

Prevention and system mapping to inform upstream intervention to reduce orthopaedic demand

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Contents

Contents.....1

Early findings.....2

What we did.....2

Four levels of intervention.....3

Pre-symptomatic intervention opportunities.....4

Early symptom development intervention opportunities.....5

Established symptoms intervention opportunities 6

Advanced condition intervention opportunities 7

Next steps 8

Early findings

Healthcare Improvement Scotland undertook a Prevention Mapping exercise as a way to support modelling around upstream interventions that can reduce orthopaedic demand. This report represents the findings from Phase One of the project. The report is designed as a starting point for discussions to inform the next phase. It starts the thinking around elements of a preventative approach to reducing orthopaedic demand. The next steps will be to work with one area to critically engage with these early findings, and develop a more detailed approach to flow and financial modelling that will support decision making.

What we did

The aim of this exercise is to:

- Identify upstream intervention that can reduce demand on specialist orthopaedic services, including surgery.
- Build an evidence base to support decision making about where to target investment upstream at different points in the system.
- Take a person-centred approach which considers how interventions need to be delivered to support engagement with services, and therefore realise the benefits of the interventions.
- Utilise research findings to undertake modelling based on Scottish data to inform sub-national planning.

Through an initial evidence review we have built an understanding of what interventions are effective in supporting musculoskeletal (MSK) issues at different points. And how these can divert people away from condition deterioration and surgery.

Using this as an evidenced based model for use in planning, we next want to look at:

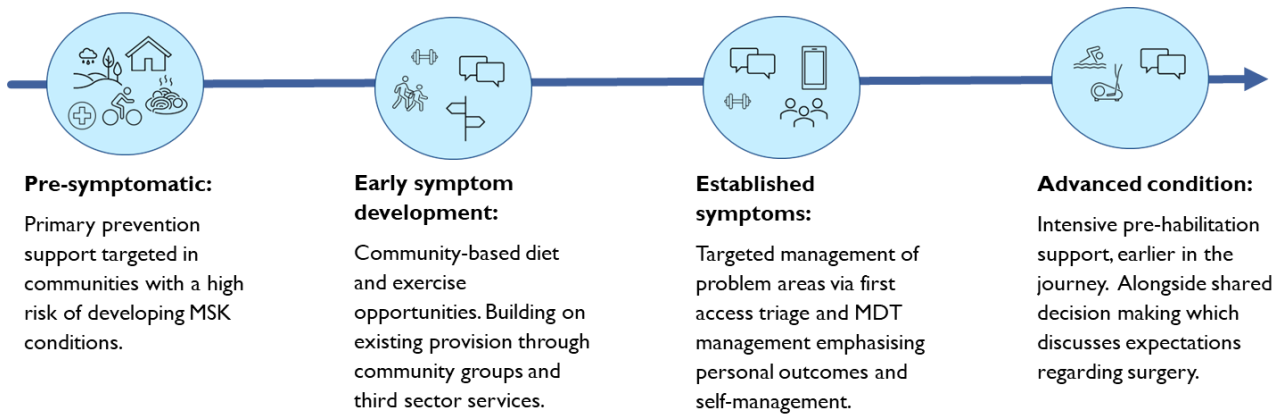
- The numbers of people likely to benefit at each stage.
- What current workforce capacity is, and what it will likely need to be.

This will help us establish:

- The scale of investment required to implement these models.
- What scale of impact can be expected from the different models.

We also want to look at specific cohorts to try and estimate the length of time for impacts to be felt within orthopaedic services.

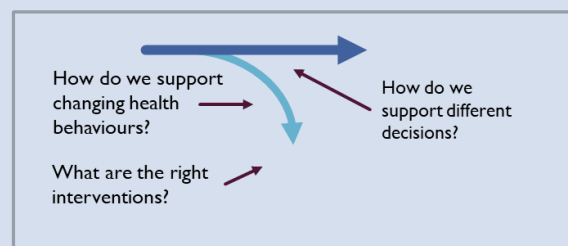
Four levels of intervention



Key components of this evidence-based model for conservative management of MSK conditions are:

- Rapid-access MSK triage led by Allied Health Professionals (AHPs) and First Contact Practitioners.
- Multi-disciplinary team (MDT) management based in primary care, with physiotherapy, joint pain practitioners, dietitians and others.
- Behaviorally informed physical activity programmes addressing pain beliefs.
- Community-based group delivery models to increase reach and reduce cost.
- ‘Waiting well’ support to reduce risks of deterioration of conditions; and robust ‘pre-habilitation’ services that can help people reconsider the need for elective surgery.

