NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

HealthTech Programme

GID-HTE10057 Digital technologies for managing mild to moderate hip or knee osteoarthritis: early value assessment

Final scope

March 2025

1 Introduction

The topic has been identified by NICE for early value assessment (EVA). The objective of EVA is to identify promising technologies in health and social care where there is greatest need and where the evidence base is still emerging. It will provide an early indication to the system that they could be used while evidence is generated. The process will enable the technologies to be recommended for use only if further data is collected before NICE does a final evaluation.

2 Technologies

This section describes the properties of digital technologies for managing mild to moderate hip or knee osteoarthritis based on information provided to NICE by companies and experts, and information available in the public domain. NICE has not carried out an independent evaluation of these descriptions.

2.1 Purpose of the technology

In the UK, an estimated 10 million people have osteoarthritis, with more people anticipated to be living with undiagnosed osteoarthritis. The most commonly affected joints are knees and hips, with over 5 million people affected by knee osteoarthritis and over 3 million people by hip osteoarthritis. Self-management is encouraged for people with mild to moderate hip or knee osteoarthritis to give them the knowledge, skills and confidence to better understand and manage their condition. Self-management typically includes components for therapeutic exercise, education and coping strategies. Evidence-based face-to-face group self-management programmes, such as ESCAPE-pain (Enabling Self-management and Coping with Arthritic Pain through Exercise), have been found to reduce pain and improve physical function, wellbeing and quality of life.

The NHS Long Term Plan highlights that treatment capacity in the NHS has not grown fast enough to keep up with clinical need. This reduced ability to meet demand has resulted in longer waiting times for people with musculoskeletal (MSK) conditions. NHS England's framework to reduce community musculoskeletal waits states that actions for primary care services include making best use of patient resources and non-medicalised interventions to improve supported self-management. Actions for community MSK services to keep waiting times down suggests making best use of digital resources to support the management of long-term MSK conditions, where appropriate. A Getting It Right First Time (GIRFT) community MSK workstream has also been funded to enable integrated care systems to commission the delivery of high quality MSK services in the community, with a key aim to integrate digital health therapeutics.

Digital technologies for managing mild to moderate hip or knee osteoarthritis can be used to help people manage their condition remotely in the community, at a time that is convenient to their lifestyle. They can be accessed online or via a mobile app through a smart phone or tablet. They provide access to specialist information and advice related to managing osteoarthritis, as well as exercise programmes through videos or group sessions. Technologies have varying levels of support from healthcare professionals that can be contacted through online messenger, chat functions or video calls. They should also have ongoing risk monitoring to make sure users are signposted to the appropriate support in response to their progress when using the technologies.

These technologies can offer an alternative option to in-person appointments or can be used to in addition to a reduced number of in-person appointments. Using these technologies could reduce the number of GP or first contact practitioner (FCP) visits, as well as the need for onward referral to MSK providers. But, some people may need support in accessing and using digital technologies and some people may prefer not to use digital technologies.

2.2 Description of the technologies

This EVA focuses on digital technologies designed to help people with mild to moderate hip or knee osteoarthritis self-manage their condition. A broad range of digital technologies can be used to provide this treatment. The digital technologies included in the scope vary in terms of their mode of delivery (computer, app), intended populations, the frequency and level of support by healthcare professionals and the additional features offered by the technology (for example, the level of monitoring and feedback to users and healthcare providers). Digital self-management technologies should be

codesigned with people with lived experience of the condition and should be adaptable to the varying local requirements of primary and community care services across the NHS.

For this EVA, NICE will consider digital technologies that:

- are intended for use by people aged 16 and over to manage mild to moderate hip or knee osteoarthritis
- are designed to give people the knowledge, skills and confidence to manage their condition and should include the following components:
  - information, education and advice on managing hip or knee osteoarthritis (including weight-management when appropriate)
  - a personalised therapeutic exercise programme for hip or knee osteoarthritis
  - signposting to appropriate support services, including contacting healthcare professionals when appropriate
- have a CE or UKCA mark where required. Products may also be considered if they are actively working towards required CE or UKCA mark
- are available for use in the NHS.

NICE will not consider digital technologies, or components of technologies, for diagnosing or triaging people with suspected osteoarthritis or other MSK conditions.

In total, 11 digital technologies for managing mild to moderate hip or knee osteoarthritis are included in the scope.

