

SERVICE EVALUATION

Improving access to better care for people with knee and/or hip pain: service evaluation of allied health professional-led primary care

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Email: michael.hurley@sgul.kingston.ac.uk**Abstract****Introduction** Chronic knee and hip pain is prevalent, impairing mobility, function and quality of life. Allied health professions (AHPs) are better trained and have more time than general practitioners in primary care to advise and support people to adopt healthier lifestyles (maintain healthy weight, increase physical activity) that reduce joint pain. We evaluated whether AHP-led primary care delivering person-centred, practical lifestyle coaching was a feasible, effective way to manage chronic knee and/or hip pain.**Methods** At initial assessment the 'Joint Pain Advisor' assessed pain, function, quality of life, physical activity, waist circumference and body mass, taught simple self-management strategies and used behaviour change techniques (motivational interviewing, goal setting, action/coping planning) to alter participants' lifestyles. Participants were invited for 6-week and 6-month reviews, when the Advisor reassessed clinical outcomes, fed back progress and reinforced health messages. Feasibility and effectiveness of the service was evaluated using quantitative and qualitative methods.**Results** Uptake of the service was good: 498 people used the service. Between initial assessment and reviews, participants' pain, function, quality of life, weight, waist circumference and physical activity improved ($p < 0.005$). Service user satisfaction was high; they reported easier access to advice and support tailored to their needs that translated into clinical benefits and a more efficient pathway reducing unnecessary consultations and investigations. Relatively few people returned for a 6-month review as they considered they had received sufficient advice.**Conclusions** AHP-led care is a popular, effective, efficient and sustainable way to manage joint pain, without compromising safety or quality of care.**KEYWORDS**

hip, joint pain advisor, knee pain, primary care

1 | BACKGROUND

In older adults chronic joint pain, usually labelled osteoarthritis (OA), impairs mobility, physical and psychosocial function, independence and quality of life (Conaghan et al., 2015; Hunter, Schofield, & Callander, 2014), increases the risk of co-morbidity (obesity, diabetes) and mortality (Losina et al., 2011; Nüesch et al., 2011) and is a major expenditure in health and social care (Salmon et al., 2016). Because the incidence of OA increases with age, sedentary lifestyle and obesity (Anderson & Loeser, 2010; Muthuri, Hui, Doherty, & Zhang, 2011), as

more people live longer but are less active and more obese, the number of people suffering from OA and its health and socioeconomic consequences will increase (Conaghan et al., 2015; Hunter et al., 2014).

Poor health beliefs, behaviours and lifestyles, such as being overweight, inactive and fear-avoidance behaviours, are important risk factors for developing and exacerbating joint pain (Fitzgerald, White, & Piva, 2012; Hurley, 1999; Leeuw et al., 2007). Maintaining a healthy weight and increasing physical activity can reduce pain and improve function and quality of life (Fernandes et al., 2013; Hochberg et al., 2012; McAlindon et al., 2014; National Institute for Health and

Clinical Excellence, 2014). However, modifying entrenched behaviours takes time and effort. People must make a conscious decision to change accompanied by implementation intentions so the behaviour is performed with minimal conscious effort when an opportunity arises (Gollwitzer, 1999). Making this reaction habitual protects the behaviour from distractions, bad habits and competing goals (Gollwitzer, 1999). This habituation is facilitated by formulating action plans that specify exactly what, where, when and how a behaviour will be performed (Sniehotta, et al., 2005a; Sniehotta, Schwarzer, Scholz, & Schüz, 2005b), and coping plans that anticipate and plan how to avoid or overcome barriers that impede performance of a behaviour (Scholz, Knoll, Sniehotta, & Schwarzer, 2006; Sniehotta, Scholz, & Schwarzer, 2006). With an explanation of the rationale behind them and information on how to formulate them, action and coping planning can be formulated in 15–30 min (Scholz, Sniehotta, Burkert, & Schwarzer, 2007). To sustain a behaviour, frequent ongoing engagement with healthcare professionals who provide ongoing encouragement and support is extremely important (Gately, Rogers, & Sanders, 2007; Hillsdon & Thorogood, 1996; Hillsdon, Thorogood, Anstiss, & Morris, 1995; Marcus et al., 2000; Michie et al., 2013). Although brief behavioural change interventions can be effective, even these are often not implemented because of time constraints (Jackson et al., 2009).

OA is usually managed by general practitioners (GPs) in primary care, but GPs lack the expertise and time necessary to help people change their behaviours and lifestyles (Basedow & Esterman, 2015; Cottrell, Roddy, & Foster, 2010; Cottrell, Roddy, Rathod, Porcheret, & Foster, 2016; Foster, Hartvigsen, & Croft, 2012; Hagen, Smedslund, Østerås, & Jamtvedt, 2016; Michael Hurley, Walsh, Bhavnani, Britten, & Stevenson, 2010). Only a minority of people are aware of lifestyle changes that could help them and fewer still have been given advice and support effective enough to convince them to undertake these activities (Conaghan et al., 2015; Paskins, Sanders, & Hassell, 2014). Most people receive palliative medication, enduring many years of unnecessary pain and disability (Cottrell et al., 2010; Denoëud, Mazières, Payen-Champenois, & Ravaud, 2005; Fontaine, Bartlett, & Heo, 2005; Paskins et al., 2014). A large number of people (40%) consider their management to be ineffective (Conaghan et al., 2015).

Enabling GPs to deliver effective lifestyle coaching would require additional training and more frequent and longer consultations, which would be prohibitively expensive and unsustainable. Allied health professions (AHPs) have more training in lifestyle coaching; a large proportion of their work involves persuading people to make lifestyle changes and take up activities that might be worrying, and cause them discomfort or even pain. They have more time than GPs to advise and support people. AHP-led care is a common, effective, efficient and sustainable way of caring for many uncomplicated long-term conditions (Jackson et al., 2009), including musculoskeletal (MSK) conditions (Foster et al., 2012; Ludvigsson & Enthoven, 2012; Maddison et al., 2004, 2014; Ndosì et al., 2014; The King's Fund and Nuffield Trust, 2013; Wetzels, van Weel, Grol, & Wensing, 2008), but implementation of AHP-led primary care for MSK conditions is still very rare.

We established an AHP-led service to provide easier access to better care for people with knee and/or hip joint pain from OA, and evaluated its feasibility, effectiveness, acceptability and associated costs.

