

A photograph of an elderly man with white hair and glasses, wearing a light blue polo shirt, looking towards the camera. A younger man is visible in the background, also wearing a blue polo shirt, looking towards the elderly man.

Joint Pain Advisor:

A pilot study in self-management for chronic hip and knee pain.
A Social Return on Investment (SROI) study

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Executive Summary

Introduction

This study focuses on the impact of using a ‘Joint Pain Advisor’ in primary care to empower patients to be better able to self-manage their osteoarthritis and chronic joint pain (hereafter OA*). The Joint Pain (JP) Advisor works from general practice surgeries to provide advice and support to people with chronic knee or hip pain as an alternative to a consultation with a general practitioner (GP).

The evidence contained in this report is based on a Social Return on Investment (SROI) analysis, a method of measuring the social impact of activities, projects and programmes and of placing monetary value on them. The focus of this SROI is on the value gained from a service piloting a new JP Advisor model of care both to the patients utilising the service, as well as the wider healthcare system.

Case for Joint Pain (JP) Advisor model

Musculoskeletal (MSK) related pain has a major impact on individuals and society. Public health and academic leaders are now advocating a life-course approach to the management of MSK health and a shift towards promoting lifelong MSK health (1). This life-course approach incorporates early intervention for chronic MSK-conditions to improve better access to information, increase physical activity and promote weight loss through education and self-management (2).

GPs typically lack the necessary expertise and capacity to provide this advice (1,3) and wider research has shown that disease-specific specialist roles within primary care settings for chronic conditions can be effective at targeting and improving health outcomes (e.g. diabetic, respiratory disorders and cardio-vascular disease) (4). However, to date there is no such model of care for chronic MSK-conditions in primary care.

Outcomes of the Joint Pain Advisor pilot

The pilot service was based on other disease-specific models, focusing on helping patients self-manage long term conditions, such as diabetes and is described in more detail later in this report. The pilot study demonstrated that patients had chosen to access the service in two different ways. The first group of patients accessed the service over a six week period and the second group opted to attend an additional six month review. There was no difference in the advice and support given to the two groups.

Throughout this report they will be referred to separately as Group 1 and Group 2 and we will report our findings as a separate value for each group.

- Group 1 (short term use/access): Patients typically accessing the service over a six week period with an assessment and two review appointments.
- Group 2 (medium term use/access): As Group 1 patients but with an additional six month review.

Table 1: Number of people in each group using the JP Advisor service

Group	Number of people
Group 1	178
Group 2	48

The study shows that the Joint Pain Advisor pilot gave rise to a number of important positive outcomes for patients with OA and the wider NHS itself.

For the patients with OA participating in the pilot:

- Improved mental wellbeing
- Reduction in pain
- Improved physical health and reduction in symptoms
- More physically active
- Improved access to musculoskeletal (MSK) services through early contact with an MSK specialist at a location close to their home.

For the wider NHS (or The State):

- Resource savings on healthcare utilisation and a reduction in the number of GP consultations about hip and knee osteoarthritis
- Patients lose weight if appropriate.

The social value created ranged from **£2.43** for Group 2 to **£4.03** for Group 1 for every pound (£) of investment.

The Social Return on Investment (SROI)

The SROI analysis shows that the JP Advisor model of care creates a positive social value for people with OA that is greater than the cost of investment. We chose to do two SROI calculations based on the two groups of patients that emerged from the pilot. This allowed us to compare any differences between the two groups and make recommendations about the service for the future. The social value created ranged from **£2.43** for Group 2 to **£4.03** for Group 1 for every pound (£) of investment.

The positive SROI ratios for both groups demonstrate the benefits of an individualised self-management programme for helping people with OA. The group who accessed the service over a six week period (Group 1) produced a higher return of social value than the group accessing the service over a six month period (Group 2), this may reflect the difficulties associated with sustaining self-management programmes and the associated benefits (e.g. physical activity or weight loss) over longer periods of time. The pilot suggests that different models of care may suit different individuals, as not everyone desires or needs a more intensive intervention.

*Osteoarthritis refers to a clinical syndrome of joint pain accompanied by varying degrees of functional limitation and reduced quality of life. Osteoarthritis can be diagnosed clinically without investigation if a person is over 45, has activity-related joint pain and has either no morning joint-related stiffness or morning stiffness that lasts no longer than 30 minutes (NICE, 2014).

About SROI

This evaluation report examines the difference made and the social value created by the supported self-management of people with chronic pain or osteoarthritis (OA) of the hip or knees.

Social Return on Investment (SROI) measures the value we create which goes beyond what can be captured in financial terms. It aims to reduce inequality and improve wellbeing by incorporating social, environmental and economic costs and benefits. It tells the story of how change is being created and uses monetary values to represent these changes. Money is simply a common unit and as such is a useful and widely accepted way of conveying value.

For this SROI, we have followed the seven principles of social value which provide a framework for SROI methodology. These are:

- Involve stakeholders
- Understand what changes
- Only include what is material
- Do not over-claim
- Be transparent
- Verify the result.

Our study is an evaluative SROI conducted retrospectively and is based on actual outcomes that have taken place and observed during the JP Advisor pilot.

We have used the data collected from our pilot study to inform our SROI evaluation and have only included outcomes that are material to our stakeholders. We have adopted conservative assumptions which are well evidenced to avoid over-claiming and have sought to be transparent in any assumptions we have made.

The Joint Pain (JP) Advisor pilot study

It is important to recognise the JP Advisor pilot was a service improvement project which sought to understand the acceptability and feasibility of the JP Advisor model of care in a primary care setting and as such did not have a control group.

The individuals conducting the SROI were not involved in delivering the service to patients or data collection, which helped in strengthening the rigour of the SROI analysis. By using the same researchers throughout the SROI analysis, we were able to ensure consistency in the approach, judgements, assumptions and proxies that were used across both groups thus maximising the comparability of the two groups.

By having more than one researcher, we have been robust in our methodology and have challenged each other in our assumptions throughout the process. We have presented our analysis to other members of the Health Innovation Network (HIN) who have not been involved in the process but are familiar with SROI methodology; this process of challenge and validation has allowed us to test and, where necessary, revise our assumptions and judgements.

