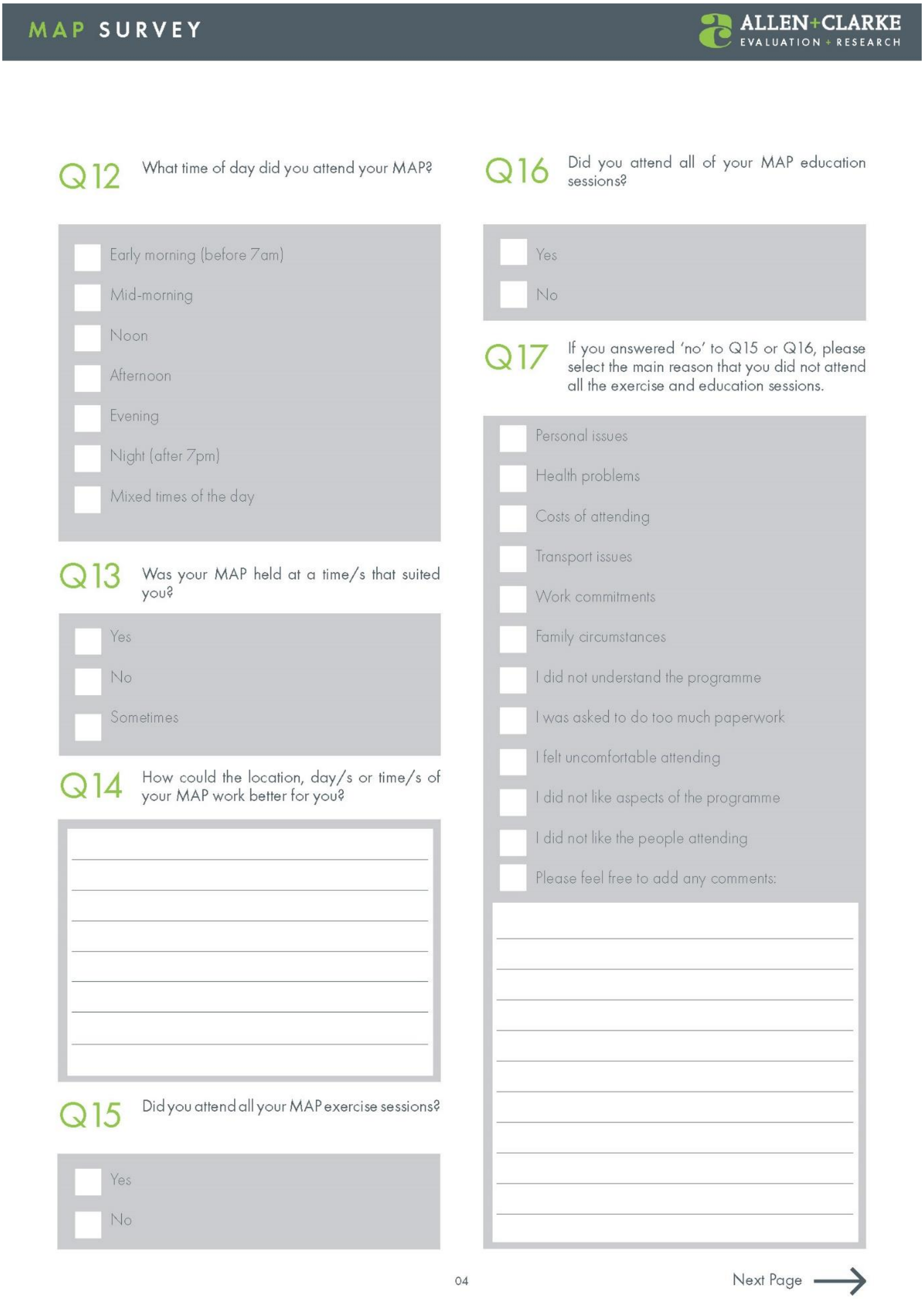

Q12 What time of day did you attend your MAP?

☐ Early morning (before 7am)
☐ Mid-morning
☐ Noon
☐ Afternoon
☐ Evening
☐ Night (after 7pm)
☐ Mixed times of the day

Q13 Was your MAP held at a time/s that suited you?