2 | MATERIALS AND METHODS

2.1 | Design

Service evaluation of AHP-led care in six primary care surgeries in South London, UK, using qualitative and quantitative methods to assess feasibility, effectiveness and cost.

2.2 | Participants

Patients were eligible to use the service if they were registered at a participating practice and had a clinical or radiographic diagnosis of OA, were 40 years or older, had knee and/or hip pain for more than 3 months, and morning joint stiffness (if present) <30 min. Patients could be identified and referred to the service from GPs, search of the electronic patient records, practice nurse or self-referral.

2.3 | Joint pain advisor

Two physiotherapists were recruited to the Joint Pain Advisor role. Each had 4–5 years of post-graduate experience. Their remit was to address sensitive lifestyle issues, such as excess body weight, and deliver practical lifestyle advice emphasizing the importance of weight control and physical activity. They attended a 2-day course about supporting behavioural change in people with diabetes. The Advisors did not to deliver physiotherapy treatments (manual therapy, electrotherapy, etc.).

During 30-min appointments the Advisors built collaborative partnerships with participants and used behavioural change techniques (motivational interviewing, goal-setting, action and coping planning, monitoring, feedback, etc.) to nurture healthier lifestyles (Figure 1).

Baseline assessment the Advisor assessed each participant's joint problems, physical function, general health and lifestyle, body mass index (BMI), waist circumference, and number of days each week when they performed moderate physical activity for 20 min. Working with each participant the Advisors used this information to build a picture of their each participant's lifestyle, compared this against accepted norms for a healthy lifestyle and constructed an individualized care plan tailored to each person's needs and how they could alter their behaviour to self-manage their problems. The care plans focused on how participants could increase physical activity, lose weight and use simple pain management techniques (hot/cold packs, 'rest-activity cycling');

3-week review the Advisor reinforced the health messages, advice, reassurance, motivation and encouragement. No clinical measurements were made.

6-week review participants' baseline measures were repeated and progress was fed back to participants, goals were revised (if appropriate), with motivation, encouragement and support;

6-month review as with the 6-week review and measurements were repeated.

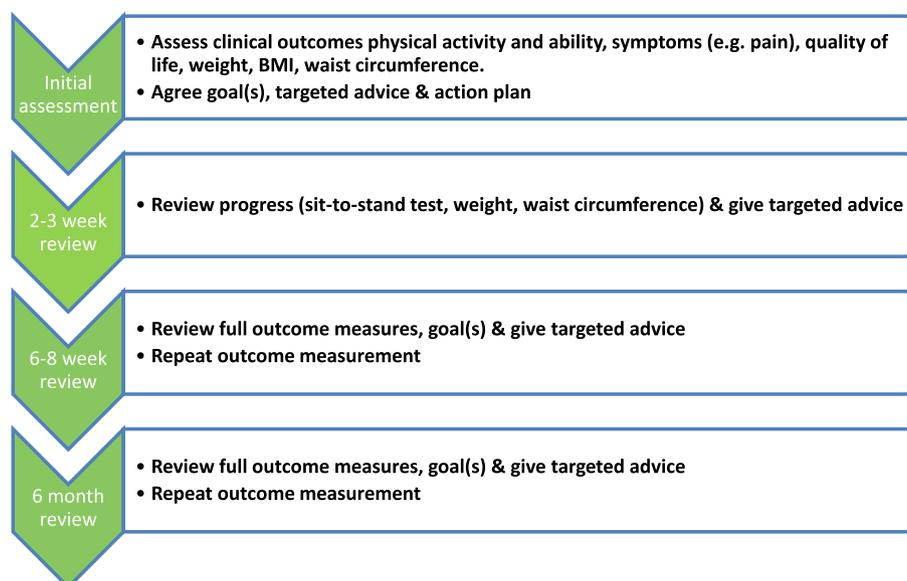


FIGURE 1 The joint pain advisor pathway [Colour figure can be viewed at wileyonlinelibrary.com]

2.4 | Evaluation, data handling and analysis

2.4.1 | Feasibility

Referral routes, uptake, 'failure to attend', attrition rates and adverse events were documented as proxies for feasibility and acceptability.

2.4.2 | Clinical effectiveness

Clinical outcomes were assessed at baseline, 6 weeks and 6 months. The Knee or Hip Injury and Osteoarthritis Outcome Score (KOOS or HOOS) is a valid, reliable, widely used measure for pain, physical function and quality of life, that is sensitive to change and takes about 5–10 min to complete (Davis et al., 2009). Participants answer questions in three subscales covering their pain, physical function and quality of life during the previous week. They tick one of five boxes that are assigned a score from 0 (extreme pain/difficulty) to 4 (no pain/difficulty), and a score between 0 and 100 is calculated for each subscale; higher scores are better. Physical activity levels were measured by the number of days of the week participants performed ≥ 20 min of moderate physical activity. Body weight, BMI, waist circumference and the number of sit-to-stand participants could perform from a chair with folded arms in 30 s (Jones, Rikli, & Beam, 1999) were also recorded. Clinical outcomes were summarized using descriptive statistics, and paired *t*-tests.

Health utilization was estimated by reviewing the medical records of a convenience sample of 62 participants to identify knee/hip pain-related GP consultations, investigations, interventions and/or referrals during the year immediately preceding, and 1 year after, they accessed the Advisor service. A cost-benefit analysis was conducted to estimate the social return of investment (SROI) (Millar & Hall, 2013).

Satisfaction with and acceptability of the Advisor service was assessed using a satisfaction questionnaire and focus groups.

All service users were asked to complete a service user satisfaction questionnaire at the review appointments (Appendix 1).

People who did not return for a review appointment were contacted by post or telephone and invited to complete a short questionnaire to ascertain why they had not attended and their views of the Advisor service.

Two focus groups with 12 participants were conducted. Time and logistical limitations prevented purposeful sampling so a convenience sample of service users who attended baseline, 6-week and 6-month appointments were recruited. A topic guide was used to explore people's experiences of the service (Appendix 2). The focus groups lasted approximately 1 h, were audio recorded, and analysed using thematic analysis to code and identify emergent themes (Braun & Clarke, 2006). One team member read and coded all qualitative data, and two others independently coded and verified the themes from a sample of the data. The team met, discussed and reached consensus regarding the final themes that were then compared against the data to validate the findings and direct quotes were used to ground the findings in the data.