ESCAPE-pain (Orthopaedic Research UK)

ESCAPE-pain is a digital self-management programme that includes exercise plans, educational modules and progress tracking. The technology has exercise videos that show how to safely perform exercises and educational videos that provide information about the condition and techniques to help manage pain. It also includes a progress chart to help users track their engagement over time. The technology can be accessed via an app on a smartphone or tablet.

getUBetter (getUBetter)

GetUBetter is a digital self-management programme that includes personalised exercise plans and educational information related to living with and managing hip and knee osteoarthritis. It can be accessed via self-referral

or after review from a healthcare professional via an app using a smartphone, or online via the web. GetUBetter provides daily advice which is tailored to a user's progress and how they are feeling. Progress can be monitored using a pain scale and diary function. The technology can also connect users to local treatment, healthcare providers or support services, and has ongoing symptom monitoring to flag when users need to be redirected to these services.

Good Boost (Good Boost Wellbeing Ltd)

Good Boost is a self-management programme that includes personalised exercise plans, information about osteoarthritis and peer support. It is delivered via the We Are Undefeatable app, which can be accessed via a smart phone or tablet after referral from a healthcare professional, or via self-referral. When accessed via self-referral, the technology uses artificial intelligence to triage the user and make sure the appropriate programme is selected. When using the technology, users are signposted to in-person classes in their local area or can join group exercise classes or group support classes virtually through the app. Users can also track their progress in the app, with an option to share this information with a healthcare professional. Healthcare professionals can view this information and communicate with users via a messaging function when appropriate.

Hinge Health Programme (Hinge Health)

Hinge Health is a digital self-management programme that includes exercise plans and educational modules for hip and knee osteoarthritis. It can be accessed via an app through a smartphone or tablet. Users are prescribed a personalised exercise programme and are prompted to log their pain at the start of the programme and after each session. Users also have access to educational resources, including articles and videos, related to managing pain. Users can communicate with healthcare professionals via phone, email or live web chat, and have access to 24/7 support. The app also uses smart camera technology to analyse a person's movement when performing exercises at home.

Joint Academy (Arthro Therapeutics Ltd)

Joint Academy is a digital self-management programme that includes personalised educational modules, exercise plans and progress tracking for hip or knee osteoarthritis. It can be accessed following a referral from a healthcare professional via an app through a smartphone or tablet. Users are matched with physiotherapists who prescribe personalised exercise programmes based on symptoms. Users are given short daily exercises which

include video instructions and educational information is delivered through interactive lessons. Users can contact physiotherapists through video and chat functions and have regular follow ups to monitor progress. Pain and function can be tracked using the built in progress tracker. Information on other services is given to users who are not suitable for the program or users that are not progressing.

Pathway Through Arthritis (Wellmind Health)

Pathway Through Arthritis is a web-based self-management programme designed to give users a better understanding of osteoarthritis, disability and pain through a combination of physical and psychological therapies. It includes a 4-week programme that that has pre-recorded videos, exercises and assignments for users to complete at their own pace. The programme includes educational content on osteoarthritis, guided exercises for joint mobility and strength, mindfulness techniques, pain management strategies, behavioural change approaches and lifestyle advice on weight management The programme is led by a multidisciplinary team of healthcare professionals including a rheumatologist, GP, physiotherapist and mindfulness specialist. Users report progress and outcomes during assessments throughout the programme which are reported to their healthcare professional through a secure web-based management portal. The technology includes ongoing engagement and risk monitoring to make sure users are signposted to the appropriate pathways when appropriate. The programme can only be accessed online via a computer, or via an app through a smartphone or tablet after referral from a healthcare professional.

Phio Engage (EQL Ltd)

Phio Engage is a digital self-management programme which includes personalised exercise plans, educational content on managing osteoarthritis and symptom tracking. It is a part of a suite of programmes which includes a separate technology to screen people with osteoarthritis (Phio Access) and a technology used to collect patient reported data (Phio Collect). Phio Engage can be accessed after referral from a healthcare professional or through self-referral after screening by Phio Access. The technology is available as an app and can be accessed through a smartphone or tablet. Users are given daily exercises to follow with video instructions, with exercise reminders to notify users to complete the task. Daily sleep, pain and function scores are measured to track progress, and users can contact healthcare professionals through the app chat function for further support if needed. The technology also includes a step count feature if enabled by the user.

Physio Wizard (Physio Medics)

Physio Wizard is a digital self-management programme that provides advice and information on how to manage a condition, as well as personalised exercises based on symptoms inputted via a screening questionnaire. The technology can be accessed via an app through a smartphone or tablet.