☐ Yes
☐ No
☐ Sometimes

Q14 How could the location, day/s or time/s of your MAP work better for you?

Q15 Did you attend all your MAP exercise sessions?

☐ Yes
☐ No

Q16 Did you attend all of your MAP education sessions?

☐ Yes
☐ No

Q17 If you answered 'no' to Q15 or Q16, please select the main reason that you did not attend all the exercise and education sessions.

☐ Personal issues
☐ Health problems
☐ Costs of attending
☐ Transport issues
☐ Work commitments
☐ Family circumstances
☐ I did not understand the programme
☐ I was asked to do too much paperwork
☐ I felt uncomfortable attending
☐ I did not like aspects of the programme
☐ I did not like the people attending
☐ Please feel free to add any comments:

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MAP SURVEY

ALLEN+CLARKE
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Q18

Did your involvement in the MAP result in you paying less in medical costs (such as fewer visits to your GP or spending less on pain relief)?

☐ No
☐ Yes

You are welcome to give an example or comment below:

Q19

Did you have to pay to attend your MAP?

☐ No (go to question 21)
☐ Yes (go to question 20)

Q20

Did you have to go without something so that you could afford to pay for your MAP?

☐ No (Go to question 21)
☐ Yes

You are welcome to give an example or comment below:

Q21

What other things did you have to pay for so that you could attend your MAP?

☐ No other costs
☐ Childcare
☐ Clothing or shoes for exercise
☐ Leave from work so that I could go to the MAP (such as leave without pay, annual leave or sick leave)
☐ Other gym and/or exercise costs (such as drink bottles, equipment)
☐ Parking
☐ Petrol for my or my driver's car
☐ Public transport
☐ Taxi

Feel free to comment about things you had to pay for so you could attend your MAP:

Q22

How expensive were the total costs you had to pay to participate in your MAP?

☐ Free
☐ Not expensive ($)
☐ Somewhat expensive ($$)
☐ Very expensive ($$$)

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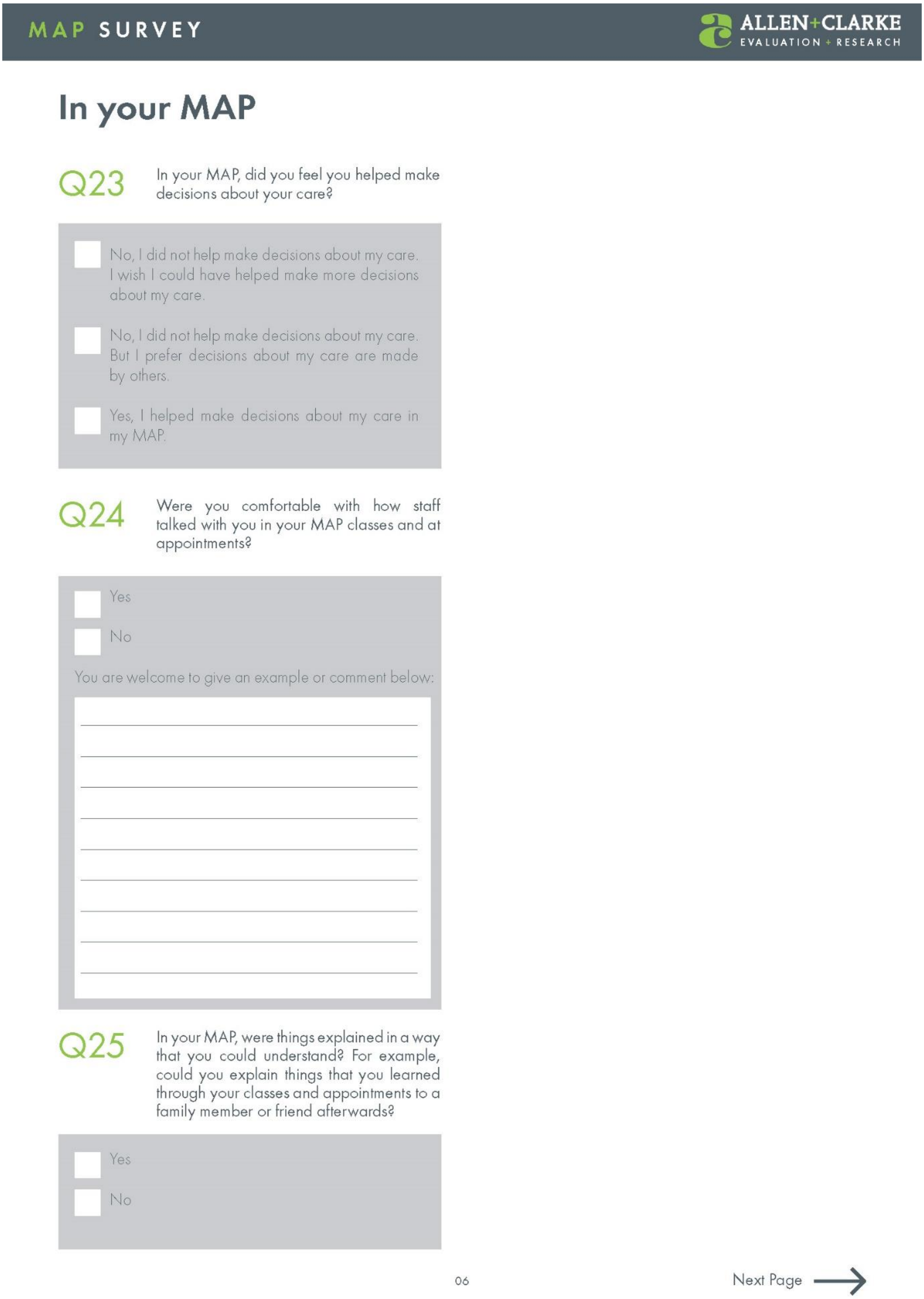