3 | RESULTS

3.1 | Participants

In total, 498 participants (362 women) were recruited across six primary care practices over the period of 18 months. Their mean age was 65 years (range 40–93 years), mean weight was 87 kg (range 49–157 kg), 406 (82%) had knee pain, 92 (18%) hip pain, and many had knee and hip pain.

Most referrals (59%) to the service came from a GP, 40% accessed the service after receiving a letter inviting them to book an appointment, and self-referral (from promotional material in the surgeries) was uncommon (1%).

Of the 498 participants, 315 (63%) returned for 3-week review, 244 (50%) returned for 6-week review and 60 (12%) returned for 6-month review.

No adverse events were reported.

3.2 | Clinical outcomes

Patients reported improvements in pain, physical function and quality of life, the numbers of days they walked for ≥ 20 min and sit-to-stands they could perform in 30 s, along with reduction in body weight, BMI and waist circumference (Table 1).

3.3 | Health care utilization

Compared to the 12 months immediately before their baseline assessment, the total healthcare costs of 62 participants was £2424.20 lower during the 12 months following baseline assessment, approximately £39.10 lower per patient. They had 21% fewer GP consultations for hip/knee pain, and a reduction in referrals to MSK physiotherapy and imaging. An SROI demonstrated a social return of between £2.43 and £4.04 for every £1 invested.

3.4 | Patient satisfaction and experience

All respondents (100%) were satisfied with the Advisor service – they felt they could discuss their problems, were listened to, received clear practical advice, received a care plan and would recommend it to others. A large majority (83%) had not felt the need to return to consult their GP about their hip/knee pain.

To find out why the uptake of the service after the baseline assessment was so low, we randomly surveyed 110 people who had not attended a review session. Nearly 70% (75/110) of the people responded to the survey, of whom 77% rated the service good or excellent, 75% said it had helped them manage their OA and 75% would use the service if they had problems in the future. When asked why they had not returned for a review appointment people explained that they felt they had received sufficient information to help them manage their problems during the initial assessment and did not need any further help at present, some had difficulty getting an appointment

(in part due to the popularity of the service), administrative errors meant some people did not receive an invitation to return for review, and a few had experienced other illnesses that prevented them from attending.

3.5 | Focus groups

Two focus groups were held with 12 people (nine women; eight white; mean age 68 years, range 44–87 years) predominantly with knee pain.

When asked their reasons for using the Advisor service (Table 2), although everyone had previously received advice from their GP, they were *dissatisfied* with brief consultations and *management* they had received. They thought someone with *specialist knowledge* might give them more specific advice, and so decided the *new service* was worth trying, especially as it was *convenient* because it was at their local surgery that they were familiar and comfortable with and not a hospital.

Participants considered the Advisor consultations (Table 2) were very positive. They felt the Advisors were *unrushed* and had more time than a GP to explain the problems and how to manage them, using plain language that enabled them to understand difficult concepts that often bewildered them, such as the episodic nature of their pain. As a consequence, they *learnt* more about their problems, how to self-manage them and felt listened to, *cared for* and motivated better towards achieving their goals.

People liked receiving tailored, lifestyle advice and support (Table 2), which they considered *relevant* and practicable. In particular, guidance about simple exercises that could improve their mobility and function, and how to incorporate *physical activity* into their normal routine – using stairs, walking, gardening. Where appropriate the Advisor gave advice and support about *weight control* and *diet*.

Participants reported a wide range of beneficial outcomes (Table 2) that they attributed to the Advisor. Better *knowledge* about their condition and a clearer understanding of how exercise and weight

TABLE 1 Summary of outcomes data for all sites for all patients

Outcome	Baseline Mean (sd)	6 weeks		6 months	
		Mean (sd)	Change	Mean (sd)	Change
<i>K/HOOS:</i>					
Pain	46.4 (20)	64.4 (19)	18.0*	62.7 (18)	16.3*
Activities of daily living	49.0 (23)	67.7 (20)	18.7*	65.1 (22)	16.1**
Quality of life	33.5 (22)	50.0 (22)	16.5*	49.6 (20)	16.1 [#]
<i>Anthropometric:</i>					
Waist (cm)	105.8 (14)	101.3 (12)	-4.5*	99.4 (13)	-6.4*
Weight (kg)	86.7 (19)	83.6 (17)	-3.1*	82.2 (17)	-4.5**
BMI	32.2 (7)	31.3 (6)	-0.9*	30.2 (6)	-2***
<i>Physical activity:</i>					
Number of days walked >20 min	2.5 (2.5)	4.4 (1.7)	1.9*	4.4 (1.8)	1.9*
<i>Disability:</i>					
Number of sit-to-stands performed in 30 s	8.8 (4.7)	14.8 (4.4)	6.0*	14.6 (4.6)	5.8*

* $p < 0.000001$;

