What is an evidence note?

Evidence notes are rapid reviews of published secondary clinical and cost-effectiveness evidence on health technologies under consideration by decision makers within NHSScotland. They are intended to provide information quickly to support time-sensitive decisions. Information is available to the topic referrer within a 6-month period and the process of peer review and final publication of the associated advice is usually complete within 6–12 months. Evidence notes are not comprehensive systematic reviews. They are based on the best evidence that Healthcare Improvement Scotland could identify and retrieve within the time available. The reports are subject to peer review. Evidence notes do not make recommendations for NHSScotland, however the Scottish Health Technologies Group (SHTG) produces an Advice Statement to accompany all evidence reviews.

Key points

- Vocational rehabilitation is a complex intervention which has several definitions in the literature.
- Due to the high level of study heterogeneity, the overall evidence base for vocational rehabilitation for people with inflammatory arthritis is of low quality.
- Variation across studies limits conclusions around the most effective format, intensity or duration of intervention and prevents identification of those individuals most likely to benefit.
- Qualitative studies emphasise the need to tailor interventions to the perspectives, needs and goals of individual patients and highlight the importance of symptom management, particularly in relation to fatigue.
**Definition**

**Vocational rehabilitation:** a process that enables people with functional, psychological, developmental, cognitive and emotional impairments or health conditions to overcome barriers to accessing, maintaining or returning to employment or other useful occupation\(^1\).

**Epidemiology**

The three most common forms of inflammatory arthritis are rheumatoid arthritis, psoriatic arthritis and ankylosing spondylitis. These are autoimmune conditions where an individual’s immune system attacks the body’s tissues causing pain, stiffness and joint damage. Estimates of prevalence are indicated in Table 1.

**Literature search**

**Methods**

A systematic search of the secondary literature was carried out between 10–18 January 2017 to identify systematic reviews, health technology assessments and other evidence-based reports. Medline, Medline in process and ePub ahead of print, Embase, Cinahl and Web of Science databases were also searched for systematic reviews and meta-analyses.

The primary literature was systematically searched between 10–18 January 2017 using the following databases: Medline, Medline in process and ePub ahead of print, Embase, Cinahl and Web of Science. Results included all study types in English from 2006 onwards.

Key websites were searched for guidelines, policy documents, clinical summaries and economic studies.

Concepts used in all searches included: Inflammatory/rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, spondylarthritis, vocational rehabilitation/guidance, sick leave, absenteeism, occupational health, ergonomic intervention, return to work, self-management. A full list of resources searched and terms used are available on request.
Table 1: Inflammatory arthritis prevalence estimates

<table>
<thead>
<tr>
<th>Arthritis Type</th>
<th>Prevalence Estimate</th>
</tr>
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<tbody>
<tr>
<td>Rheumatoid arthritis</td>
<td>By 2020 there will be 42,505 people aged 20 and over with the disease in Scotland</td>
</tr>
<tr>
<td>Psoriatic arthritis</td>
<td>Estimated to affect approximately 20,000 people in Scotland (20% of patients with psoriasis)</td>
</tr>
<tr>
<td>Ankylosing spondylitis</td>
<td>Approximate 6,750 people in Scotland (based on estimated mean European prevalence 15/10,000 applied to adult population of 4.5 million)</td>
</tr>
</tbody>
</table>

Inflammatory arthritis often affects people early in their working lives. Around three quarters of people with rheumatoid arthritis are of working age when they are first diagnosed. A third of people with the disease will have stopped working within 2 years of onset and half are unable to work within 10 years. The average age of onset for ankylosing spondylitis is 24 years. Around 15% of people with the condition are unable to work and 25% retire early due to ill health. A UK cohort study found that ankylosing spondylitis had a significant effect on the ability to work, with 43% of those of working age either unemployed or retired early.