Approach to understanding how we shift services and behaviours to redirect demand for specialist orthopaedic services at different points.



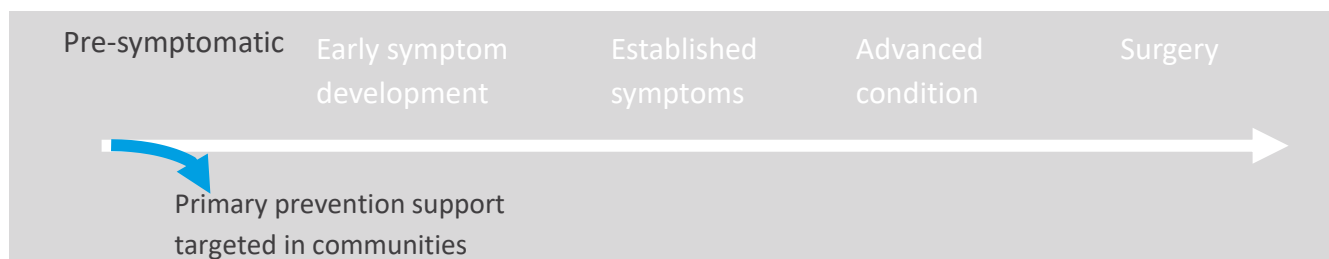
To do this we want to understand how to optimise demand and use patient-centred outcomes (such as ICHOM) to support shared decision making.

We also looked at what the evidence said about ensuring that people engage with preventative and early intervention services.

Here the evidence highlights the importance of:

- Self-managed activities that help people feel they have control over their condition.
- Conversations about personal outcomes and motivational interviewing techniques.
- Addressing fears regarding exercise and pain.
- Shared decision making, informed by a range of practitioners and incorporating patient-reported outcomes to guide conversations relating to treatment options.

Pre-symptomatic intervention opportunities



Pre-symptomatic:

Primary prevention support targeted in communities with a high risk of developing MSK conditions. Such as demographic communities and those with conditions that have high co-morbidity rates.

What these look like

- Primary prevention health messaging in specific communities, working with grassroots organisations who have strong links with communities where there are high MSK related health inequalities.
- Information and support for people supporting those with things such as menopause, cancer treatment and diabetes, to highlight risks and encourage diet and exercise.

Benefits

- Improving overall health lowers the risk of developing MSK related conditions.
- Public health messaging has been shown to reduce prevalence of lower back pain.
- Increased health literacy and understanding of early symptoms results in better engagement with services.

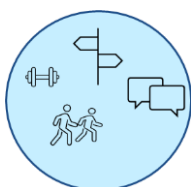
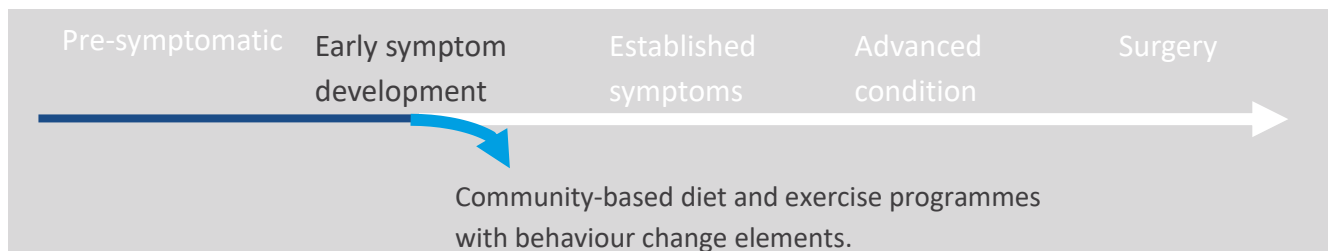
How to make them work

- Targeted messaging needs to be culturally tailored and delivered through trusted organisations and people – this includes non-health.
- Support to staff delivering messages so that they feel confident spotting the signs of particular risks, and feel confident in speaking with people about potential prevention approaches.