** $p < 0.0005$;

*** $p < 0.005$.

TABLE 2 Emergent themes and sub-themes with supporting quotations

Theme	Sub-theme	Supporting quotations
Reasons for using the Advisor service	dissatisfaction with GP consultations - management -	"...with going to the GP you've got 5 minutes, maybe 10 minutes..." "...the GP can't help you apart from give you tablets..." "...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..."
	specialist knowledge -	"...it's nice to have someone on that one area, like knees..."
	new service -	"...I got a letter...I thought, well I've taken my knee to the doctor so many times before so what's the point. Well, I thought it doesn't hurt, just once more, just see if something different might help..." <i>a</i>
	convenient -	"...not having to travel to a hospital was a real bonus..."
Better experience	unrushed -	"...I don't feel rush...I've never left feeling that I hadn't discussed what I needed to. It never felt like clock watching..." "...they made the session feel really relaxed...had a really good way about them..."
	felt like a partnership -	"...[The Advisor] never forced me to do anything..."
	learnt about problems -	"...I was not patronised and felt involved and included in my on-going care plan..."
	caring, motivating -	"...[The Advisor] will take things as in depth as I want to go...I've wanted to understand more..." "...they care, they do care. They encourage you..."
Advice and support	relevant -	"...it's a little bit more personal for your specific condition..."
	specific advice about healthy diet -	"...they're not going to give you advice if they don't think it's going to do you any good, so you've got to go along with it, you know to make your joints stronger..." "...[The Advisor] told me that I needed to reduce my portion and eat a lot of fruit and said I had to lose weight. [Advisor] explained to me that I had high blood pressure and they said it's not good for me if I'm very fat..."
	body weight -	"...[The Advisor] told her to lose weight and she did do, she lost about a stone...well lose some weight and you might benefit and it did..."
	physical activity -	"...they measured my waist and said keep it down...they told me to do lots of walking, because I was putting on the weight..."
Beneficial outcomes	reduced symptoms -	"...the pain's eased, because I've strengthened my knees...I got a big improvement..." "...the swelling in my knee has now gone..."
	better knowledge -	"...before I came I used to have a lot of pain. Now I can do more walking. It's helped me..." "...I was given advice and exercises that have transformed my mobility and in return I feel mentally so positive..."
	reassurance -	"...I am more able and willing to keep on the path with the knowledge I've been given..." "...you have to keep on exercising..."
	physical activity -	"...I was really pleased with the service that I got...[The Advisor] really put my mind at rest and I found it really helpful..."
	mobility -	"...I was quite pleased with what I was given, it was marvellous, absolutely..."
	activities of daily living -	"...this year from February to April I wasn't walking...[now] every morning I walk my children to school and during the holidays I go to the park and I do one hour walk..."
	work and productivity -	"...it has given me confidence, I walk daily now and find I am enjoying it..."
	leisure -	"...She was having trouble getting out of the bath and [Advisor] described how to get out. So that helped her..." "...it helped me with my work. My manager wanted to stop me from work because of the pain..."
	health utilisation -	"...I've gone back to my allotment gardening and a whole host of other things. I'm now pacing myself..."
	less medication - fewer GP consultations - wanted service to continue-	"...I've stopped taking painkillers because my hip has stopped paining me..." "...if there's a service we can come to before going to see the GP then that would be good... that would take a bit away from the GP and speed things up a bit for everyone..." "...if the service disappears I'll see [Advisor] privately somewhere, they've made such a big difference..." <i>Natasha</i>

control can alleviate symptoms meant their *symptoms improved*. They had *less pain, increased physical activity, improved mobility, greater independence with simple everyday activities*, such as getting in/out of a bath, going up/downstairs, *work and leisure*.

The most frequent *healthcare utilized* by participants were analgesia and GP consultations. After seeing the Advisor participants *reduced medications* as their pain improved, and *consulted their GP less* but whether this could be attributed to the new service is unclear because few participants routinely consulted their GP. Their satisfaction with the ease of access, convenience and effectiveness meant they would be happy to use the service in the future. They felt the new service was a good idea, addressed their unmet needs and could reduce the burden on GPs, and they were keen for it to continue.

4 | DISCUSSION

This service evaluation of AHP-led primary care for people with knee and/or hip pain facilitated easier access to better care, resulting in clinical benefits, reduced healthcare utilization and high user satisfaction.

Clinical trials of similar services have shown them to be effective (Foster et al., 2012; Ludvigsson & Enthoven, 2012; Maddison et al., 2004, 2014; Ndosu et al., 2014; The King's Fund and Nuffield Trust, 2013; Wetzels et al., 2008), but they have not been widely adopted. This is unfortunate as the users of our Joint Pain Advisor service reflected the general dissatisfaction people feel with their management. They wanted to know more about their condition and to be more involved in their care (Campbell et al., 2001; Donovan, 1995; J.

Donovan, Blake, & Fleming, 1989; Hurley et al., 2010; Mitchell & Hurley, 2008; Sanders, Donovan, & Dieppe, 2002). No one had explained to them the strong association between pain and being overweight and inactive, nor had they received any advice or support that enabled them to modify their beliefs and behaviours that would reduce their pain and disability (Atukorala et al., 2016; Juhl, Christensen, Roos, Zhang, & Lund, 2014). Altering entrenched health beliefs and motivating people to adopt healthy lifestyles cannot be achieved during brief (~10 min) consultations. Most people are not advised (or do not remember being advised) about how lifestyle changes can alleviate symptoms (Cottrell et al., 2010; Fontaine et al., 2005). Changing beliefs and behaviour requires coaching from practitioners with sufficient knowledge, expertise and time to provide effective, practical information, advice and ongoing support. When delivered effectively people can adopt lifestyles that improve clinical outcomes, as shown by this Advisor service.

The severe pressures on primary care services, lack of time and appropriate training means GPs struggle to manage joint pain (Cottrell et al., 2010; Denoed et al., 2005; Fontaine et al., 2005; Ganz et al., 2006; Paskins et al., 2014). Some people may be referred to outpatient physiotherapy, for surgical opinion or other treatment, usually via Musculoskeletal Clinical Assessment and Triage (MCAT) services, where each referral is reviewed by a rheumatologist, orthopaedic surgeon or senior physiotherapist (Figure 2a). However, as most (98%) joint pain is uncomplicated very few people need or want joint surgery, and usual physiotherapy involves one or two sessions of lifestyle advice and exercise similar to the Advisor service, so this pathway is unnecessarily complicated, expensive and increases waiting time for appropriate treatment. Our Advisor service truncates the pathway, providing faster access to effective care with fewer onward referrals, and so is a more effective, efficient model of care that uses the skills of a wider workforce. Avoiding GP consultation by allowing people to self-refer to an Advisor would further enhance the convenience and efficiency of the service and minimize unnecessary delay and costs (Holdsworth, Webster, & McFadyen, 2007; Nordeman, Nilsson, Möller, & Gunnarsson, 2006).

The main strengths of this service evaluation are its pragmatic nature – it reflects what happens when we implement new services for managing joint pain in a ‘real life’ primary care setting. The users were a representative population of people with joint pain from socio-economically disadvantaged inner city districts. Satisfaction with the

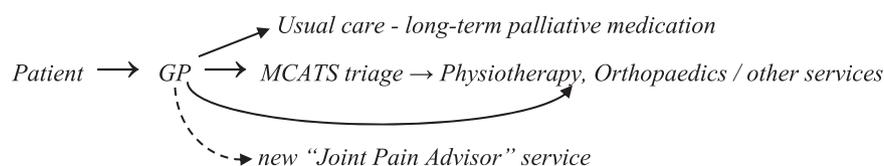
service can be gauged from the overwhelmingly positive user feedback. Moreover, the GPs also embraced the service enthusiastically – initially we intended to evaluate the service in one practice only, but within a year it was adopted by five neighbouring practices as word of its effectiveness and popularity spread. This suggests this model of care could be widely replicated in clinical practice relatively easily and enthusiastically.