The SROI methodology and analysis have been verified by NEF Consulting who confirmed the findings are robust and valid.

The model of care

The JP Advisor model of care takes the form of a series of face-to-face consultations between the JP Advisors (MSK specialist physiotherapists) and patients with OA of the knee and/or hip. Patients attended an assessment where they discussed their lifestyle, challenges and personal goals before jointly developing a personalised care plan as well as being given tailored advice and support based on NICE guidelines for the management of OA (2). Patients were then invited to attend a review at three weeks, 6-8 weeks and six month periods where they could access tailored support and advice. Following the six month review, patients were advised to return for an annual review with their GP, which is in line with NICE guidelines for the management of OA (2). Figure 1 gives an overview of the JP Advisor patient pathway.

Advice and support included:

- Increasing physical activity
- Promoting weight loss
- Effective pain management
- Exercises
- Other lifestyle advice, e.g. smoking cessation
- Referrals to appropriate services (such as community exercise groups, physiotherapy, GP/ pharmacists for pain management advice and weight management groups).

The service was available to all patients:

- Over 45 years old
- Diagnosed with osteoarthritis or
- Experiencing symptoms of peripheral joint pain for more than three months
- A registered patient at a participating practice.

Patients were not allowed to use the service if they were less than 45 years old and/or had an acute musculoskeletal disorder.

Figure 1. The patient pathway



The context

This section provides the backdrop for this study outlining the current difficulties of supporting people with long term conditions, such as chronic joint pain and osteoarthritis (OA) in primary care.

Musculoskeletal (MSK) related pain has a major impact on individuals and society. In the UK, an estimated 9.3 million working days were lost to MSK pain between 2008-2009⁵ with back, neck, shoulder and knee pain being the most commonly reported MSK problems⁶. MSK-related pain is the second most common reason for GP visits and accounts for approximately 30% of all GP consultations in the UK⁷.

The majority of people with OA are managed in the community with only a very small minority of patients having joint replacement surgery. However, management in primary care is suboptimal and local communities (i.e. commissioners, providers and users) require resources to be able to support people with chronic MSK pain (such as OA) and promote MSK health¹. Guidance by NICE on the care and management of OA highlights the need for a patient-centred holistic approach to its management to improve access to information, increase physical activity and promote weight loss through education and self-management².

Nationally, there is a move to encourage physiotherapists into primary care as a first contact practitioner for patients with MSK problems, reducing the burden of these conditions on GPs. Evidence suggests that patients trust the advice given to them by physiotherapists and that this is a safe and efficient model of care for patients with MSK conditions⁸.

In 2014, the HIN facilitated a focus group with patients from the Wells Park Practice in Lewisham, which identified a gap in the provision of care for MSK conditions and highlighted the need for specialist services closer to where patients lived. The JP Advisor model aimed to deliver disease-specific care which was patient-centred and in line with the updated NICE guidance².

Why do an SROI analysis?

As a team we wanted to understand what had changed for the patients who had been involved in the pilot service and how much of that change was a result of accessing the JP Advisor service. We wanted to move towards a more holistic model of evaluation that valued the outcomes that mattered to patients rather than simply looking at outputs, activities and clinical outcomes. SROI requires high levels of stakeholder engagement and encourages us to find innovative ways of measuring outcomes that allow us to think about the value of services for patients and society more widely.

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and **2009**

Scope and Stakeholders

This section defines the scope and boundaries of the study and describes the main stakeholders associated with the JP Advisor model of care.

Scope of the analysis

The purpose of this SROI evaluation was to understand the value created for patients participating in the JP advisor pilot. The aim was to use SROI analysis to:

- Determine the wider value of the JP Advisor model of care
- Demonstrate any value to commissioners and other funding bodies who might be interested in setting up a similar service
- Demonstrate which model of care creates greater social value
- Provide a benchmark study for the social value that could be created by the JP Advisor model of care.

This SROI report is an evaluation of the JP Advisor pilot that ran during the financial year 2015/16.

Stakeholders

Stakeholders are defined as the people or organisations that experience or affect change as a result of being involved in the activity under analysis. These changes can be both positive and negative.

A full list of stakeholders was identified by the research team and included any person or organisation that had been involved with or affected by the pilot. From this list, the stakeholders who experience material change as a result of their involvement were identified.

Table 2 shows the selected stakeholders and the rationale behind their inclusion/exclusion.

Materiality of outcomes

Focus groups were used to help establish if intended outcomes were material and therefore should be included. Where there was not enough data available to reach 'saturation', outcomes were considered not material and therefore not included to avoid over-claiming.

Table 1: Number of people in each group using the JP Advisor service

Stakeholder	Included?	Reason
Patients	✓	This group experienced the most material change as a result of the pilot. Outcomes were significant and valuable. These outcomes were demonstrated in engagement activities such as focus groups.
The State*	✓	Significant material change as a result of an improved OA/MSK pathway in primary care.
Healthcare professionals • JP Advisors • GP staff	×	Healthcare professionals are paid to facilitate the JP Advisors sessions and any personal benefits are incidental and not material to the programme.
Family and carers	×	Although some family and carers reported outcomes within the focus groups, these changes were considered too small to be significant to the study.
The Health Innovation Network (HIN)	×	This stakeholder is represented within 'The State' as it is an NHS organisation. The HIN provided support to secure funding for the pilot and it is believed any material change occurring for this organisation is too far removed and should not be included in the scope of this SROI.

*The State refers to NHS organisations affected by the pilot study such as: General Practitioners, University Hospital Lewisham, Lewisham Physiotherapy Services, Lewisham Clinical Commissioning Group and the Health Innovation Network South London.

Stakeholder engagement

Stakeholders were engaged using a variety of different methods and at all stages of the pilot and evaluation.