Examples of impact

- Little evidence of causal links between this type of intervention and reduced demand on specialist orthopaedic services.
- A key figure is that for every BMI increase of 1kg/m^2 the risk of developing osteoarthritis increases by 1%.
- These are low-cost high-reach interventions, and can help mitigate risks for:
 - 20% of the population living in the highest quintile of deprivation.
 - 32% of the population with an unhealthy weight.
 - 13% of the population living with a long-term condition, including MSK.

Early symptom development intervention opportunities



Early symptom development:

Community-based diet and exercise opportunities. Building on existing provision through community groups and third sector services. Digital supported self-management.

What these look like

- Broad programmes for early symptoms such as pain and stiffness.
- A blend of coaching around diet and exercise, along with behaviour change.
- Clear planning from first contact service to emphasise benefits and address fears regarding pain exacerbation.

Benefits

- Reduces symptoms around pain, mobility and strength which lead people to seek more intensive treatment.
- Reduces risks linked to developing established MSK conditions.
- Builds self-efficacy which has a causal link with lower lifetime interactions with specialist orthopaedic services.

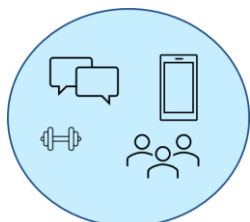
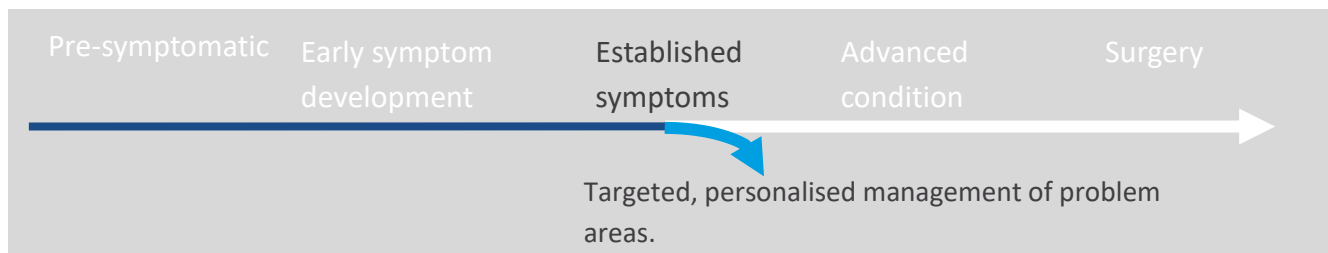
How to make them work

- Healthcare professionals need to have the right tools to support conversations about starting exercise – to alleviate fears about exacerbations and fatigue, and address potential barriers.
- Screening and the development of a clear 'mild needs' care package results in higher engagement than signposting alone.
- Use existing community groups and resources as a nucleus to grow activity around.
- Provision of equipment and, or gym memberships proves effective for long-term self-management.

Examples of impact

- The Active Lives programme saved £6.47 in treatment costs of each £1 spent.
- One digital self-management pilot noted that 62% of users required no further use of NHS services.
- Walk with Ease reported outcomes for people that have the potential to reduce risk of developing osteoarthritis for one cohort by 8%, translating to 28,000 people in Scotland avoiding the condition.

Established symptoms intervention opportunities



Established symptoms:

Targeted management of problem areas via first access triage and MDT management emphasising personal outcomes and self-management. Delivered through things like Community Appointment Days, and supported with Patient Reported Outcome Measures.

What these look like

- Case coordination and integration with routing care, led by physiotherapy.
- A multidisciplinary care plan which includes input from physiotherapists, health psychologists, and rehabilitation teams, digital health support, dietitians and nutritionists and weight loss support.
- Clear tailoring to individual goals and circumstances, considering intensity, locus of care, access to exercise activities and symptoms.

Benefits

- Supports improvements in function comparable to surgical interventions.
- Avoids unnecessary onward referral to orthopaedics and use of investigation resources such as imaging.
- Supports ongoing self-efficacy.