Unfortunately, the pragmatic nature of the evaluation also contributes to its limitations. It is an evaluation of a clinical service based on previous clinical trials (Foster et al., 2012; Ludvigsson & Enthoven, 2012; Maddison et al., 2004, 2014; Ndosu et al., 2014; The King’s Fund and Nuffield Trust, 2013; Wetzels et al., 2008), and it does not have features of clinical trials that minimize bias (control group, randomization, blinding), so the benefits of the service might be exaggerated. Logistical and time limitations restricted the number of people we could follow-up. For healthcare utilization we looked at people’s data for the 1 year before and after they accessed the service, which is probably too brief to assess fully the service’s effects. A more robust evaluation of the value of the service would provide commissioners with a better understanding of the value of the service.

The most significant limitation is the amount of missing data caused by a large number of people not returning for review appointments. As a pragmatic evaluation of a clinical service that truly reflects how the service would work in practice, we could not coerce people to return for review appointments. That so many people chose not to attend follow-up appointments might suggest they did not find the service useful. In fact, most people we contacted who did not attend later appointments rated the service good/excellent. They chose not to attend because they had received the advice and reassurance they needed from the initial appointments. In effect they were self-managing their problems by deciding what, how much and when they needed help.

In light of this feedback we may need to rethink management guidelines that recommend annual follow-up because people may not want or need regular review. It would be better and more efficient to ensure that people have the option to self-refer to services when most appropriate to their needs (Hewlett et al., 2005; Maddison et al., 2004). We could redesign the service to provide ‘stepped care’, whereby the level and content of care is guided by each person’s needs (Davison, 2000; Smink et al., 2011; von Korff & Moore, 2001). The Advisor would triage and target treatment to each individual’s needs, with

(a) Current patient pathway.



(b) Proposed Advisor stepped-care, timely care determined by patient need

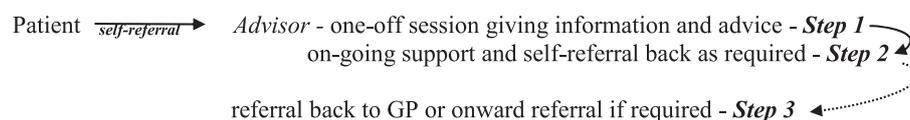


FIGURE 2 (a) current patient pathway. (b) proposed advisor stepped-care, timely care determined by patient need

intensive treatments being reserved for those who need it, but facilitating access to these interventions for those who need it without the need to go through earlier steps.

Step 1. would be a single session (the initial appointment), low-intensity intervention giving information and advice, equivalent to our baseline assessment. This could be by self-referral. On review people who felt they needed and wanted additional support would be offered;

Step 2. follow-up appointments at 3 weeks, 6 weeks and/or 6 months that would be offered to everyone but they decide whether to accept additional appointments according to their need. If they chose not to attend these appointments, they could refer themselves to the Advisor at a later date when required;

Step 3. would involve referral to other services, such as physiotherapy, pain or weight management programmes and surgery, as necessary.

This would target care to the people who need it, when they need it, eliminating provision of inappropriate and unwanted healthcare (Smink et al., 2014).

Given the large and rapidly increasing number of people with chronic joint pain, we need to deliver effective services responsive to service users. AHP-led care with its lower workforce costs, need for minimal additional training and ease of implementation provides an effective, efficient, practicable, affordable and sustainable way to manage this problem without compromising safety or quality of care. Cost-efficiency could be improved further by screening for and delivering management of joint pain using other members of the primary care workforce, such as healthcare assistants, clinical support workers, pharmacists and health trainers (Harris et al., 2014; Health Education England, 2015; NHS England, 2016; The King's Fund and Nuffield Trust, 2013). As these healthcare workers are used increasingly to manage long-term conditions (Martínez-González et al., 2014) that are frequently co-morbid with joint pain, providing advice for joint pain through an established workforce would have the advantages of avoiding the need to commission a new disease-specific service, and enhancing the management of co-morbidities that often require similar information and advice about the importance of weight control and physical activity.

In summary, AHP-led primary care for people with uncomplicated chronic knee/hip pain can deliver easier, more convenient access to the recommended support and advice, which results in improved clinical outcome and promotes self-care. It is a more efficient pathway eliminating unnecessary consultations, investigations, procedures and referrals, which could reduce cost of care and free up GP time.

ACKNOWLEDGMENTS

This work was funded by the Health Innovation Network – the Academic Health Science Network for South London. The authors are grateful to and thank all the participants of this study for their time and effort, as well as the staff at the Wells Park Practice, Bellingham Green Surgery, Sydenham Green Group Practice, Woolstone Medical Centre, Sydenham Green Group Practice, Jenner Practice and Vale

Medical Centre. Sonal Thakrar, Martin Creasey and Kate Ford were the Joint Pain Advisors of this study and helped form and guide the work.