MAP SURVEY

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In your MAP

Q23 In your MAP, did you feel you helped make decisions about your care?

☐ No, I did not help make decisions about my care. I wish I could have helped make more decisions about my care.

☐ No, I did not help make decisions about my care. But I prefer decisions about my care are made by others.

☐ Yes, I helped make decisions about my care in my MAP.

Q24 Were you comfortable with how staff talked with you in your MAP classes and at appointments?

☐ Yes

☐ No

You are welcome to give an example or comment below:

Q25 In your MAP, were things explained in a way that you could understand? For example, could you explain things that you learned through your classes and appointments to a family member or friend afterwards?

☐ Yes

☐ No

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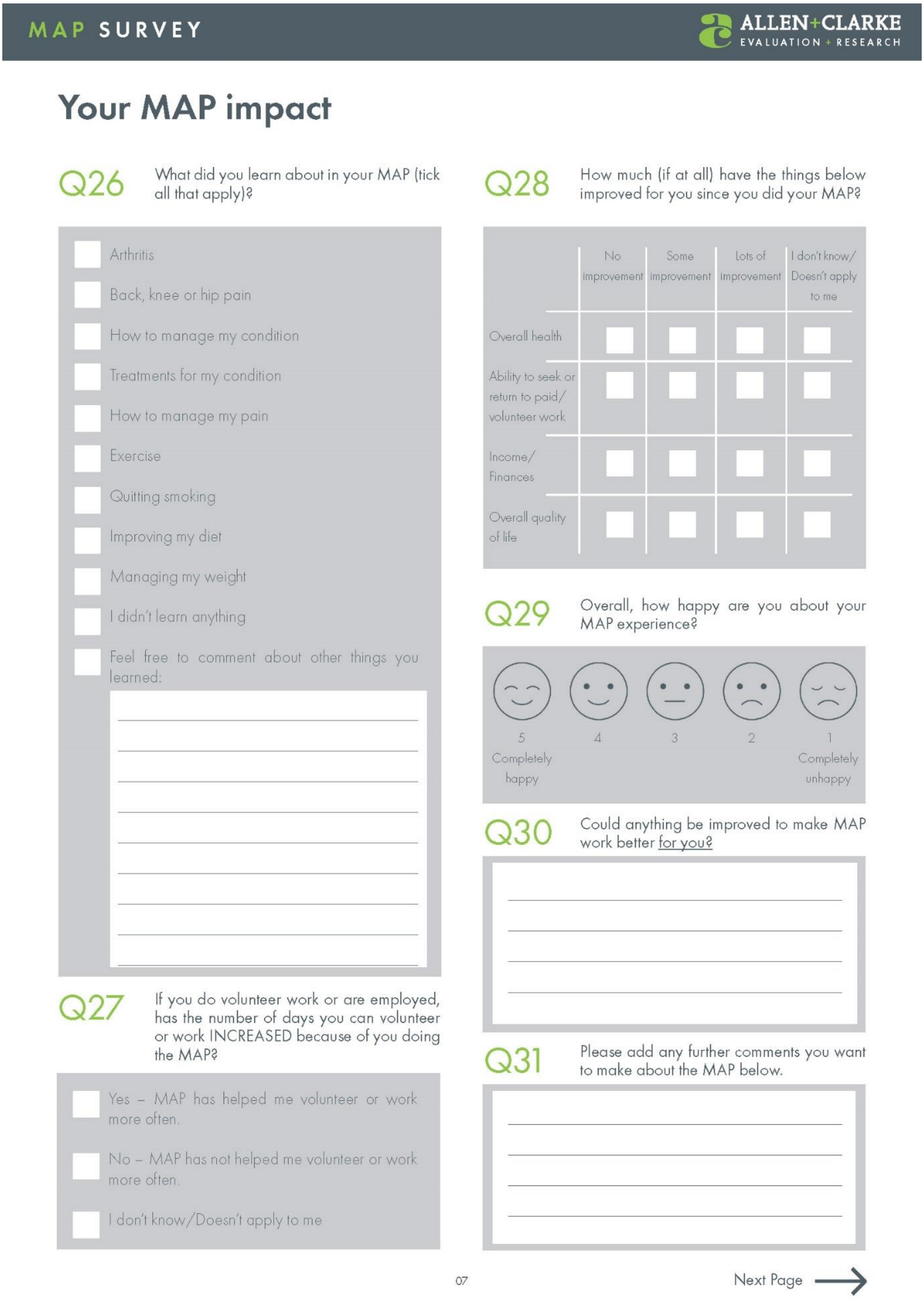