Table 3: Methods used to engage stakeholders

Stakeholder	Methods used to engage stakeholders
Patients	<ul style="list-style-type: none"> • Focus groups (Appendix 1)
The State	<ul style="list-style-type: none"> • Steering groups with representatives from Lewisham University Hospital, the JP Advisors, GP Partners, Practice Managers & HIN • Focus groups with GP practice staff including GPs, practice nurses and administration staff • Focus group with JP Advisors

Due to the size of the patient cohort plus time and financial constraints, it was not possible to engage all patients with each activity. Where it was not possible to engage with all participants, attempts were made to find samples that were representative of the cohort's characteristics and believed by the researchers to accurately represent the views of the entire cohort.

Programme Inputs

This section describes and values the input of the individuals who have contributed to the pilot.

Inputs are defined as the activities that stakeholders contribute in order to make the activity possible. They should reflect the full cost of delivering the service and reflect direct costs such as grants, staff and administration costs, as well as non-monetary items such as contribution of goods or services. Direct financial costs and in-kind costs are combined to create a total economic cost (total input).

During our pilot study, the GP practices did not charge for the hire of consultation rooms; however, this cost has been included as an input within the evaluation as room hire is considered vital to the running of the project.

Table 4: Inputs and their cost

Input	Per annum	Description and source
Senior Physiotherapist (mid-range band 6)	£43,600	Cost taken from invoice provided by University Hospital Lewisham.
GP Partner, clinical supervision	£7776	£81/hr 8hrs/month Invoice from Wells Park GP practice
Administration costs	£2200	Invoice from Wells Park GP practice
Estates	£20,700	Room hire: £15/hr 6hrs/day 5 days a week 46 weeks a year; 52 weeks minus public holidays and physiotherapists annual leave. Invoice from Wells Park Practice
Total	£74,296	

The number of contacts patients had with the JP Advisor varied between the two groups. Typically those in Group 1 had an assessment, a three week and a six week review, while those in Group 2 had an additional six month review. During the pilot there were a total of 726 contacts with the JP Advisor. The total cost of the inputs was divided by the total number of contacts to give a unit cost per contact of £102.34.

Outcomes and Evidence

This section describes the outcomes identified for the project, the indicators for evidencing the outcomes, the quantity and duration of the outcomes, and the financial proxies used to measure them.

Outcomes are the real-life social, economic and environmental improvements sought or achieved through an intervention. These changes can be intended or unintended, as well as positive or negative. They should be from the perspective of the stakeholder and reflect what the stakeholder has reported during engagement activities.

The stakeholder engagement process identified several outcomes for the two stakeholder groups; Patients and The State (see table 4). Once outcomes have been identified, it is important to

verify that the outcomes have occurred by using the data collected throughout the pilot. We have listed these as indicators of the outcomes and identified the extent to which these indicators have occurred.

Two focus groups were held at the Wells Park Practice to understand what had changed (i.e. the outcomes) for patients involved in the pilot study. Participants were selected using convenience sampling; however, participants were a mix of ethnicities, genders and ages, with joints affected by OA. Although the participants were not selected for their particular characteristics, the researchers felt they reflected the wider cohort of people who accessed the pilot study. A breakdown of participants' characteristics can be seen in Appendix 1.

Table 5: Outcomes for each stakeholder group

Stakeholder	Outcome	What changed?	% or unit change	
			Group 1	Group 2
Patients	1. Patients will experience an improved mental wellbeing	Change in quality-of-life score which focuses on patients' mental wellbeing taken from the Hip Osteoarthritis Outcome Score (HOOS) or Knee Osteoarthritis Outcome Score (KOOS)*. A higher percentage reflects a greater improvement.	0.153	0.095
	2. Patients will experience a reduction in pain	Change in pain score taken from the HOOS/ KOOS.	0.16	0.142
	3. Patients will experience improved physical health including a reduction in their symptoms	Change in symptoms taken from the HOOS/ KOOS.	0.114	0.103
	4. Patients will become more physically active	Proportion of patients reporting an increase in days physically active per week (i.e. walking 20 minutes or more).	0.843	0.783
	5. Patients will experience a reduction in expense and time taken to travel to appointments	Annual reduction in time spent travelling by car (in minutes).	52 min	69.3 min
		Total reduction in the distance (km) travelled to appointment per year.	22.2 km	29.6 km
The NHS	6. Reduction in NHS spending on management of OA hip and knee	Percentage difference in GP consultations one year pre- intervention compared to one year post intervention.	0.21	0.21
	7. Patients will lose weight	Units of BMI lost.	0.4 units	0.3 units

*HOOS/KOOS - a validated Patient Reported Outcome Measure (PROM) for hip and knee associated problems. It is intended to be used for hip and knee disability with or without osteoarthritis. A higher percentage reflects a greater improvement. See Appendix 3.

To ensure that outcomes were significant to the pilot, we asked healthcare professionals delivering the service to confirm we were only including outcomes that were relevant. This also gave us an opportunity to check we had not missed any outcomes which might have been significant.

This report considers all outcomes over a one-year benefit period to reflect the one year duration of the JP Advisor pilot study.

Double counting

Initially, we intended to include outcome 'Patients had an improved understanding of their condition which made them feel more able to manage their symptoms and improved their mental wellbeing'. However, this outcome was excluded as it was felt that it overlapped with outcomes 1-3 (see Table 5) and therefore would constitute double counting. We also excluded the outcome 'Reduction in spending on social care provision for individuals with hip or knee osteoarthritis' as there was insufficient data to support this outcome and therefore could not be considered material at this stage.

Outcome 3 'Patients will experience improved physical health including a reduction in their symptoms' is not considered double counting of outcome 2 'Patients will experience a reduction in pain' by the research team as it refers to symptoms such as swelling, stiffness and range of movement, and not pain. These are measured separately on the HOOS/KOOS outcome measure.

The research team debated about whether the outcome 7 'Patients will lose weight' was double counting outcome 4 'Increased physical activity'. The team concluded that patients can be more physically active without losing weight because:

- They did not change their diet to support weight loss
- They experienced a reduction in fat (or adipose tissue) and an increase in muscle mass
- They do not need to lose weight (i.e. were within the normal BMI range).

The research team believed that these two outcomes were separate from one another and both created social value.