REFERENCES

- Anderson, S. A., & Loeser, R. F. (2010). Why is osteoarthritis an age-related disease? *Best Practice and Research in Clinical Rheumatology*, 24(1), 15–26. <https://doi.org/10.1016/j.berh.2009.08.006>
- Atukorala, I., Makovey, J., Lawler, L., Messier, S. P., Bennell, K., & Hunter, D. J. (2016). Is there a dose–response relationship between weight loss and symptom improvement in persons with knee osteoarthritis? *Arthritis Care and Research*, 68(8), 1106–1114. <https://doi.org/10.1002/acr.22805>
- Basedow, M., & Esterman, A. (2015). Assessing appropriateness of osteoarthritis care using quality indicators: A systematic review. *Journal of Evaluation in Clinical Practice*, 21(5), 782–789. doi:10.1111/jep.12402
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Campbell, R., Evans, M., Tucker, M., Quilty, B., Dieppe, P., & Donovan, J. L. (2001). Why don't patients do their exercises? Understanding non-compliance with physiotherapy in patients with osteoarthritis of the knee. *Journal of Epidemiology and Community Health*, 55(2), 132–138. <https://doi.org/10.1136/jech.55.2.132>
- Conaghan, P. G., Porcheret, M., Kingsbury, S. R., Gammon, A., Soni, A., Hurley, M., ... Birrell, F. (2015). Impact and therapy of osteoarthritis: The arthritis care OA nation 2012 survey. *Clinical Rheumatology*, 34(9), 1581–1588. <https://doi.org/10.1007/s10067-014-2692-1>
- Cottrell, E., Roddy, E., & Foster, N. E. (2010). The attitudes, beliefs and behaviours of GPs regarding exercise for chronic knee pain: A systematic review. *BMC Family Practice*, 11, 4. <https://doi.org/10.1186/1471-2296-11-4>
- Cottrell, E., Roddy, E., Rathod, T., Porcheret, M., & Foster, N. E. (2016). What influences general practitioners' use of exercise for patients with chronic knee pain? Results from a national survey. *BMC Family Practice*, 17(1), 172. <https://doi.org/10.1186/s12875-016-0570-4>
- Davis, A. M., Perruccio, A. V., Canizares, M., Hawker, G. A., Roos, E. M., Maillefert, J. F., ... Lohmander, L. S. (2009). Comparative, validity and responsiveness of the HOOS-PS and KOOS-PS to the WOMAC physical function subscale in total joint replacement for osteoarthritis. *Osteoarthritis and Cartilage*, 17(7), 843–847. <https://doi.org/10.1016/j.joca.2009.01.005>
- Davison, G. C. (2000). Stepped care: Doing more with less? *Journal of Consulting and Clinical Psychology*, 68(4), 580–585. <https://doi.org/10.1037/0022-006X.68.4.580>
- Denoeud, L., Mazières, B., Payen-Champenois, C., & Ravaud, P. (2005). First line treatment of knee osteoarthritis in outpatients in France: Adherence to the EULAR 2000 recommendations and factors influencing adherence. *Annals of the Rheumatic Diseases*, 64(1), 70–74. <https://doi.org/10.1136/ard.2003.015263>
- Donovan, J. L. (1995). Patient decision making. The missing ingredient in compliance research. *International Journal of Technology Assessment in Health Care*, 11(3), 443–455. <https://doi.org/10.1017/S026646230008667>
- Donovan, J. L., Blake, D. R., & Fleming, W. G. (1989). The patient is not a blank sheet: Lay beliefs and their relevance to patient education. *British Journal of Rheumatology*, 28(1), 58–61. <https://doi.org/10.1093/rheumatology/28.1.58>
- Fernandes, L., Hagen, K. B., Bijlsma, J. W. J., Andreassen, O., Christensen, P., Conaghan, P. G., ... Vliet Vlieland, T. P. M. (2013). EULAR recommendations for the non-pharmacological core management of hip and knee osteoarthritis. *Annals of the Rheumatic Diseases*, 72(7), 1125–1135. <https://doi.org/10.1136/annrheumdis-2012-202745>
- Fitzgerald, G. K., White, D. K., & Piva, S. R. (2012). Associations for change in physical and psychological factors and treatment response following