A 2012 healthcare needs assessment of services for adults with rheumatoid arthritis conducted by the Scottish Public Health Network (SPHN) recommended that all patients should be asked ‘the work question’ regularly by a healthcare professional and referred on for vocational rehabilitation/occupational therapy as necessary. In a 2015 report from the British Society for Rheumatology/Scottish Society for Rheumatology, incorporating results of an online survey of rheumatology health professionals (n=49) in Scotland, it was recommended that SPHN advice to ask about work be enacted. In response to the survey question: “Do you or your service advise and support patients to help them remain or return to work?”, 90% of respondents answered ‘yes’ with 8% responding that they occasionally do. This is in line with a recommendation from research by the National Rheumatoid Arthritis Society (NRAS) and University of Aberdeen which, informed by two surveys identifying the significant impact of rheumatoid arthritis on work productivity, states: “We would urge all health professionals to ask their working-age patients, particularly at diagnosis and at annual reviews, if they have job-related concerns and need support and sign-posting to organisations that can help. This includes NRAS.”

Arthritis Care Scotland has been working in partnership with NHS Greater Glasgow and Clyde and NHS Grampian to support vocational rehabilitation interventions in rheumatology. Information on the Joint Working - Working Well with Arthritis programme which provides information, guidance and sign-posting to help patients stay in or return to work is at www.arthritiscare.org.uk/joint-working-project-scotland. Between April 2013 and June 2016, 131 clients were engaged.
The majority (73%) was female, 60% received treatment in the Greater Glasgow and Clyde NHS board area; 16% lived in Grampian and the remainder lived in the areas of Ayrshire, Borders, Fife, Highland, Lanarkshire or Lothian\textsuperscript{11}. Case studies highlighted outcomes such as improved confidence in managing their condition, accessing support around employability and being helped to stay in or return to work.

**Health technology description**

Vocational rehabilitation, also referred to as occupational or work rehabilitation, has several definitions in the literature.

A NICE guideline on rheumatoid arthritis described work rehabilitation within a categorisation of comprehensive occupational therapy interventions as “including on-site work assessment, ergonomics/adaptations, employer liaison, work environment adaptation, functional capacity evaluation and work hardening”\textsuperscript{12}.

An independent UK report\textsuperscript{13} describes vocational rehabilitation as “whatever helps someone with a health problem to stay at, return to and remain in work”. This report used vocational rehabilitation to refer to rehabilitation which is “directed to, and has the primary goal of, improving capability for work and translating that into actual work” and notes the need to distinguish between vocational rehabilitation and treatment-related rehabilitation interventions. The report states that: “Vocational rehabilitation depends on work-focused healthcare and accommodating workplaces. To make a real and lasting difference, both need to be addressed and coordinated”.

A Cochrane review on non-pharmacological interventions for preventing job loss in workers with inflammatory arthritis set out intervention parameters\textsuperscript{14}. Study interventions had to fulfill at least two of the following components.

- An evaluation of the work challenges or work adaptations as a step in the main intervention study.
- Interventions directed at the person, meaning:
  - job coaching, job or vocational training, vocational counselling, or
  - empowerment for work, or
  - self-management, including support or information regarding work or both.
- Interventions directed at the work environment, meaning:
  - word adaptations, ergonomic measures, job accommodations, or
  - interventions targeted directly at the employer, supervisor or co-workers.

**Clinical effectiveness**

Five fully-published randomised controlled trials were identified. The characteristics of each are outlined in Table 2.

Allaire et al, reported that a brief intervention involving two sessions with a rehabilitation counsellor was protective against job loss in individuals with mild functional limitation due to rheumatic disease self-identifying as having concerns about their health affecting their ability to work\textsuperscript{15}. Patients in the control group received written materials only. The odds ratio (OR) for time to either permanent or temporary job loss was 0.58 (95% confidence interval 0.34 to 0.99, p=0.05) at 48 months following randomisation. Participants in the study (n=242) were identified through their rheumatologist and employers were not involved. Although it was well conducted, the applicability of this study from the USA may be limited by the
differences in social security and economic climate.