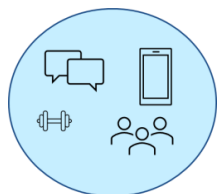
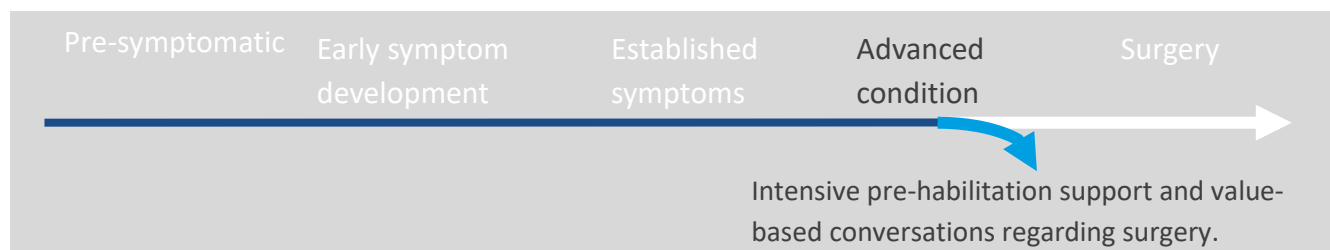
How to make them work

- Having first contact triage or physiotherapy ensures that people can quickly access non-clinical support, before medication and imaging reinforces a clinical direction of travel for treatment.
- Motivational interviewing techniques improve symptoms and provide sustainable changes as people feel more confident to address their self-limiting beliefs and maladaptive movement patterns.
- Patient Reported Outcome Measures are an effective method for tracking progress in a way that emphasises personal outcomes rather than mechanical joint outcomes which is shown to induce demand on specialist services.

Examples of impact

- One first contact triage programmes reduced surgical conversion rates to save 19% compared to a GP first model.
- A Scottish based first contact physiotherapy approach reduced referrals to orthopaedics to 4%.
- One strength-based intervention reduced the number of people progressing to surgery to 10%.
- The 'Best in Class' MDT programme reduced the number of people referred from primary care to orthopaedic services to 3%.

Advanced condition intervention opportunities



Advanced condition:

Intensive pre-habilitation support, earlier in the journey. Shared decision making regarding surgery. Waiting well programmes supporting proactive waiting list management.

What these look like

- Exercise and health optimisation programmes as part of a 'waiting well' approach.
- Pre-habilitation activities include exercise training, promotion of physical activity, improving diet and psychological support. These interventions are delivered by rehabilitation practitioners.
- Pre-evaluation exercise to clarify symptom variability and enable informed decisions about surgical interventions and their benefits.

Benefits

- Along with supporting surgical outcomes, there is good evidence to suggest that pre-habilitation can achieve the outcomes that people expect from surgery.
- This includes significant increases in patient reported satisfaction with function and range of motion, as well as experiences of pain.

How to make them work

- Good practice evidence outlines the need for an emphasis on shared decision making, with conversations between clinicians and people covering:
 - What surgery can be expected to achieve.
 - What a person is wanting from the surgery.
 - How non-surgical approaches might support people to achieve what they want.

Examples of impact

- Pre-habilitation has been shown to reduce the number of people going ahead with surgery by 15%.
- 21% people in a 2025 English survey who said their primary hip replacement had worsened their symptoms (which would equate to 1096 surgeries based on 2024 Scottish figures).

Next steps

We will use this evidence to model likely scales of investment and impact regarding preventative interventions to inform planning.

What we want to do - We want to understand how much demand we can expect to be taken out of the system at the different points along the pathway, what invest might be required for that, and what saving that will result in. This includes a realistic look at how we balance savings through decreased service utilisation; savings that are 'cashable' – ie taken out of budgets. And what the mechanisms for this might be.

Where we want to focus - Due to the high pressure currently on orthopaedic services, we will focus on the interventions highlighted to have a more immediate impact on demand. These will be those that sit closer to the acute end of the pathway but still aim to 'shift left' with regards to avoiding the use of orthopaedic services, and ultimately surgical interventions.

How we will start - There will be some dedicated work in Forth Valley utilising local data and costings around demand and interventions. Additionally a workshop on the 19 May will allow for discussion relating to best practice, identifying our knowledge gaps, and refining our model.

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