MAP SURVEY

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Your MAP impact

Q26 What did you learn about in your MAP (tick all that apply)?

- ☐ Arthritis
- ☐ Back, knee or hip pain
- ☐ How to manage my condition
- ☐ Treatments for my condition
- ☐ How to manage my pain
- ☐ Exercise
- ☐ Quitting smoking
- ☐ Improving my diet
- ☐ Managing my weight
- ☐ I didn't learn anything
- ☐ Feel free to comment about other things you learned:

Q27 If you do volunteer work or are employed, has the number of days you can volunteer or work INCREASED because of you doing the MAP?

- ☐ Yes – MAP has helped me volunteer or work more often.
- ☐ No – MAP has not helped me volunteer or work more often.
- ☐ I don't know/Doesn't apply to me

Q28 How much (if at all) have the things below improved for you since you did your MAP?

	No improvement	Some improvement	Lots of improvement	I don't know/ Doesn't apply to me
Overall health	☐	☐	☐	☐
Ability to seek or return to paid/ volunteer work	☐	☐	☐	☐
Income/ Finances	☐	☐	☐	☐
Overall quality of life	☐	☐	☐	☐

Q29 Overall, how happy are you about your MAP experience?

5 Completely happy	4	3	2	1 Completely unhappy

Q30 Could anything be improved to make MAP work better for you?

Q31 Please add any further comments you want to make about the MAP below.

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About you

If you are answering for someone else, please make sure to answer these questions about the person who did the MAP and not yourself.

Q32 Please tell us your gender.

☐ Female
☐ Male
☐ Gender Diverse
☐ Prefer not to say

Q33 Please tell us your age.

☐ 18 – 30
☐ 31 – 40
☐ 41 – 50
☐ 51 – 60
☐ 61 – 70
☐ 71 – 80
☐ 81 – 90
☐ 91 or older
☐ Prefer not to say

Q34 Please tell us which of the one following ethnic groups you mainly identify with.