A smaller study by de Buck et al randomised 140 rheumatology patients in the Netherlands, at self-perceived risk of job loss, to a tailored, hospital-based multidisciplinary job retention intervention or usual care. Over a 2-year follow-up period, there was no statistically significant difference in the proportion of patients with permanent job loss between the groups at any time point. Since physicians were not blinded to allocation, the contrast between levels of support provided to study groups may have been diminished. On examination of secondary outcomes as assessed by self-report questionnaires, patients in the intervention group had greater improvements in mental health over the follow-up period as measured by the HADS (hospital anxiety and depression scale) depression and anxiety subscales and the RAND 36 summary scale mental health. These benefits were statistically significant. There were also greater improvements in fatigue levels in the intervention group, although measures of job satisfaction, pain, functional ability and physical health were not statistically different in the two groups. That there was general improvement in several health outcomes in both study groups may reflect regression to the mean following recruitment at a time of perceived challenges to employment which could have been associated with a particularly bad episode of the rheumatic disease. A cost-utility analysis was conducted alongside this study (see cost effectiveness section below).

A UK proof of concept study, focusing on an occupational therapy-based intervention for patients with rheumatoid arthritis, randomised 32 patients at medium to high risk of work disability to 6-8 sessions of comprehensive occupational therapy or usual care. The primary outcome was change in functional status according to Canadian Occupational Performance Measure (COPM) at 6 months. A clinically significant change was defined as an increase of ≥2.0 points. A greater proportion of patients in the intervention group than the usual care group had clinically significant improvements in COPM/performance (12/16 vs 1/16, p=0.001) and COPM/satisfaction (13/16 vs 1/16, p=0.001) at 6 months. The study was limited by its short duration and at risk of bias, in that the occupational therapist with specialist training in vocational rehabilitation conducting the intervention also collected the outcome data.

A workplace-based ergonomic intervention was the subject of an RCT conducted in the USA in patients with osteoarthritis or rheumatoid arthritis (34 (38%) of the 89 participants had rheumatoid arthritis). Those in the intervention group receiving individual workplace ergonomic support had statistically significant improvements at 2 years in the Arthritis Impact Measurement Scales (AIMS) role component – which measures degree of work impairment, compared with those receiving written materials only. The clinical significance of the improvements was uncertain and results were not presented separately for the rheumatoid arthritis patients. There was no difference between groups on pain, job satisfaction or psychological wellbeing. The majority of the participants had osteoarthritis and all self-selected to the study, with participants themselves responsible for liaison with employers for workplace visits.

An RCT (n=150), undertaken in the Netherlands, examined the effects of an integrated care programme plus workplace ergonomic intervention compared with usual rheumatologist-led care in patients with rheumatoid arthritis. There were no intervention effects on any of the four subscales (time management, physical demands, mental–interpersonal demands,
and output demands) of the work limitations questionnaire (WLQ) at 6 or 12 months follow-up\(^6\). Similarly, no statistically significant differences between study groups were measured on secondary outcomes, including work instability, pain and fatigue or quality of life.

There was marked heterogeneity across RCTs in patient characteristics such as disease duration and patient-reported functional status. The degree of work disability at baseline was assessed in a range of ways (for example proportion on sick leave, work instability scale) and varied across studies. The specification, context (including labour legislation and social security systems), duration and intensity of interventions also varied. Follow-up periods ranged from 6 months to 4 years and a wide range of outcome measures were used (see Table 2). A Cochrane review focused on the outcome of job loss prevention for workers with inflammatory arthritis encompassed three of the RCTs\(^{15,16,18}\) and concluded that there was low quality evidence for job loss prevention interventions having an effect on job loss, work absenteeism and work functioning\(^{14}\). Meta-analysis was not possible due to heterogeneity.