Re.Flex (Reflex.Help)

Re.flex is a digital self-management programme for knee osteoarthritis. Users are given a tailored exercise program to complete with video guidance using 3D animation. A wearable sensor is also provided to track users exercises and give feedback on the quantity and quality of movements. The technology can be accessed via an app through a smartphone or tablet.

Thrive (Sword Health)

Thrive is a digital self-management programme that includes a personalised physiotherapy programme and educational resources for hip and knee osteoarthritis. Users have regular contact with physiotherapists who prescribe exercises designed to improve a person's pain and function. Educational resources include modules about the condition, pain management and healthy-lifestyle choices. Each user receives a kit that includes a 'Thrive Pad' which is designed to provide real-time feedback to users as they perform exercises in both audio and video formats. User's progress is monitored, and people are signposted to the appropriate primary and secondary care services where necessary.

TrackActiveMe (Active Health Tech Ltd)

TrackActiveMe is a digital self-management programme that includes exercise modules, educational content and progress tracking for hip and knee pain. It can be accessed via an app through a smartphone or tablet, and users are assessed for eligibility using a self-assessment tool in the app. If eligible, users are given personalised exercise videos with text instructions depending on the severity of their condition. Educational content includes condition-specific information, optimising recovery, and general health, wellbeing, lifestyle information and support which can be accessed through PDFs or videos. The technology contains a symptom tracking feature, where users are asked to review their progress at every exercise session. If users are not progressing, the app flags this to the appropriate healthcare professional for follow up.

3 Relevant diseases and conditions

Osteoarthritis is defined as a long-term disorder of synovial or cartilaginous joints which occurs when damage triggers repair processes. This leads to structural changes within a joint, with features of localised loss of cartilage, remodelling of adjacent bone and the formation of osteophytes, and mild synovitis (inflammation of the synovial membrane that lines the joint capsule). People with mild to moderate hip or knee osteoarthritis may experience occasional joint pain, pain when walking and some limitations to daily activities.

4 Current management and care pathway

People with suspected hip or knee osteoarthritis typically present to healthcare professionals in primary or community care and may initially see a GP or first contact practitioner (FCP). But, some services will also have a self-referral pathways and some people may present to other community based services, such as local pharmacies. NHS England's framework to reduce community musculoskeletal waits recommends using FCPs to support shared decision making on diagnosis and management. It also recommends making best use of community MSK triage and therapy services where access to FCPs is limited. NICE's guideline for the diagnosis and management of osteoarthritis in over 16s describes the diagnosis of osteoarthritis.

Treatment for hip or knee osteoarthritis depends on the severity of symptoms. Current treatment options for mild to moderate hip or knee osteoarthritis include both pharmacological and non-pharmacological treatments. Non-pharmacological treatment options include therapeutic exercise and weight management (if appropriate), along with information and support. Manual therapy (such as manipulation, mobilisation or soft tissue techniques) and devices (such as walking aids) may also be offered alongside therapeutic exercise. Pharmacological treatment options include medicines and corticosteroid injections to relieve pain and inflammation. But, these treatments may become less effective as the severity of the condition increases. Access to treatments may vary depending on geographical location because some areas have waiting lists to see a physiotherapist. NICE's guideline for the diagnosis and management of osteoarthritis in over 16s recommends considering combining therapeutic exercise with an education programme or behaviour change approaches in a structured treatment package. A treatment package is defined as pharmacological or non-pharmacological treatments with one of the following:

- behaviour change approaches, including ways to reduce pain and straining when using joints, pain coping skills training (including

spouse-assisted coping skills training), goal setting; motivational coaching; weight management counselling and workplace risk counselling

- an education programme given by 1 or more healthcare professionals over multiple sessions, including those based on behavioural theory.

NICE's interventional procedures guidance on platelet-rich plasma injections for knee osteoarthritis states that this procedure should only be used with special arrangements for clinical governance, consent, and audit or research.

People with mild to moderate hip or knee osteoarthritis can often be managed in the community under the guidance of a healthcare professional, such as a GP or FCP. This can be done either in person or remotely. NHS England's framework to reduce community musculoskeletal waits recommends using evidence informed interventions such as peer support, self-management education and health coaching to support self-management. It also suggests making best use of digital resources and group interventions. The Getting It Right First Time elective hip or knee replacement pathway suggests attempting conservative treatment for at least 3 months prior to referral for surgical intervention (for example, using medicines, physiotherapy and support with lifestyle and weight loss for patients with a body mass index over 30). NICE's guideline for the diagnosis and management of osteoarthritis in over 16s recommends advising people with osteoarthritis to seek follow-up if planned management is not working within an agreed time period, or they are having difficulties with the agreed approaches.