Unintended and negative outcomes

No unintended or negative outcomes were identified by participants during the focus groups.

Calculating the value of outcomes using financial proxies

SROI uses financial proxies to estimate the social value of non-traded goods to different stakeholders. Different stakeholders will have different perceptions of the value they get from different things – financial proxies are a way to estimate value using a common unit, such as money.

We selected proxies that were deemed to be the closest, most relevant and intuitive to the service we provided. Where a range of possible proxies were available, we opted for the most conservative (i.e. lowest) value. We have validated these by checking them with stakeholder groups such as the clinicians delivering the service.

Quality Adjusted Life Years (QALY)

A QALY is the measure of the state of health of a person or group in which the benefits, in terms of length of life, are adjusted to reflect the quality of life. One QALY is equal to one year of life in perfect health.

QALYs are calculated by estimating the years of life remaining for a patient following a particular treatment or intervention and weighting each year with a quality-of-life score (on a 0 to 1 scale). It is often measured in terms of the person's ability to carry out the activities of daily life, and freedom from pain and mental disturbance. A treatment is usually considered cost effective by NICE if it is less than £30,000. Therefore one full QALY is equal to £30,000.

Table 6: Financial proxies

Outcome	Financial proxy	Cost	
		Group 1	Group 2
Patients will experience improved mental wellbeing	The annual cost of treating an individual suffering from a long term mental health condition.	£1874.68	£1874.68
Patients will experience a reduction in pain	The Cost of Quality Adjusted Life Years (QALYs) for treatment as usual (GP-lead) of chronic pain in primary care.	£9237	£9237
Patients will experience improved physical health including a reduction in their symptoms	The QALY cost of having a total joint replacement (average taken from total hip and total knee replacement).	£1736.50	£1736.50
Patients will become more physically active	The annual cost of a gym membership at a local location.	£359.40	£359.40
Patients will experience a reduction in expense and time taken to travel to appointments	The annual cost of travelling (km) to an appointment for hip and knee pain.	£7.77	£10.36
	The annual cost of time taken to travel to appointments for hip and knee pain.	£6.24	£8.32
Reduction in NHS spending on management of OA hip and knee	The annual cost of GP appointments for patients with hip and knee pain. Data collected from Wells Park GP practice patient records.	£119.60	£119.60
Patients will lose weight	The cost of losing a unit of BMI.	£81	£81

*The source and calculations for financial proxies is described in full in Appendix 2.

Outcomes for patients participating in the JP Advisor pilot

1. Treating an individual with osteoarthritis for anxiety and depression:

By attending the JP Advisor clinic, patients were given tailored self-management strategies which allowed them to have greater control of their condition. A report by the King's Fund (2012) (9) highlights that people with long term conditions commonly experience mental health problems such as anxiety and depression, as a result their long term prognosis, and quality of life can markedly deteriorate.

Patient focus groups:

"It helped me with my work. My manager wanted to stop me working because of the pain, so it helped me."

2. Patients will experience a reduction in pain

One of the main reasons patients visit their GP about their hip or knee problem is because of pain; the JP Advisor offered tailored advice on how best to manage their pain.

Patient focus groups:

"Before I came, I used to have a lot of pain. Now I can do more walking. It's helped me."

"The pains eased, because I've strengthened my knees."

"I've stopped taking painkillers because my hip has stopped hurting."

3. Patients will experience improved physical health including a reduction in their symptoms

A core element of the programme was to empower patients so they could lead healthier lives and learn ways to reduce their symptoms.

Patient focus groups:

"The swelling in my knee has greatly reduced and is now better than it was before."

"[The JP Advisor] told her how she [Joyce] should get out of the bath because she was having trouble. So that helped her a bit."

4. Patients will become more physically active

The pilot aimed to deliver advice and support that was in line with NICE guidelines on the management of OA (2), which includes encouraging people to become more physically active while highlighting the benefits for their OA and wider health.

Patient focus groups:

"Every morning I walk my children to school and during the holidays I go to the park and do a one hour walk."

"I've gone back to my allotment gardening and a whole host of other things. I'm now pacing myself, as [the JP Advisor] says."

5. Patient will experience a reduction in expense and time taken to travel to appointments

The JP Advisor clinics were held across five GP practices in Lewisham. Traditionally patients suffering from OA are seen in Physiotherapy Outpatient Departments. By providing the service in GP surgeries instead, patients experienced a reduction in the time taken to travel to their appointment, the cost of getting there and the cost associated with travelling times.

Patient focus groups:

“It just feels much easier because it’s a more relaxed environment. It’s near to home and it’s easier to get to.”

“The advantage of having it [JP Advisor service] here is that it’s five minutes walk from my home. If it was in Lewisham, it would take me forever on the bus or if I drove, it would cost me an arm and a leg in parking charges. So, for convenience and ease, it makes a big difference. I like that it’s local.”

6. Reduction in NHS spending on management of hip and knee OA

The JP Advisor offered targeted and tailored advice for patients with hip and knee OA in a primary care setting. Advice given to patients was in line with NICE guidelines. Advisors were able to assess patients and refer them to other services when appropriate. By improving the OA pathway in primary care, the service was able to reduce spending on OA management elsewhere in the NHS.

Patient focus groups:

“If there’s a service we can come to before going to see the GP then that would be good. It would mean we could make an appointment to go straight away to the Hip and Knee Clinic and that would take a bit away from the GP and speed things up a bit for everyone.”

“I don’t need prescriptions, I don’t need operations; I just need someone to help me manage my life as comfortably as I can, basically.”

“The GP can’t help you apart from give you tablets.”

7. Patients will experience a reduction in weight

Patients who attended the service were weighed at each appointment, given their BMI score and had their waist measured. Patients were encouraged to lead healthier lives and to lose weight. They were given advice about diet, portion size and physical activity.

Patient focus groups:

“[The JP Advisor] told me that I needed to reduce my portions, eat a lot of fruit and lose weight. They also explained to me that I had high blood pressure and that it’s not good for me or my health if I’m very fat.”