- exercise in knee osteoarthritis: An exploratory study. *Arthritis Care and Research*, 64(11), 1673–1680. <https://doi.org/10.1002/acr.21751>
- Fontaine, K. R., Bartlett, S. J., & Heo, M. (2005). Are health care professionals advising adults with arthritis to become more physically active? *Arthritis and Rheumatism*, 53(2), 279–283. <https://doi.org/10.1002/art.21073>
- Foster, N. E., Hartvigsen, J., & Croft, P. R. (2012). Taking responsibility for the early assessment and treatment of patients with musculoskeletal pain: A review and critical analysis. *Arthritis Research and Therapy*, 14(1), 205. <https://doi.org/10.1186/ar3743>
- Ganz, D. A., Chang, J. T., Roth, C. P., Guan, M., Kamberg, C. J., Niu, F., ... MacLean, C. H. (2006). Quality of osteoarthritis care for community-dwelling older adults. *Arthritis and Rheumatism*, 55(2), 241–247. <https://doi.org/10.1002/art.21844>
- Gately, C., Rogers, A., & Sanders, C. (2007). Re-thinking the relationship between long-term condition self-management education and the utilisation of health services. *Social Science and Medicine*, 65(5), 934–945. <https://doi.org/10.1016/j.socscimed.2007.04.018>
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54(7), 493–503. <https://doi.org/10.1037/0003-066X.54.7.493>
- Hagen, K. B., Smedslund, G., Østerås, N., & Jamtvedt, G. (2016). Quality of community-based osteoarthritis care: A systematic review and meta-analysis. *Arthritis Care and Research*, 68(10), 1443–1452. <https://doi.org/10.1002/acr.22891>
- Harris, J., Williams, T., Hart, O., Hanson, C., Johnstone, G., Muthana, A., ... Nield, C. (2014). (2014). The future of primary care: Creating teams for tomorrow. Using health trainers to promote self-management of chronic pain: Can it work? *British Journal of Pain*, 8(1), 27–33. <https://doi.org/10.1177/2049463713511956>
- Health Education England. (2015). The future of primary care: Creating teams for tomorrow. <https://www.hee.nhs.uk/our-work/hospitals-primary-community-care/primary-community-care/primary-care-workforce-commission>
- Hewlett, S., Kirwan, J., Pollock, J., Mitchell, K., Hehir, M., Blair, P. S., ... Perry, M. G. (2005). Patient initiated outpatient follow up in rheumatoid arthritis: Six year randomised controlled trial. *BMJ*, 330(7484), 171. <https://doi.org/10.1136/bmj.38265.493773.8F>
- Hillsdon, M., & Thorogood, M. (1996). A systematic review of physical activity promotion strategies. *British Journal of Sports Medicine*, 30(2), 84–89. doi:10.1136/bjism.30.2.84
- Hillsdon, M., Thorogood, M., Anstiss, T., & Morris, J. (1995). Randomised controlled trials of physical activity promotion in free living populations: A review. *Journal of Epidemiology and Community Health*, 49(5), 448–453. <https://doi.org/10.1136/jech.49.5.448>
- Hochberg, M. C., Altman, R. D., April, K. T., Benkhalti, M., Guyatt, G. H., McGowan, J., ... Tugwell, P. (2012). American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. *Arthritis Care and Research*, 64(4), 465–474. <https://doi.org/10.1002/acr.21596>
- Holdsworth, L. K., Webster, V. S., & McFadyen, A. K. (2007). What are the costs to NHS Scotland of self-referral to physiotherapy? Results of a national trial. *Physiotherapy*, 93(1), 3–11. <https://doi.org/10.1016/j.physio.2006.05.005>
- Hunter, D. J., Schofield, D., & Callander, E. (2014). The individual and socio-economic impact of osteoarthritis. *Nature Reviews. Rheumatology*, 10(7), 437–441. <https://doi.org/10.1038/nrrheum.2014.44>
- Hurley, M. V. (1999). The role of muscle weakness in the pathogenesis of osteoarthritis. *Rheumatic Diseases Clinics of North America*, 25(2), 283–298. [https://doi.org/10.1016/S0889-857X\(05\)70068-5](https://doi.org/10.1016/S0889-857X(05)70068-5)
- Hurley, M. V., Walsh, N., Bhavnani, V., Britten, N., & Stevenson, F. (2010). Health beliefs before and after participation on an exercised-based rehabilitation programme for chronic knee pain: Doing is believing. *BMC Musculoskeletal Disorders*, 11(1), 31. <https://doi.org/10.1186/1471-2474-11-31>
- Jackson, R., Johnson, M., Campbell, F., Messina, J., Guillaume, L., Meier, P., ... Payne, N. (2009). Screening and brief interventions for prevention and early identification of alcohol use disorders in adults and young people. *SCHARR Public Health Evidence Report 2.2*.
- Jones, C. J., Rikli, R. E., & Beam, W. C. (1999). A 30-s chair-stand test as a measure of lower body strength in community-residing older adults. *Research Quarterly for Exercise and Sport*, 70(2), 113–119. <https://doi.org/10.1080/02701367.1999.10608028>
- Juhl, C., Christensen, R., Roos, E. M., Zhang, W., & Lund, H. (2014). Impact of exercise type and dose on pain and disability in knee osteoarthritis: A systematic review and meta-regression analysis of randomized controlled trials. *Arthritis and Rheumatism*, 66(3), 622–636. <https://doi.org/10.1002/art.38290>
- Leeuw, M., Goossens, M. E., Linton, S. J., Crombez, G., Boersma, K., & Vlaeyen, J. W. (2007). The fear-avoidance model of musculoskeletal pain: Current state of scientific evidence. *Journal of Behavioral Medicine*, 30(1), 77–94. <https://doi.org/10.1007/s10865-006-9085-0>
- Losina, E., Walensky, R. P., Reichmann, W. M., Holt, H. L., Gerlovin, H., Solomon, D. H., ... Katz, J. N. (2011). Impact of obesity and knee osteoarthritis on morbidity and mortality in older Americans. *Annals of Internal Medicine*, 154(4), 217–226. <https://doi.org/10.7326/0003-4819-154-4-201102150-00001>
- Ludvigsson, M. L., & Enthoven, P. (2012). Evaluation of physiotherapists as primary assessors of patients with musculoskeletal disorders seeking primary health care. *Physiotherapy*, 98(2), 131–137. <https://doi.org/10.1016/j.physio.2011.04.354>
- Maddison, P., Jones, J., Breslin, A., Barton, C., Fleur, J., Lewis, R., ... Tillson, C. (2004). Improved access and targeting of musculoskeletal services in Northwest Wales: Targeted early access to musculoskeletal services (TEAMS) programme. *BMJ*, 329(7478), 1325–1327. <https://doi.org/10.1136/bmj.329.7478.1325>
- Marcus, B. H., Dubbert, P. M., Forsyth, L. H., McKenzie, T. L., Stone, E. J., Dunn, A. L., ... Blair, S. N. (2000). Physical activity behavior change: Issues in adoption and maintenance. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association*, 19(1S), 32–41. <https://doi.org/10.1037/0278-6133.19.Supp1.32>
- Martínez-González, N. A., Djalali, S., Tandjung, R., Huber-Geismann, F., Markun, S., Wensing, M., ... Rosemann, T. (2014). Substitution of physicians by nurses in primary care: A systematic review and meta-analysis. *BMC Health Services Research*, 14(1), 214. <https://doi.org/10.1186/1472-6963-14-214>
- McAlindon, T. E., Bannuru, R. R., Sullivan, M. C., Arden, N. K., Berenbaum, F., Bierma-Zeinstra, S. M., ... Underwood, M. (2014). OARSI guidelines for the non-surgical management of knee osteoarthritis. *Osteoarthritis and Cartilage*, 22(3), 363–388. <https://doi.org/10.1016/j.joca.2014.01.003>
- Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis, J., Hardeman, W., ... Wood, C. (2013). The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: Building an international consensus for the reporting of behavior change interventions. *Annals of Behavioral Medicine*, 46(1), 81–95. <https://doi.org/10.1007/s12160-013-9486-6>
- Millar, R., & Hall, K. (2013). Social return on investment (SROI) and performance measurement. *Public Management Review*, 15(6), 923–941. <https://doi.org/10.1080/14719037.2012.698857>
- Mitchell, H. L., & Hurley, M. V. (2008). Management of chronic knee pain: A survey of patient preferences and treatment received. *BMC Musculoskeletal Disorders*, 9, 123. <https://doi.org/10.1186/1471-2474-9-123>
- Muthuri, S. G., Hui, M., Doherty, M., & Zhang, W. (2011). What if we prevent obesity? Risk reduction in knee osteoarthritis estimated through a meta-analysis of observational studies. *Arthritis Care and Research*, 63(7), 982–990. <https://doi.org/10.1002/acr.20464>
- National Institute for Health and Clinical Excellence. (2014). Osteoarthritis: The care and management of osteoarthritis in adults (CG177).
- Ndosi, M., Lewis, M., Hale, C., Quinn, H., Ryan, S., Emery, P., ... Hill, J. (2014). The outcome and cost-effectiveness of nurse-led care in people