Potential place of digital technologies for managing mild to moderate hip or knee osteoarthritis in the care pathway

Some digital technologies for managing mild to moderate hip or knee osteoarthritis allow people to self-refer to access the technology and other technologies can be considered when people first present with mild to moderate osteoarthritis in primary or community care (including community MSK services). Before accessing a digital technology, people must undergo eligibility screening to make sure that the technology is a suitable option for them. This screening can be done by the technology itself (using a built-in self-assessment questionnaire) or in-person by a healthcare professional (for example, a GP, FCP or physiotherapist), but will not be assessed as part of this evaluation. Digital technologies may be offered instead of non-pharmacological standard care (in-person therapeutic exercise, weight management [where appropriate] and information and support), or in addition to a reduced number of in person appointments. Use of digital technologies

should align with NICE guidelines and be appropriate for the severity of the condition and the step in the care pathway for which it is intended to be used.

5 Comparator

The comparator for this assessment is non-pharmacological standard care for people aged 16 and over with mild to moderate hip or knee osteoarthritis. Standard care varies across primary and community care, but should include therapeutic exercise, weight management (if appropriate) and information and support, delivered alongside pharmacological interventions. Manual therapy and devices (such as walking aids) may also be offered alongside therapeutic exercise, where appropriate.

6 Decision problem

Table 1 Decision problem for the assessment

Population	Adults aged 16 and over with mild to moderate hip or knee osteoarthritis that have been assessed as suitable for digital self-management
Interventions (proposed technologies)	Digital technologies for managing mild to moderate hip or knee osteoarthritis, including: • ESCAPE-Pain • getUBetter • Good Boost • Hinge Health • Joint Academy • Pathway Through Arthritis • Phio Engage • Physio Wizard • Re.Flex • Thrive • TrackActiveMe
Comparator	Non-pharmacological standard care for managing mild to moderate hip or knee osteoarthritis
Healthcare setting	Primary and community care
Outcomes	The outcome measures to consider include: **Primary outcomes** Patient reported outcomes • Health-related quality of life (for example, EQ-5D or SF-36) • Pain and stiffness

	• Physical function
	• Self-efficacy (for example, Musculoskeletal Health Questionnaire [MSK-HQ] or Arthritis self-efficacy scale [ASES])
	
	Clinical outcomes
	• Referrals for injections
	• Medicine use and appointments
	
	Secondary outcomes
	Patient reported outcomes
	• Psychological outcomes
	• User satisfaction and acceptability
	• Activity impairment
	
	Intermediate outcomes
	• Intervention adherence, rates of attrition and completion (including but not limited to the number of exercise/therapy sessions completed, interaction with health professionals, education contents reviewed)
	• Intervention related adverse events
	• Work productivity/return to full activity
	• Healthcare professional satisfaction
	
	Clinical outcomes
	• Secondary care referrals
	• Referrals for surgery
	
	Costs will be considered from an NHS and Personal Social Services perspective. Costs and resource use outcomes for consideration should include:
	• Costs of the technologies (including license fees and maintenance)
	• Cost related to supporting digital technologies (including but not limited to additional hardware or software, cost of staffing and training)
	• Cost of resource use
	  ○ Primary, community and secondary care appointments
	  ○ Medicine, manual therapy and device use
	  ○ Healthcare professional grade and time

Time horizon	The time horizon for estimating the clinical and economic value should be sufficiently long to reflect any differences in

	costs or outcomes between the technologies being compared.

7 Other issues for consideration

Considerations for patients

Digital technologies for managing mild to moderate hip or knee osteoarthritis can be accessed remotely in a person's home environment. For people struggling to access face-to-face services due to long waiting lists or inability to attend in person appointments (for example, due to travel or mobility restrictions, or other time commitments), digital technologies could improve access and engagement. Digital technologies for managing osteoarthritis may also appeal to regular users of digital technologies who may prefer to access healthcare remotely, or people who are housebound due to illness.

Some people who are eligible to use digital technologies may choose not to use them and may prefer in-person clinician led treatment if this is available. People may also have concerns about the use of digital technologies for example data security, potential costs or their ability to use the technology effectively. People should be supported by healthcare professionals to make informed decisions about their care, including the use of digital technologies.

8 Potential equality issues or considerations

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others.

Osteoarthritis is more common in women, people aged 45 and over, people with overweight and obesity and people living in the most deprived areas. NICE's clinical knowledge summary for osteoarthritis states that other risk factors include low bone density, joint injury or trauma and genetics.