“They told me to do lots of walking because I was putting on the weight and then last week [the JP Advisor] weighed me and said I was fine.”

Calculating Impact

This section shows the impact of the JP Advisor model on the management of hip and knee OA and introduces the calculation methodology used in SROI analysis.

It is important to consider other factors that impact on the management of OA of the hip and knee to ensure the value presented is credible and does not over-claim. SROI analysis requires the displacement, attribution and effects of to be accounted for in the calculation. These effects are explained in more detail below.

Deadweight

Deadweight is a measure of the amount of outcome that would have occurred even if the JP Advisor pilot had not taken place (i.e. the general trend in the wider population), and is calculated as a percentage. An example of how this was calculated is the outcome 'Patients will experience improved mental wellbeing', which was attributed a deadweight of 11%.

This was calculated based on a study of older adults with OA who reported improved mental wellbeing after receiving usual GP care for their condition. Table 7 describes deadweight for each outcome, the value attributed to it and the source.

Table 7: Describing deadweight for each outcome.

Outcome	Deadweight description	Value
Patients will experience improved mental wellbeing	Proportion of adults with OA who experienced an improvement in mental-wellbeing through usual care (GP-led).	0.11
Patients will experience a reduction in pain	Proportion of adults with OA who experienced a reduction in pain through usual care (GP-led).	0.05
Patients will experience improved physical health including a reduction in their symptoms	Proportion of the population living with OA of the hip and knee that will have joint replacement surgery to relieve symptoms.	0.028
Patients will become more physically active	Proportion of adults in England aged 65yrs+ who do 30-59 minutes of moderate physical activity per week or 15-29 minutes vigorous physical activity per week or an equivalent combination of these (referred to as 'low activity').	0.06
Patient will experience a reduction in expense and time taken to travel to appointments	Proportion of outpatient physiotherapy appointments that are nearer where the patient lives.	0
Reduction in NHS spending on management of OA hip and knee.	Proportion of savings on NHS spending based on data collected at Wells Park Practice.	-0.21
Proportion of adults of overweight and obese adults who lose weight through maintaining a healthy lifestyle (control group).	The units of BMI lost by a group of patients in a study of older adults with OA who received usual care (control group).	0.2

Displacement

Displacement is an assessment of what activities or services are displaced by the presence of the JP Advisor pilot. An example of this would be 'patients saw their GP less as a result of attending the service but were referred to hospital for physiotherapy more often'. We have studied each outcome to see if there was any evidence of outcomes causing displacement and did not find any evidence of displacement; therefore, the displacement value is set at 0% for all outcomes.

Attribution

Attribution is an assessment of the extent to which outcomes from the JP Advisor pilot were a result of patients being involved in the pilot rather than a result of other interventions or organisations. The level of attribution in the analysis is taken as a percentage and deducted from the total impact. For this study, attribution was calculated by asking the participants of the focus groups to indicate how much of each outcome was a result of the JP Advisor and how much was due to another intervention. See the Appendices for attribution descriptions and values.

Drop off

Drop off considers how other factors influence outcomes over time and adjusts the attribution to the intervention. For this study, we have only considered outcomes over the one-year period of the pilot because evidence is not available for us to accurately estimate what will happen to patients over longer periods of time. Therefore, drop off has been set at 0% for this study.

Social Return on Investment (SROI)

In this section, we outline the overall Social Return on Investment produced by the two models of care.

The SROI value is expressed as a ratio-of-return and is derived from dividing the value of the impact by the value of the investment. The SROI value needs to be adjusted to reflect the net present value (NPV) of the projected outcome values. Discounting is applied to values that are projected to last longer than one year.

The interest rate used is 3.5% and is based on the Government HM Treasury’s Green Book*. See below for the NPV for each model:

Group	Economic Investment per year (total input)	Net Benefit
Group 1	£54,647.47	£220,333.17
Group 2	£ 19,648.53	£47,784.23

To calculate the SROI ratio, the total impact calculation is as follows:

$$\text{SROI} = \frac{\text{Total Net Present Value}}{\text{Total economic value of inputs}}$$

The table below shows the social value gained for every £1 invested in each model:

Group	SROI ratio
Group 1	£1 : £4.03
Group 2	£1 : £2.43

A sensitivity analysis was conducted by adjusting the financial proxies. Financial proxies were halved and then doubled to give a range that allowed us to consider the most optimistic and the most conservative scenarios. The range for the ratios is displayed in the table below.

Group	Halved	Doubled
Group 1	£1 : £2.02	£1 : £8.06
Group 2	£1 : £1.23	£1 : £4.84

We then repeated the sensitivity analysis by halving and doubling the deadweight values. For the deadweight “proportion of savings on NHS spending”, we did the opposite as this was a negative value in our original calculation.

Group	Halved	Doubled
Group 1	£1 : £5.04	£1 : £2.11
Group 2	£1 : £3.19	£1 : £0.99

Discussion

This section presents an analysis of the social value created by the JP Advisor service and outlines our conclusions from the study.

This SROI analysis highlights the positive benefits and wider social value a JP Advisor model of care offers patients with knee/hip OA whether they used the service over six weeks or six months.

Both groups produced a positive SROI ratio, demonstrating the social value created by the service is greater than the cost. The size of the ratio varied between the two groups, reflecting the difference between how the participants of each group used the service.

By conducting an SROI analysis, we engaged with patients using the service to understand the outcomes that mattered to them. This process gave rise to several outcomes, which could be relevant to other lifestyle interventions used in the management of other long-term conditions. It is important to recognise the strength of the qualitative data and to understand the impact of what people have told us, and not to focus solely on the positive ratio generated by the analysis.

The SROI analysis has demonstrated that the JP Advisor model of care gave rise to a number of important positive outcomes for both stakeholder groups.

For OA patients:

- They had an improved sense of mental wellbeing
- They experienced a reduction in their pain and other symptoms of hip and knee osteoarthritis
- They became more physically active
- They liked having easier access to specialist MSK services.

For The State:

- Patients needed fewer GP consultations, investigations and referrals after accessing the service
- Where appropriate, patients lost weight and increased their levels of physical activity, which could benefit other co-morbidities in older people with joint pain-induced immobility.