- with rheumatoid arthritis: A multicentre randomised controlled trial. *Annals of the Rheumatic Diseases*, 73(11), 1975–1982. <https://doi.org/10.1136/annrheumdis-2013-203403>
- NHS England. (2016). General practice forward view. (gateway publication record 05116).
- Nordeman, L., Nilsson, B., Möller, M., & Gunnarsson, R. (2006). Early access to physical therapy treatment for subacute low back pain in primary health care: A prospective randomized clinical trial. *Clinical Journal of Pain*, 22(6), 505–511. <https://doi.org/10.1097/01.ajp.0000210696.46250.0d>
- Nüesch, E., Dieppe, P., Reichenbach, S., Williams, S., Iff, S., & Jüni, P. (2011). All cause and disease specific mortality in patients with knee or hip osteoarthritis: Population based cohort study. *BMJ*, 342, d1165. <https://doi.org/10.1136/bmj.d1165>
- Paskins, Z., Sanders, T., & Hassell, A. B. (2014). Comparison of patient experiences of the osteoarthritis consultation with GP attitudes and beliefs to OA: A narrative review. *BMC Family Practice*, 15, 46. <https://doi.org/10.1186/1471-2296-15-46>
- Salmon, J. H., Rat, A. C., Sellam, J., Michel, M., Eschard, J. P., Guillemin, F., ... Fautrel, B. (2016). Economic impact of lower-limb osteoarthritis worldwide: A systematic review of cost-of-illness studies. *Osteoarthritis and Cartilage*, 24(9), 1500–1508. <https://doi.org/10.1016/j.joca.2016.03.012>
- Sanders, C., Donovan, J., & Dieppe, P. (2002). The significance and consequences of having painful and disabled joints in older age: Co-existing accounts of normal and disrupted biographies. *Sociology of Health and Illness*, 24(2), 227–253. <https://doi.org/10.1111/1467-9566.00292>
- Scholz, U., Knoll, N., Sniehotta, F. F., & Schwarzer, R. (2006). Physical activity and depressive symptoms in cardiac rehabilitation: Long-term effects of a self-management intervention. *Social Science and Medicine*, 62(12), 3109–3120. <https://doi.org/10.1016/j.socscimed.2005.11.035>
- Scholz, U., Sniehotta, F. F., Burkert, S., & Schwarzer, R. (2007). Increasing physical exercise levels: Age specific benefits of planning. *Journal of Aging and Health*, 19(5), 851–866. doi:10.1177/0898264307305207
- Smink, A. J., van den Ende, C. H. M., Vliet Vlieland, T. P. M., Swierstra, B. A., Kortland, J. H., Bijlsma, J. W. J., ... Dekker, J. (2011). “beating osteoAR-Thritis”: Development of a stepped care strategy to optimize utilization and timing of non-surgical treatment modalities for patients with hip or knee osteoarthritis. *Clinical Rheumatology*, 30(12), 1623–1629. <https://doi.org/10.1007/s10067-011-1835-x>
- Smink, A. J., Bierma-Zeinstra, S. M. A., Schers, H. J., Swierstra, B. A., Kortland, J. H., Bijlsma, J. W. J., ... van den Ende, C. H. M. (2014). Non-surgical care in patients with hip or knee osteoarthritis is modestly consistent with a stepped care strategy after its implementation. *International Journal for Quality in Health Care: Journal of the International Society for Quality in Health Care*, 26(4), 490–498. <https://doi.org/10.1093/intqhc/mzu058>
- Sniehotta, F. F., Scholz, U., Schwarzer, R., Fuhrmann, B., Kiwus, U., & Völler, H. (2005a). Long-term effects of two psychological interventions on physical exercise and self-regulation following coronary rehabilitation. *International Journal of Behavioral Medicine*, 12(4), 244–255. https://doi.org/10.1207/s15327558ijbm1204_5
- Sniehotta, F. F., Schwarzer, R., Scholz, U., & Schüz, B. (2005b). Action planning and coping planning for long-term lifestyle change, theory assessment. *European Journal of Social Psychology*, 35(4), 565–576. <https://doi.org/10.1002/ejsp.258>
- Sniehotta, F. F., Scholz, U., & Schwarzer, R. (2006). Action plans and coping plans for physical exercise: A longitudinal intervention study in cardiac rehabilitation. *British Journal of Health Psychology*, 11(1), 23–37. <https://doi.org/10.1348/135910705X43804>
- The King's Fund and Nuffield Trust. (2013). Securing the future of general practice: New models of primary care.
- von Korff, M., & Moore, J. C. (2001). Stepped care for back pain: Activating approaches for primary care. *Annals of Internal Medicine*, 134(2), 911–917. https://doi.org/10.7326/0003-4819-134-9_Part_2-200105011-00016
- Wetzels, R., van Weel, C., Grol, R., & Wensing, M. (2008). Family practice nurses supporting self-management in older patients with mild osteoarthritis: A randomized trial. *BMC Family Practice*, 9(1), 7. <https://doi.org/10.1186/1471-2296-9-7>

How to cite this article: A Walker, R Williams, F Sibley, D Stamp, A Carter, M Hurley. Improving access to better care for people with knee and/or hip pain: service evaluation of allied health professional-led primary care. *Musculoskeletal Care*. 2017. <https://doi.org/10.1002/msc.1189>

APPENDIX 1

Patient Satisfaction Questionnaire

For each question, please circle the answer that applies the most.

1. I was treated with dignity and respect				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
2. I felt the OA Advisor listened to what I said				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
3. The results of the consultation were discussed with me				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
4. The OA Advisor used words I understood				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
5. I was given a chance to ask questions				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
6. We discussed what was realistic for me to achieve				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
7. I felt involved in helping to decide my care plan				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
8. I feel more able manage my OA after speaking with the OA Advisor				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
9. Have you felt the need to go back to the GP about your OA? (Please circle) Yes/No				
10. I would recommend this service to others				
1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
11. Overall, how satisfied were you with the advice and support from the OA Advisor				
1	2	3	4	5
Very satisfied	Dissatisfied	Neither satisfied or dissatisfied	Satisfied	Very satisfied
12. Do you have any other comments? (Please use the box below)				

APPENDIX 2

Focus group topic guide

How would you describe what the services offers/does? [Probe: Understanding of purpose of the clinic].

Are there any similar other services for helping manage your hip/knee pain that you are aware of? [Probe: Which other services, where are they located and accessed, satisfaction/quality?]

Overall, what do you think about the service? Why? [Probe: Good/bad idea, relevant to needs, filling a gap/replicating existing service?]

What was your experience of coming to the Hip/Knee Pain Clinic? Probe:

- Referral/booking process, speed of access
- Communications material/resources (e.g. clear, understandable, relevant)

- Way consultations were run (e.g. respectful, two-way discussion)
- Advice and support given (e.g. understandable, relevant)
- Frequency and duration of contact

What do you feel are the best things about the Hip/Knee Pain Clinic for you? Why? Can you give me an example?

What was not so good about the Hip/Knee Pain Clinic? Why? Can you give me an example?

To what extent were practice staff aware of the Hip/Knee Pain Clinic?

How did it fit with other services within the practice? [Probe: To what extent does it feel like an integrated service or an add-on?]

How did it fit with services outside of the practice? [Probe: Which services were you referred onto, how did the process work? Why?]