A conference abstract described a small pilot RCT, conducted in the UK, with 55 patients with arthritis (n=34 rheumatoid arthritis) examining the feasibility of a study examining the effectiveness of a brief job retention vocational rehabilitation intervention in preventing work problems. Study recruitment was described as problematic. Concerns included fear of revealing arthritis condition to employers, and reluctance to take time out of work to attend sessions\(^{21}\).

One uncontrolled observational study was identified\(^{22}\). Conducted in Sweden, the study, published in 2006, recruited patients between 1995 and 1998. Study authors describe how, in the Swedish context, the employer has responsibility for vocational rehabilitation and there is a comprehensive social security system. Patients with early rheumatoid arthritis (n=110) participated in a multidisciplinary team care programme over 2 years with four meetings in the first year and two in the second year. The team included a nurse, physiotherapist, social worker and rheumatologist. After 2 years of vocational rehabilitation there was a 14% increase in the number of patients working full time (65 to 74) and a 65% decrease in the number of patients receiving the highest level of sick-leave compensation (37 to 13).
Table 2: Characteristics of randomised controlled trials

<table>
<thead>
<tr>
<th>Trial</th>
<th>Participants</th>
<th>Vocational rehabilitation intervention</th>
<th>Control intervention</th>
<th>Primary and [secondary] outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allaire et al 2003&lt;sup&gt;15&lt;/sup&gt; USA</td>
<td>Employed with a rheumatic disease self-identified as at risk of job loss n=242, 63% with inflammatory arthritis</td>
<td>2 x 1.5 hour sessions of Job accommodation, Vocational counselling, Education and self-advocacy Delivered by rehabilitation counsellor</td>
<td>Information leaflets</td>
<td>Time to permanent job loss Time to period of unemployment Based on 48 months of follow-up following randomisation</td>
</tr>
<tr>
<td>de Buck et al 2005&lt;sup&gt;16&lt;/sup&gt; The Netherlands</td>
<td>Individuals in a paid job self-identified as at risk of job loss n=140, around two thirds of participants had inflammatory arthritis ~40% were on sick leave at baseline</td>
<td>Tailored hospital-based multidisciplinary intervention over 4–12 weeks Systematic assessment followed by education, vocational counselling, guidance, and medical or non-medical treatment</td>
<td>Rheumatology treatment as usual with referral for attention to work problems if regarded as necessary by rheumatologist</td>
<td>Job loss up to 24 months of follow-up [ Job satisfaction Pain Fatigue Mental health Physical functioning Quality of life ]</td>
</tr>
<tr>
<td>Macedo et al 2009&lt;sup&gt;18&lt;/sup&gt; UK</td>
<td>Employed patients with rheumatoid arthritis (RA) scoring ≥10 on the work instability scale (WIS) (medium to high work disability risk) n=32</td>
<td>Comprehensive occupational therapy (OT) assessment relating to medical history, work, functional and psychosocial parameters Individual treatment plan 6–8 sessions (each 30 min – 2 hrs) in healthcare, home or work setting as required</td>
<td>Usual care in rheumatoid arthritis centre No OT involvement</td>
<td>Canadian Occupational Performance Measure (COPM) at 6 months [Health Assessment Questionnaire (HAQ) RA WIS EuroQol (EQ-5D)]</td>
</tr>
<tr>
<td>Baldwin et al 2012&lt;sup&gt;19&lt;/sup&gt; USA</td>
<td>Patients with arthritis in competitive employment Mild degree of workplace-related disability n=89, (n=34 RA, n=55 osteoarthritis)</td>
<td>Individual workplace assessments and ergonomic intervention in work environment 2 x 2.5 hour sessions from OT with background in arthritis care and ergonomics</td>
<td>Written educational materials.</td>
<td>Primary outcome not indicated. Self-completion questionnaires at 24 months Arthritis impact measurement scales (AIMS), role, physical functioning and pain Job satisfaction survey (JSS) Brief symptom inventory (BSI) psychological wellbeing</td>
</tr>
<tr>
<td>van Vilsteren 2016&lt;sup&gt;20&lt;/sup&gt; The Netherlands</td>
<td>Patients with RA experiencing at least minor difficulties in functioning at work n=150</td>
<td>Integrated care from occupational physician, occupational therapist and rheumatologist plus workplace intervention based on participatory ergonomics</td>
<td>Rheumatologist-led usual care</td>
<td>At-work productivity loss measured by work limitations questionnaire (WLQ) at 12 months [Pain and fatigue Quality of life (RAND 36)]</td>
</tr>
</tbody>
</table>
Ongoing trials