Digital technologies for managing mild to moderate hip or knee osteoarthritis are accessed via a smartphone, tablet or computer. People will need regular access to a device with internet access to use the technologies and people living in the most deprived areas may have more difficulty accessing these resources. So, digital technologies may not be suitable for some people. People who are less comfortable or skilled at using digital technologies may prefer another treatment option. Additional support and resources may also be needed.

People with visual or hearing difficulties, cognitive impairment, problems with manual dexterity, a learning disability, people who are unable to read or understand health-related information (including people who cannot read English) or neurodivergent people may need additional support to use digital technologies. Some people would benefit from digital technologies being available in a language other than English.

People's ethnic, religious, and cultural background may affect their views of digital technologies for managing mild to moderate hip or knee osteoarthritis. People have the right to make informed decisions about their care, including the use of digital technologies. Healthcare professionals should discuss the language and cultural content of the technologies with patients.

Age, sex, disability and religion or belief are protected characteristics under the Equality Act 2010.

9 Potential implementation issues

Initial screening and ongoing monitoring

Digital technologies may be unsuitable for some people with mild to moderate hip or knee osteoarthritis. For example, people who are considered high risk with complex comorbidities may need increased levels of monitoring by healthcare professionals and in person appointments may be more suitable. A person’s suitability for using digital technologies should be screened before they are given access to digital programmes. Some digital technologies also have inbuilt processes to flag the need for further intervention. Initial screening and ongoing monitoring are important to make sure the right advice and support is given to all users. Initial screening and ongoing monitoring could be done by a healthcare professional in primary or community care or by the digital technology itself and may depend on how the technologies are implemented into the care pathway.

Integration with NHS systems, capacity and costs

It may be beneficial for healthcare professionals in primary, community and secondary care to be able to access data collected by the technologies so that they can monitor and manage a person’s progress and provide continuity of care between healthcare settings. The Digital Technology Assessment Criteria (DTAC) is designed to be used by healthcare organisations to assess digital technologies at the point of procurement to make sure that they meet NHS clinical safety, data protection, technical security, interoperability and usability and accessibility standards.

Implementation of digital technologies may initially increase staff workload to set up new or additional pathways and become familiar with new systems. Staff may need to spend time attending training or training users. It may also initially increase costs to set up new pathways, change service delivery and amend IT infrastructure if necessary. Smaller service areas may have higher costs per user due to not needing as many licences for the technology.

10 Stakeholders

10.1 Healthcare professional organisations

The following healthcare professional organisations have been identified as stakeholders for this evaluation:

- Advanced Practice Physiotherapy Professional Network
- AGILE: Chartered Physiotherapists working with Older People
- Association of District Nurse and Community Nurse Educators
- British Association of Prosthetists and Orthotists
- British Association of Sport Rehabilitators
- British Dietetic Association
- British Orthopaedic Association
- Chartered Society of Physiotherapy
- Institute of Osteopathy
- Musculoskeletal Association of Chartered Physiotherapists
- National Association of Primary Care
- Physiotherapy Pain Association
- Royal College of General Practitioners
- Royal College of Nursing
- Royal College of Occupational Therapists
- Royal College of Physicians
- Royal College of Physicians of London
- Royal College of Radiologists
- The Society of Sport Therapists

10.2 Patient and carer organisations

NICE's Public Involvement Programme contacted / have identified the following patient and carer organisations for advice:

- Action on Pain
- Anxiety UK
- Arthritis Action
- Arthritis and Musculoskeletal Alliance (ARMA)
- British Society of lifestyle medicine
- Lindsay Leg Club Foundation
- MIND
- National Academy for Social Prescribing
- Pain Concern
- Versus arthritis

11 Authors

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Appendix A Related Guidance

- **Related Medical Technologies Guidance:**
  - AposHealth for knee osteoarthritis (2023). NICE Medical technologies guidance 76.
- **Related Guidelines:**
  - Osteoarthritis in over 16s: diagnosis and management (2022). NICE guideline 226.
  - Joint replacement (primary): hip, knee and shoulder (2020. NICE guideline 157.
- **Related Interventional Procedures**:
  - Platelet-rich plasma injections for knee osteoarthritis (2019). NICE interventional procedures guidance 637.
- **Related Quality Standards:**
  - Osteoarthritis in over 16s (2015, updated 2022). NICE quality standard 87.
  - Joint replacement (primary): hip, knee and shoulder (2022). NICE quality standard 206.