

## Self management for chronic knee pain: using group physiotherapy to teach exercises and coping strategies

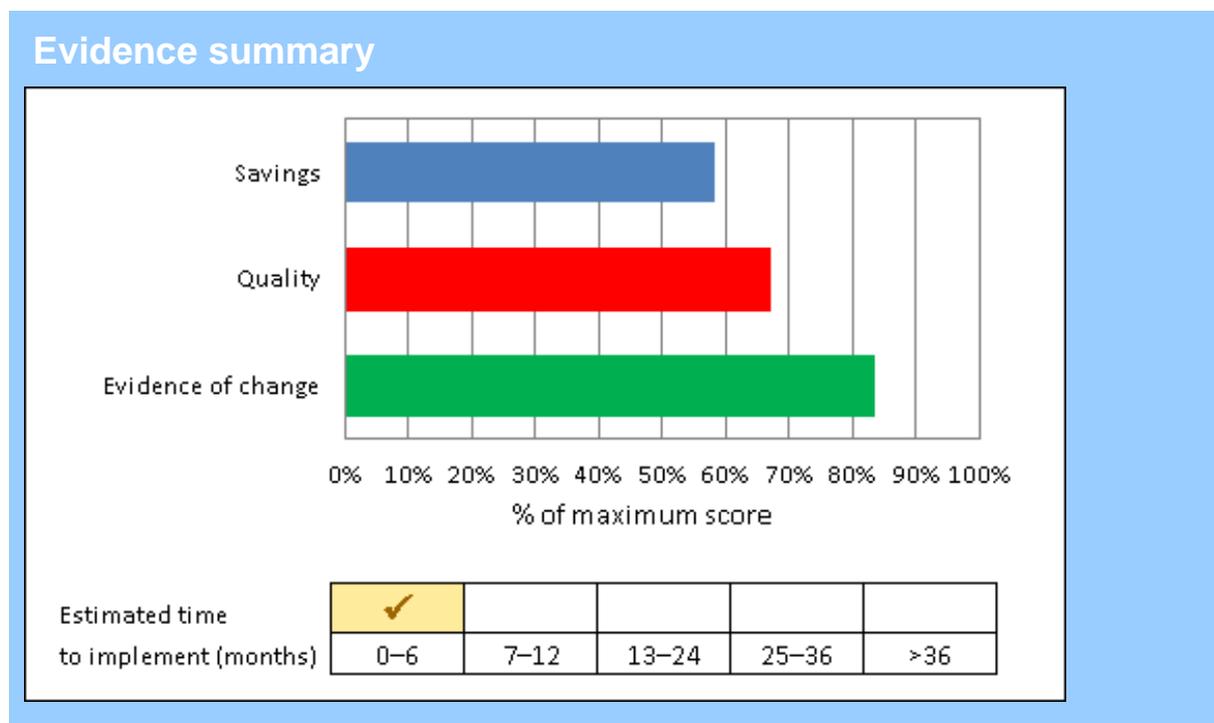
Provided by: Sevenoaks Hospital, St George's University of London and Kingston University and the University of the West of England.

Publication type: Quality and productivity example

### Sharing good practice: What are 'Proven Quality and Productivity' case studies?

The NICE Quality and Productivity collection provides users with practical case studies that address the quality and productivity challenge in health and social care. All examples submitted are evaluated by NICE. This evaluation is based on the degree to which the initiative meets the NICE Quality and Productivity criteria: savings, quality, evidence and implementability. The assessment of the degree to which this particular case study meets the criteria is represented in the summary graphic below.

Proven Quality and Productivity examples are case studies that show evidence of implementation and can demonstrate efficiency savings and improvements in quality.



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## Changes since the previous version

Published Quality and Productivity case studies are reviewed annually. One year after the case study has been published in the Local Practice Collection, the submitter of the case study is contacted to ask if there is further information relevant to the case study, and the case study updated as required. The case study has been amended to meet NICE style and any additional changes to this case study are outlined in the table below.