It is also important to consider the wider implications of the study's findings. It is reasonable to assume that when patients have an improved sense of wellbeing, are more physically active and have a healthier weight, they are much less likely to suffer from other long-term conditions such as depression, diabetes and hypertension. A reduction in pain and physical symptoms will mean patients are less likely to require time off work, will visit their GP less and be more able to participate in activities of daily living (e.g. climbing stairs) and social activities (e.g. gardening).

This study has shown the JP Advisor service creates social value and is highly valued by patients. The service delivers the support and advice needed to empower patients to manage their own conditions as outlined in the five year forward view. Patients highlighted the value of having clinics that were local to where they lived, suggesting they liked the familiar and convenient setting of their GP practice.

The positive ratios demonstrated in both groups highlight that the service would be a worthwhile investment in the management of lower limb OA in primary care. A future recommendation would be to create a system which is flexible and allows patients to self-book when they most need to; this would avoid providing appointments that were not required by patients and therefore reduce the overall cost of the service.

Strengths

- Participants of the focus group were asked to attribute how much of the outcome was a result of the JP advisor at the end of the session using NEF methods such as survey questions (Appendix 4); this means that any attribution is a true reflection of patients using the service.
- The researchers took steps to ensure they were rigorous in their assumptions and judgements. Researchers took time to discuss each outcome with one another, the clinicians involved in delivering the service and the other team members involved in a wider evaluation of the pilot.
- Clinical outcomes were collected across six GP sites by the clinicians delivering the service – and not the researchers conducting the SROI – thereby reducing researcher bias.
- When attributing deadweight, it is very difficult to find up-to-date data that is comparable to the population group involved in the pilot study. Where there is insufficient information and data available, the researchers had to use prior knowledge and ‘gut feel’ to estimate appropriate values.
- Patients represented the population and were recruited from primary care as part of the service typically used by people accessing treatment.

Conclusion

The SROI reflects the positive effects of allied health professional-led care on the physical and mental wellbeing of people with hip and knee OA. The JP Advisor model showed positive clinical outcomes, reduced health utilisation and wider benefits to patients and society. The improvements observed in people’s levels of physical activity, functional ability and weight loss have implications for the co-morbidities often associated with older people with chronic joint pain. The JP Advisor service offers commissioners a viable model for improving the management of OA in primary care.

Methodological considerations

- A convenience sample of 16 patients (2 x 8 participants) volunteered to participate in a focus group. They were self-selected (i.e. chose to attend) and therefore may have had a more positive or negative experience of the service. The researchers had no prior knowledge of the patients and were blinded to their outcome results when asking them to participate in the focus group therefore mitigating research bias.
- All participants of the focus group were patients of one practice and therefore may not accurately reflect the opinions of patients from the other four GP practices involved in the pilot study. Wells Park Practice was located in the same neighbourhood as the other GP practices and therefore shared similar demographics to the other practices.

Appendices

Appendix 1: Profile of participants from the focus groups

	Group 1	Group 2
Total number	6	6
Gender	1x M; 5x F	2x M; 4x F
Hip / Knee pain	1x Hip	1x Hip
Average age (range)	70 (59-79)	66 (44-87)
Ethnicity	2x Black; 4 x White	2x Black; 4x White

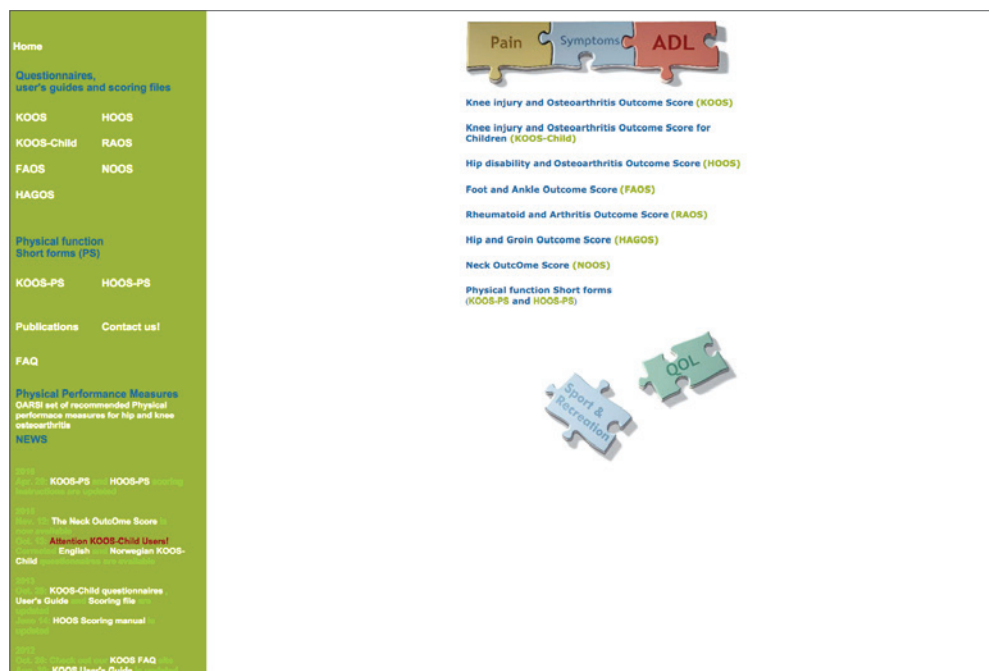
Appendix 2: Data sources for outcomes

Outcome	What changed?	Data source	When was data collected	Who was data collected from	Who was data collected by
1. Patients will experience an improved mental wellbeing	Self-reported change in quality-of-life score which focuses on patients' mental wellbeing.	HOOS/KOOS	March 2015 - March 2016	All patients participating in the study	Physiotherapists running the service
2. Patients will experience a reduction in pain	Self-reported pain scale	HOOS/KOOS	March 2015 - March 2016	All patients participating in the study	Physiotherapists running the service
3. Patients will experience improved physical health including a reduction in their symptoms	Self-reported change in symptoms	HOOS/KOOS	March 2015 - March 2016	All patients participating in the study	Physiotherapists running the service
4. Patients will become more physically active	Proportion of patients reporting an increase in days physically active per week (i.e. walking 20 minutes or more)	Patient questionnaire	March 2015 - March 2016	All patients participating in the study	Physiotherapists running the service