The ‘Work-it’ study (NCT01387100) randomised 287 employed individuals with chronic musculoskeletal conditions, a third of whom had inflammatory arthritis, to a short intervention delivered by occupational or physical therapists. Through a 1.5 hour meeting and two follow-up telephone calls, the intervention focused on tackling work-related barriers, promoting advocacy and providing disability education. The control group received printed resources but no interaction with therapists. Initial findings, published in a conference abstract, indicate no impact of the intervention on the primary outcome; output job demand subscale of the WLQ. The secondary outcome; cumulative incidence of permanent job loss at 2 years was lower in the intervention arm (8% vs 18%, p=0.03).

An ongoing Canadian trial (NCT01852851) aims to recruit over 500 participants with inflammatory arthritis and randomise them to a multifaceted intervention to reduce work disability and improve at-work productivity or to usual care plus printed information. The study incorporates a 5-year follow-up period and a cost-effectiveness analysis, and is due to report in 2023. The theoretical basis for the study involves targeting behaviour change in the areas of arthritis management, job-related factors and psychosocial aspects. Changes are expected to lead to symptom improvements, improved working conditions and more support for work-related difficulties. It is hypothesised that these benefits will, in turn, lead to long term outcomes of prevention of work loss and maintenance of productivity.

Cost effectiveness

One cost-utility analysis was identified. This was based on the Dutch RCT by de Buck et al. Costs were assessed over a 2-year period, based on a societal perspective, which included both healthcare costs (clinical staff time and hospital resource use) and non-healthcare costs (patient aids and appliances purchased, time and travel costs, paid and unpaid labour). Utility (that is quality of life) values were captured every 6 months using four different health measures, including both the EQ-5D and SF-6D. Across all four measures, no statistically significant difference in QALYs (quality adjusted life years) were found between the randomisation groups; the effect size was similar in both groups. As noted in the clinical effectiveness section above, the authors attributed this to a regression to the mean effect.

Bearing in mind the equivalent quality of life values, the study focus turns to the relative cost analyses as summarised in Table 3. Total vocational rehabilitation programme costs were estimated at €1,426 per patient (£1,220). Overall, although no statistically significant difference in societal costs between the two study groups was found, the average societal cost per patient was slightly lower in the vocational rehab group compared with usual care. The average healthcare cost per patient tended to be lower in the vocational rehabilitation group as did the non-healthcare cost. Overall, the cost effectiveness of the programme remains unclear.

Table 3: Average cost per patient (mean +/- standard deviation)

<table>
<thead>
<tr>
<th></th>
<th>Vocational rehabilitation</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme cost</td>
<td>€1,426 +/-438 (£1,220)</td>
<td></td>
</tr>
<tr>
<td>Healthcare costs</td>
<td>€5,078 +/-3,739 (£4,429)</td>
<td>€5,657 +/-5,450 (£4,934)</td>
</tr>
<tr>
<td>Non-healthcare costs</td>
<td>€22,134 +/-23,155 (£19,304)</td>
<td>€28,849 +/ -28,171 (£25,161)</td>
</tr>
<tr>
<td>Total societal costs</td>
<td>€28,638 +/-24,122 (£23,233)</td>
<td>€34,506 +/-29,799 (£30,095)</td>
</tr>
</tbody>
</table>