Case study section	Update
Introduction	No changes.
Savings	No changes.
Quality	No changes.
Evidence	Clinical data has continued to be collected and the outcomes are in line with that reported in the original case study.
Implementation	The programme has now been implemented in additional sites across Kent where 400 people have undertaken the programme. An additional 25 sites across the rest of the UK have also adopted the programme. Approximately 1500 people have undertaken the programme in total.

## Details of initiative

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**Purpose**

To improve the management of chronic joint pain by implementing a group rehabilitation programme integrating education, self-management and exercise, leading to better clinical outcomes, cost benefits, improved quality of care and patient experience.

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**Description**

Chronic peripheral joint pain (usually labelled osteoarthritis) is a

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(including scope)

major cause of suffering, physical disability, psychosocial distress, and direct and indirect healthcare and socioeconomic costs. Pain induced limitation of mobility and physical function increases the risk of developing or exacerbating comorbidities such as diabetes and cardiovascular and respiratory conditions. These problems are increasing as more people work longer with chronic ill health. Safe, affordable interventions will be needed to maximize people's independence and ability to function, and ensure the efficient use of health and social care resources.

NICE guidance recommends that exercise should be a core treatment for people with osteoarthritis (NICE, 2014).

Unfortunately, many people with joint pain are managed in primary care with long-term analgesia, despite the risks of side effects such as gastrointestinal bleeding and myocardial infarcts.

A rehabilitation programme, 'Enabling Self-management and Coping for Arthritic pain through Exercise' (ESCAPE-pain), combines education, self-management and coping advice with an exercise regimen tailored to address each patient's needs. The programme is delivered to small groups of 6 to 8 patients, as opposed to normal individual physiotherapy. Evaluation in clinical trials demonstrated the programme is safe, produces better clinical outcomes compared with management in primary care (Hurley et al. 2007a) and is as clinically effective and more cost effective than normal individual outpatient physiotherapy (Jessep et al. 2009).

Clinicians at Sevenoaks District General Hospital, Kent were trained to deliver the programme, having observed sessions elsewhere. A senior clinician acted as a champion to implement the programme with buy-in from the manager.

The programme comprises 10 sessions, each consisting of physical exercises with themed discussions on topics such as setting goals and controlling pain. Participants are given tailored exercises to do at home, and progress is reviewed in the sessions.

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**Topic**

Long term conditions and right care.

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**Other information**

Participation in the programme:

- improves effective and efficient management of chronic joint pain
  - reduces consultations, investigations and ineffective treatment in primary and secondary care
  - reduces use of medications and indirect costs from adverse side effects
  - can help avoid joint surgery
- promotes physical activity, reducing the risk of acquiring or exacerbating comorbidities such as diabetes and cardiovascular conditions
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## Savings delivered

### Amount of savings delivered

The programme produces savings compared with normal outpatient physiotherapy by treating patients in small groups (averaging 7 patients) rather than individually. These savings have been calculated at £7,600 for a population of 230,000 or £3,300 per 100,000 population.

#### ESCAPE programme - analysis of costs and savings

ESCAPE programme costs	Costs	
	AfC 5	AfC 2
Agenda for Change (AfC) band		
Annual salary plus on-costs	£29,101	£18,421
Annual weeks in work (52 – annual leave entitlement and public holidays)	45	45
Weekly hours	37.50	37.50
Cost per hour	£17.24	£10.92
Total time for sessions (hours)	21.00	5.00
Total cost per 8 sessions for each band	£362.14	£54.58
<b>Total cost per 8 sessions combined</b>	<b>£416.72</b>	
Administration	£24.00	
<b>Total cost per session</b>	<b>£440.72</b>	
Average cost per patient per session (7 people per session)	£62.96	
Initial assessment cost per person (as per submission & based on ref costs)	£52.03	
<b>Cost per patient per session</b>	<b>£114.99</b>	
Number of people treated (2011-2016)	400	
<b>Total cost</b>	<b>£45,996.02</b>	