Outcome	What changed?	Data source	When was data collected	Who was data collected from	Who was data collected by
5. Patient will experience a reduction in expense and time taken to travel to appointments	Annual reduction in time spent travelling by car (in minutes)	Google Maps	November 2015	2 x focus group	HIN research team
	Total reduction in the distance (km) travelled to appointment per year	Google Maps	November 2015	2 x focus group	HIN research team
6. Reduction in NHS spending on management of OA hip and knee.	Percentage difference in GP consultations one year pre intervention compared to one year post intervention	Wells Park Practice patient records	April 2016	62 patients from Wells Park Practice who had participated in the JP Advisor pilot.	HIN research team
7. Patients will lose weight	Units of BMI lost	Weight taken by clinician during consultation	March 2015 - March 2016	All patients participating in the study	Physiotherapist running the clinic.

Appendix 3: The Knee Osteoarthritis Outcome Score (KOOS) and Hip Osteoarthritis Outcome Score (HOOS)

www.koos.nu



The screenshot shows the homepage of the KOOS website. On the left is a green navigation sidebar with links for Home, Questionnaires, user's guides and scoring files, KOOS, HOOS, KOOS-Child, RAOS, FAOS, HOOS, HAGOS, Physical function Short forms (PS), KOOS-PS, HOOS-PS, Publications, Contact us!, FAQ, Physical Performance Measures, OARSI set of recommended Physical performance measures for hip and knee osteoarthritis, NEWS, and a list of recent news items. The main content area features a puzzle graphic with pieces labeled 'Pain', 'Symptoms', and 'ADL'. Below this is a list of outcome scores: Knee Injury and Osteoarthritis Outcome Score (KOOS), Knee Injury and Osteoarthritis Outcome Score for Children (KOOS-Child), Hip disability and Osteoarthritis Outcome Score (HOOS), Foot and Ankle Outcome Score (FAOS), Rheumatoid and Arthritis Outcome Score (RAOS), Hip and Groin Outcome Score (HAGOS), Neck Outcome Score (NOOS), and Physical function Short forms (KOOS-PS and HOOS-PS). At the bottom, there is another puzzle graphic with pieces labeled 'Sport & Recreation' and 'QOL'.

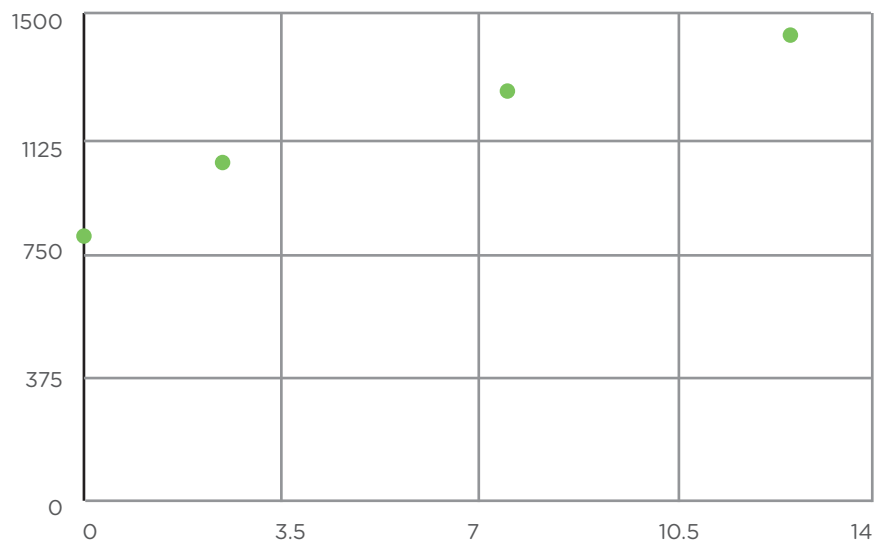
Appendix 4: Financial proxies and source

Proxy	Source	Additional information
The annual cost of treating an individual suffering from a long term mental health condition.	http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/long-term-conditions-mental-health-cost-comorbidities-nay-lor-feb12.pdf Page 10/Figure 5 – monthly cost of treating an individual with one long term condition for depression	Estimated monthly cost of treating an individual with a mental health problem with 1 LTC = £296 x 12 = £3552 per annum Figure was adjusted using the Bank of England inflation calculator = £3783.45 in 2015
	Alternative proxy from same report: Page 12 – presence of poor mental health in individual with LTC increases cost to NHS from £3910 to £5670 per year	£5670 – £3910 = £1760 Adjusted using the Bank of England inflation calculator to 2015 = £1874.68 per patient per year The lower figure was used to avoid over-claiming.
The cost of QALYs for treatment-as-usual (GP lead) of chronic pain in primary care	http://bmjopen.bmj.com/content/5/4/e006874.full	The study estimates that treatment-as-usual (TAU) equals unadjusted mean QALYs of 0.3079.1 QALY = £30,000 30,000 x 0.3079 = £9,237
The cost of QALYs of having a total joint replacement (average taken of total hip and total knee replacement).	http://www.bjj.boneandjoint.org.uk/content/95-B/1/115	The study estimates that the cost per QALY gained for total hip replacement = £1372 and for total knee replacement = £2101. Patients in our study were a mix of hip and knee OA so an average of these two figures was used: $1372+2101/2 = £1736.50$
The annual cost of a gym membership at a local location	http://www.better.org.uk/	Cost of membership at midrange gym in Lewisham
The cost of losing a unit of BMI	http://www.consultancy.uk/news/1278/mckinsey-obesity-costs-uk-society-73-billion-per-year	See table and graph in Appendix 5
The annual cost of travelling (km) to appointment for hip and knee pain	https://www.google.co.uk/maps	Difference in distance from GP practice to Lewisham hospital x number of journeys made
The annual cost of time taken to travel to appointments for hip and knee pain	https://www.google.co.uk/maps	Difference in time taken to travel to appointment x number of journeys made
The annual cost of GP appointments for patients with hip and knee pain.	http://www.pssru.ac.uk/project-pages/unit-costs/2015/index.php Page 117 – GP unit costs	The researchers went to Wells Park GP practice in Lewisham and collected data from patient's records about the number of times a patient consulted the GP about hip or knee pain. This was observed one year prior to intervention and one year post. Unit costs for GP consultation were taken from PSSRU Unit Costs of Health and Social Care 2015 = £65 per consultation. 62 records were used from WPP and 114 GP appointments identified. On average patients saw the GP 1.8387 times in a year. Cost per patient per year: $1.8387 \times £65 = £119.5$