☐ Asian
☐ European
☐ Māori
☐ Middle Eastern/Latin American/African
☐ Pacific Peoples
☐ Another ethnicity (please state)
☐ Prefer not to say

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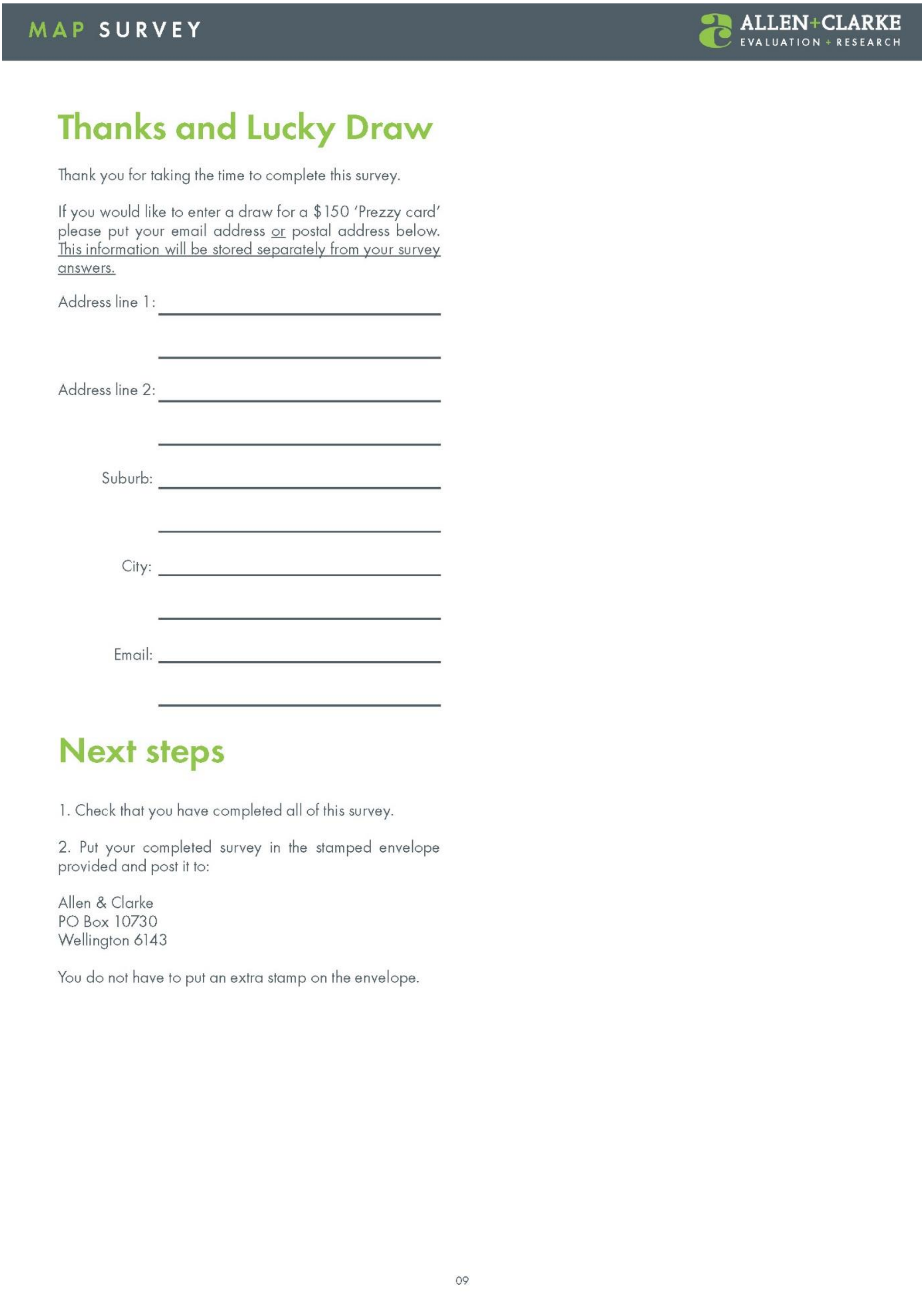

Thanks and Lucky Draw

Thank you for taking the time to complete this survey.

If you would like to enter a draw for a $150 'Prezzy card' please put your email address or postal address below. This information will be stored separately from your survey answers.

Address line 1: ________________________________
____
Address line 2: ________________________________
____
Suburb: ________________________________
____
City: ________________________________
____
Email: ________________________________
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Next steps

1. Check that you have completed all of this survey.

2. Put your completed survey in the stamped envelope provided and post it to:

Allen & Clarke
PO Box 10730
Wellington 6143

You do not have to put an extra stamp on the envelope.