Outpatient physiotherapy costs	
Assessment cost per session	£52.03
Individual treatment per session (£41.62 @4.25 session)	£176.89
<b>Total cost per patient</b>	<b>£228.92</b>
Number of people treated (2011-2016)	400
<b>Total cost</b>	<b>£91,566.00</b>

<b>Saving from implementing ESCAPE programme for 400 patients (2011-2016)</b>	<b>£45,569.98</b>
<b>Savings per year</b>	<b>£7,595.00</b>

There is also evidence that the programme produces wider savings through reduced demand for consultations, referrals, investigations such as X-rays and MRI scans, and through reduced use of analgesia and gastro-protective agents (Jessep et al. 2009; Hurley et al. 2012); however such costs are highly variable between individuals.

### Type of saving

A mixture of real cash savings and improved productivity. Cash savings are a result of fewer outpatient physiotherapy treatment sessions, medical consultations and investigations, and reduced use of analgesia

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	and gastro-protective agents.
<b>Any costs required to achieve the savings</b>	The change can be delivered with minimal additional resources. About 4–8 hours of training are required for physiotherapy staff to deliver the programme, which complements existing physiotherapy training. This is a non-recurrent cost for a small number of staff. No additional equipment is required because the programme makes use of existing equipment within physiotherapy departments.
<b>Programme budget</b>	Musculoskeletal
<b>Supporting evidence</b>	Evidence suggests that patients undergoing ESCAPE-pain have lower overall healthcare costs than those undergoing normal outpatient physiotherapy, taking use of accident and emergency services, secondary care and medication into account (Jessep et al. 2009). Similarly over a period of 30 months post-intervention, patients undergoing ESCAPE-pain incur lower healthcare costs than those managed by analgesia in primary care, taking the cost of the programme into account (Hurley et al. 2012). Overall healthcare costs and use of services show high variability however, so these findings have not been used to calculate the costs and savings of the initiative in this example. It is worth noting though that there are likely to be additional savings for the wider health system.

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## Quality outcomes delivered

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<b>Impact on quality of care or population health</b>	There were significant improvements in patient-reported physical function immediately after treatment and at 6 months after the programme compared with that for patients receiving management through primary care alone (Hurley et al. 2007a). Patient-reported physical function outcomes were not significantly different from outcomes from normal outpatient physiotherapy, but costs were lower (Jessep et al. 2009).
<b>Impact on patients, people who use services and/or population safety</b>	Compared with management through primary care alone, an increase in safety is anticipated because of the reduction in side effects from inappropriate medication and improved instructions on exercise, although no data are available.
<b>Impact on patients, people who use services, carers, public and/or population experience</b>	<p>There was no significant difference in patient-reported anxiety or depression between patients receiving normal primary care and those on the ESCAPE-pain programme (Hurley et al. 2007a), or between patients undergoing outpatient physiotherapy and those undergoing ESCAPE-pain (Jessep et al. 2009), as measured by the Hospital Anxiety and Depression scale (HADS).</p> <p>Interviews and anecdotal evidence suggest patients have a positive view of the programme, but it is not known how this compares with their view on either management through primary care or outpatient physiotherapy.</p>

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<b>Supporting evidence</b>	Hurley et al. (2007a, 2012) and Jessep et al. (2009) provide evidence of the clinical effectiveness of the ESCAPE-pain programme.
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## Evidence of effectiveness