Appendix 5: Table describing how cost per unit of BMI is calculated

	BMI band	Midpoint	BMI above normal	Cost
Normal	<25	25	0	805
Overweight	25-29	27.5	2.5	1052
Obese 1	30-34	32.5	7.5	1274
Obese 2	35-39	37.5	12.5	1447

When BMI increases	1			
Cost increase	£81.10			



Appendix 6: Source of deadweight

Deadweight	Source	Comment
Proportion of adults with OA who experienced an improvement in mental wellbeing through usual care (GP-lead)	file:///C:/Users/fay.sibley/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/8Z9KOI91/Clinical%20effectiveness%20(Hurley%20et%20al%20%202007a)%20(2).pdf	<p>RTC comparing group exercise for patients with knee OA to usual care (GP-lead). Measure used in study to calculate mental wellbeing – Hospital Anxiety and Depression Scale (HADS) which is a seven-point scale for anxiety/seven-point scale for depression.</p> <p>Control group receiving usual care:</p> <p>Change in anxiety score from baseline to six months = 0.73 $0.73/7 \times 100 = 10.42\%$</p> <p>Change in depression score from baseline to six months = 0.82 $0.82/7 \times 100 = 11.71\%$</p> <p>$(10.42 + 11.71)/2 = 11.07\%$ or 0.111</p>
Proportion of adults with OA who experienced a reduction in pain through usual care (GP-care)	file:///C:/Users/fay.sibley/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/8Z9KOI91/Clinical%20effectiveness%20(Hurley%20et%20al%20%202007a)%20(2).pdf	RTC comparing group exercise for patients with knee OA to usual care (GP-lead).
Proportion of people with hip or knee OA who will have joint replacement surgery	file:///C:/Users/fay.sibley/Downloads/Arthritis%20key%20facts%20(1).PDF	<p>ARUK states 6.57million people have OA of the hip and knee in UK. In 2013, there were 85,920 total knee replacements and 80,194 total hip replacements.</p> <p>Total = 166,114</p> <p>Trends suggest joint replacement surgery has increased by 4.6% yearly.</p> <p>Estimates THR/TKR performed in 2015 = 181,396</p> <p>2.8% or 0.028 of the hip/knee OA population have had joint replacement surgery.</p>
Proportion of adults in England aged 65yrs+ who do 30-59 minutes of moderate physical activity per week or 15-29 minutes vigorous physical activity per week or an equivalent combination of these.	<p>British Heart Foundation – Physical Activity Statistics 2015</p> <p>https://www.bhf.org.uk/-/media/files/publications/research/bhf_physical-activity-statistics2015feb.pdf</p>	<p>Percentage of men who do 'low activity': (65-74yrs = 4%) + (75yrs+ = 6%)</p> <p>Average for men 65yrs+ = 5%</p> <p>Percentage of women who do 'low activity': (65-74yrs = 5%) + (75yrs+ = 7%)</p> <p>Average for Women 65yrs+ = 6%</p> <p>Average total adults (men & women) = $(5\% \times 6\%)/2 = 5.5\%$ or 0.06</p>

Deadweight	Source	Comment
<p>Proportion of older adults with OA who lost weight during a study while receiving GP-lead care</p>	<p>file:///C:/Users/fay.sibley/Dropbox%20(HIN)/HIN%20-%20MSK/OA%20Advisor/SROI%20evaluation/supporting%20evidence/Messier_et_al-2004-Arthritis_&_Rheumatism%20(1)%20(1).pdf</p>	<p>316 participants Randomised, single blind study</p> <p>Four groups:</p> <ul style="list-style-type: none"> • Healthy lifestyle (control) • Diet • Exercise • Combined <p>Control Group (n = 78) Mean BMI @ baseline = 34.2 Mean weight (kg) @ baseline = 96 Mean weight loss @ 18 months = 1.1kg</p> <p>Adjusted mean weight @ 18 months = 94.9kg BMI = 34.0; difference of 0.2 units</p>
<p>Proportion of outpatient physiotherapy appointments that are nearer where the patient lives</p>	<p>Data collected from patient records at Wells Park Practice in Lewisham, using the PSSRU for financial proxies.</p> <p>http://www.pssru.ac.uk/project-pages/unit-costs/2015/index.php</p>	<p>Data was collected from 62 patients from Wells Park Practice who had participated in the JP Advisor project about the number of times they visited their GP about hip or knee pain one year pre intervention and one year post intervention.</p> <p>114 x £65 = 7410 90 x £65 = 5850</p> <p>21% reduction in healthcare cost</p> <p>National trends indicate spending on LTC such as OA is rising along with spending on healthcare for older people; therefore this outcome was given a negative deadweight.</p>

Appendix 7: Survey questions asked at the end of the focus group

1. What's changed as a result of coming to the Hip/Knee Clinic?

How much of the change is due to coming to the Hip/Knee Clinic?

Not at all (0%)	A little (25%)	Some (50%)	Quite a lot (75%)	A great deal (100%)
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2. In the last 6-12 months, have you been to any other services that have helped you in the same way with your hip/knee pain? **No / Yes** [Please circle]

If yes, what service?

If yes, how much did that service help you? [Please circle one]

Not at all (0%)	A little (25%)	Some (50%)	Quite a lot (75%)	A great deal (100%)
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