Safety

None of the identified studies noted safety issues.
Patient experiences

A systematic overview of qualitative studies exploring the experiences of patients with inflammatory arthritis in relation to remaining employed or returning to work, identified 10 studies, nine of which focused wholly or mainly on people with RA. One study focused on the experiences of men with ankylosing spondylitis. Six studies used individual interviews (conducted either by telephone or in person) and four used focus groups. There was variation on how patients perceived the meaning of work. For some, it was important to self-identity and independence. For others, work was viewed as less important. Major challenges to continued employment were disease-related fatigue, pain and stiffness, and physical limitations. Some participants described the fatigue as associated with reduced concentration and at times more dominant and less accepted by co-workers, than pain. Accommodating fatigue or other symptoms through self-care, in order to maintain work can mean little energy left for social/family activities or hobbies. The fluctuating nature of the inflammatory arthritis means that support needs can vary unpredictably. Transport difficulties and factors around acceptance and support from employers were noted. Emotional challenges included fear and anxiety due to the uncertain impact on future work ability, and sadness about limitations imposed by arthritis. Participants described frustration and feeling like a burden to their organisation. There was evidence of reluctance to disclose arthritis at work which could mean people not accessing practical or emotional support. The need for ergonomic adjustments and flexible hours was highlighted. Based on recommendations of the authors of the included studies, suggestions for improving intervention components were proposed:

- improve involvement of health professionals in discussing issues related to work and/or ergonomists, occupational therapists or vocational counsellors
- support and discuss meaning of maintaining work and worker role
- importance of symptom/ fatigue management and early medical treatment, and
- importance of screening for barriers and adaptations at the medical, psychosocial, practical, organisational or social policy level.

Conclusion

Due to the high level of heterogeneity across the five identified RCTs and the inconsistent findings, the overall evidence base for vocational rehabilitation for people with inflammatory arthritis is of low quality. Variation across studies in patient selection, intervention parameters and outcome measures, limits conclusions around the most effective format, intensity or duration of intervention and prevents identification of those most likely to benefit. Qualitative studies on patient experience highlight the importance of symptom management, with particular challenges around fatigue, and that there should be tailoring of interventions to the perspectives, needs and goals of individual patients to address specific barriers to work participation.
Equality and diversity

Healthcare Improvement Scotland is committed to equality and diversity in respect of the nine equality groups defined by age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion, sex, and sexual orientation. The process for producing evidence notes has been assessed and no adverse impact across any of these groups is expected. The completed equality and diversity checklist is available on www.healthcareimprovementscotland.org

About evidence notes

This evidence note will be considered for review 2 years post-publication, and at 2-yearly intervals thereafter. For further information about the evidence note process see:

www.healthcareimprovementscotland.org/our_work/clinical_cost_effectiveness/shtg/standard_operating_procedures.aspx

To propose a topic for an evidence note, email shtg.hcis@nhs.net

References can be accessed via the internet (where addresses are provided), via the NHS Knowledge Network www.knowledge.scot.nhs.uk, or by contacting your local library and information service.
Acknowledgements

Healthcare Improvement Scotland and SHTG invited the following individuals and organisations to peer review the draft evidence note:

- Justine Griffin, Clinical Specialist, Occupational Therapist, NHS Greater Glasgow and Clyde
- Professor Alison Hammond, Professor in Rheumatology Rehabilitation, University of Salford, Manchester
- Janet Harkness, Head Occupational Therapist, Rheumatology, Fife Health and Social Care Partnership
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Declarations of interest were sought from all peer reviewers. All contributions from peer reviewers were considered by the group. However the peer reviewers had no role in authorship or editorial control and the views expressed are those of Healthcare Improvement Scotland.

Healthcare Improvement Scotland development team

- Lorna Thompson, Health Services Researcher
- Paul Herbert, Information Scientist
- Ed Clifton, Health Economist
- Karen McGeary, Communications and Publications Co-ordinator
- Shonagh Ramsey, Project Officer
- Members of the SHTG evidence review committee

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References