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<b>Evidence base for case study</b>	NICE guidance (NICE 2014) recommends exercise should be a core treatment for people with osteoarthritis, which this initiative provides.
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<b>Evidence of deliverables from implementation</b>	<p>Published results from studies at Sevenoaks General Hospital in Kent (Hurley et al. 2007a, 2007b, 2012; Jessep et al. 2009). These studies demonstrate clinical effectiveness when compared with management through primary care and improved cost effectiveness with equivalent clinical quality compared with outpatient physiotherapy.</p> <p>The experiences of patients and clinicians of the programme's effectiveness, ease of implementation, fulfilment of needs and cost efficiencies were so positive that clinicians at Sevenoaks have continued to use the programme as their intervention of choice for people referred with chronic knee pain. The programme has also been introduced to other hospitals (see below).</p>
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<b>Where implemented</b>	NHS England. Physiotherapy Out-Patient Department, Sevenoaks District General Hospital, Kent.
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<b>Degree to which the actual benefits matched assumptions</b>	Same as expected.
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<b>If initiative has been replicated how frequently/widely has it been replicated</b>	<p>Implementation at Sevenoaks raised local awareness and interest, and the programme was subsequently adopted at several local hospitals in Gillingham, King's College Hospital, Gravesend and West Kent PCT. Across Kent 400 people have now undertaken the programme. Formal, published results are not yet available.</p> <p>Following presentations at national and international meetings and local clinical departments, clinicians contacted the research team and received information describing the programme and how to implement it. It has been adopted at 25 additional sites across the rest of the UK including University College London, St George's London, Burton-on-Trent, Bristol, Wiltshire, East Sussex, Bury St Edmunds, Caerphilly, Edinburgh, and Waterford Regional Hospital, Eire. Over 1500 people have undertaken the</p>
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programme across the country.

Several departments have adapted the programme for hip and back pain, although that is not the subject of this assessment.

The ESCAPE-pain programme is due to be rolled out across Kent, and is also being commissioned by the Wandsworth Clinical Commissioning Group.

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**Supporting evidence** See 'Contacts and resources' for details of guidelines supporting this initiative and studies evaluating its effectiveness.

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## Details of implementation

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### Implementation details

Clinicians at Sevenoaks District General Hospital, Kent, contacted the research group. After members of the research group visited the clinical department to discuss the programme, clinicians were trained to deliver the programme. Additional training consisted of being told about the programme's ethos, aims, structure and content, and how to guide group discussions, and observing some sessions held at another location. A senior clinician acted as a champion to implement the programme, with buy-in from the manager.

The programme consists of 10 sessions held over 5 weeks and can be delivered by a Band 5 physiotherapist. The sessions are supervised by the same physiotherapist from Sevenoaks Physiotherapy Department who has more than 20 years of postgraduate clinical experience.

Each session begins with an informal, themed group discussion led by the supervising physiotherapist for 15 to 20 minutes. The topics covered in the 10 sessions are:

1. Aims and objectives of programme, activity levels and views on exercise.
2. Personal objectives, goal setting and action plans, early home exercises.
3. Pacing and activity–rest cycles.
4. Drug management review action plans.
5. Diet and healthy eating.
6. Intermediate home exercise programme review.
7. Pain gate review action plans.
8. Managing pain exacerbation and 'flares'.
9. Mini-relaxation deep-breathing techniques.
10. Advanced exercises for home programme review action plans, information on activities in the community for exercise and activity.

The discussions are followed by a 40-minute, self-paced, progressive exercise circuit to improve quadriceps strength, dynamic control, balance, coordination and function.

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Participants are given written information summarising the key messages from each session to serve as a reminder after discharge.

When the rehabilitation programme is completed, participants receive a written, tailored home exercise regimen, largely made up of the exercises performed during the supervised circuit, and information about local community exercise facilities, classes, leisure centres and self-help groups.

Four months after completing the programme, the physiotherapist telephones each participant and invites them to a 1-hour review session, when the key messages are reinforced and the participant's home exercise regimen is reviewed.

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## Time taken to implement

Implementation can be achieved within 6 months, including gaining agreement from management and any other stakeholders, overcoming any objections, planning and training. One member of staff is trained (4–8 hours) to deliver the programme and can cascade this expertise to other colleagues as required.

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## Ease of implementation

Affects 1 team or department. Because the only aspect of care affected is physiotherapy management, implementation is easy if senior clinicians and management are involved.

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## Level of support and commitment

Likely to achieve good buy in. The initiative quickly gained interest and support from key stakeholders. Where implemented, the initiative was well supported by patients, physiotherapists and GPs. Anecdotal evidence suggests that GPs are becoming more aware of the programme and are asking the Sevenoaks physiotherapy department to allocate patients to the ESCAPE-pain programme.

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## Barriers to implementation

Financial barriers are minimal because introducing the programme does not change the overall activity of the service, assuming that current provision is adequate. The programme uses inexpensive, unsophisticated equipment that is readily available in most outpatient departments.

Commissioners and clinical managers have to agree to provide the programme, but this was easy to achieve by highlighting the cost and quality benefits.

There may also be cultural barriers to consider in situations where different genders and ethnic minorities are exercising together, but these have been overcome with reassurance from a physician. Language barriers may be encountered, but this may

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be the case with normal physiotherapy and so processes should already be in place to address this.

Training of 4–8 hours is required to explain the programme, content, problems and solutions. Observing the programme in action is useful. This training helps to overcome the barrier of a fear of change in patient management.

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## Risks

The risks of increased exercise and self-management by patients have been considered. There were no serious adverse events in the study of clinical effectiveness although 5 participants (1%) withdrew due to adverse events such as exacerbated pain or worries about exercising with a pacemaker, despite reassurance (Hurley 2007a). The exercises are progressive and self-paced, with programmes tailored to each patient's needs and abilities. Supervision by an experienced physiotherapist helps to manage these risks.

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## Supporting evidence

Evidence for the feasibility, ease of implementation and sustainability of the programme is shown by the sustained implementation of the programme, its geographical spread and continued engagement between clinicians, patients and the research team. The utility of the approach is highlighted by its adaptation for people with hip and back pain.

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## Further evidence

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### Dependencies

A clinical lead is crucial to the success of the initiative.

Adequate space is needed for the class (for example, an outpatient physiotherapy gym, leisure centre or community hall).

Small, inexpensive equipment is required (such as stationary exercise bikes, 'wobble' boards, balls, mats/couches, steps or access to stairs).

A clinician can supervise classes with up to 8 people, but classes with more than 8 people, or with frail or elderly participants, may need extra assistance to ensure safety.

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## Contacts and resources

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### Contacts and resources

If you require any further information please email: [qualityandproductivity@nice.org.uk](mailto:qualityandproductivity@nice.org.uk) and we will forward your enquiry and contact details to the provider of this case study. Please quote reference 12/0011R1 in your email.

Hurley MV, Walsh NE, Mitchell HL et al. (2007a) Clinical effectiveness of a rehabilitation program integrating exercise, self-management, and active coping strategies for chronic knee pain:

a cluster randomized trial. *Arthritis and Rheumatism* 57: 1211–19

Hurley MV, Walsh NE, Mitchell HL et al. (2007b) Economic evaluation of a rehabilitation program integrating exercise, self-management, and active coping strategies for chronic knee pain. *Arthritis and Rheumatism* 57: 1220–9

Hurley MV, Walsh N, Bhavnani V et al. (2010) Health beliefs before and after participation on an exercised-based rehabilitation programme for chronic knee pain: doing is believing. *BMC Musculoskeletal Disorders* 11: 31

Hurley MV, Walsh NE, Mitchell H et al. (2012) Long-term outcomes and costs of an integrated rehabilitation program for chronic knee pain: a pragmatic, cluster randomized, controlled trial. *Arthritis Care and Research* 64: 238–47

Jessep SA, Walsh NE, Ratcliffe J et al. (2009) Long-term clinical benefits and costs of an integrated rehabilitation programme compared with outpatient physiotherapy for chronic knee pain. *Physiotherapy* 95: 94–102

Mitchell HL, Hurley MV (2008) Management of chronic knee pain: a survey of patient preferences and treatment received. *BMC Musculoskeletal Disorders* 9: 123

National Institute for Health and Care Excellence (2014). [Osteoarthritis: care and management](#). NICE clinical guideline CG177

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