NORTH WEST PODIATRY SERVICES
CLINICAL EFFECTIVENESS GROUP –
RHEUMATOLOGY

GUIDELINES FOR THE MANAGEMENT OF FOOT HEALTH FOR PEOPLE WITH RHEUMATOID ARTHRITIS

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CONTENTS PAGE

1. INTRODUCTION TO THE GUIDELINES

1.1 The Aims of the North West Clinical Effectiveness Group

The North West Clinical Effectiveness Group (NWCEG) for the Foot in Rheumatic Diseases was initiated by the North West Region Podiatry Heads of Service in 2003. Members of the group include podiatrists who currently work with patients with rheumatic diseases, a representative from service managers and an academic link with the University of Salford.

The work of this group aims to contribute to the global aim of improving the care of patients with musculoskeletal and rheumatic diseases (Harris 2001) by supporting service development and the professional development of those podiatrists involved in the management of patients with rheumatic diseases through the following objectives:

- To provide a support network for podiatrists in the NW region working within the field of rheumatology
- To promote podiatry within the wider rheumatology community and as part of the multidisciplinary team
- To review and revise these and other guidelines for the management of the foot in rheumatic disease as a framework for services
- To review new evidence from research and disseminate information into practice.
- To encourage clinical development in this field through increasing awareness amongst service commissioners and providers.
- To identify the training and education needs of podiatrists to facilitate the development of specialist skills to maximise their clinical effectiveness and enhance patients' experience.

1.2 The First Edition of the NWCEG Guidelines (2004)

One of the first activities of the group was to produce the initial guidelines for the Management of the Foot and Ankle in Rheumatic Diseases.

The first edition of these guidelines was completed and disseminated in 2004 and have been used across the Northwest region to both instigate service provision and support service review. Further to this they have been adopted by various podiatry services as best practice guidelines all over the UK.

The guidelines received national recognition as being the first in this area and received the support of the Podiatry Rheumatic Care Association (PRCA), and the NHS electronic library (NeLH). The NW CEG has also been actively involved in the development of the PRCA Standards of Care for People with Musculoskeletal Foot Health Problems (PRCA 2008) and as registered stakeholders, in the development of NICE guidance for the Management of Rheumatoid Arthritis in Adults (NICE 2009).

1.3 The Purpose of the Current Revised Guidelines

The PRCA Standards of Care for People with Musculoskeletal Foot Health Problems are 'patient facing' in respect of the service that patients can expect and in this context superseded this aspect of the original NW guidelines. Further to this, the NWCEG identified a need for standards to be defined for the specific *foot health management* of patients, particularly those with rheumatoid arthritis. To this end, the original guidelines have been revised and developed to be 'practitioner facing' with the objective of 'doing the right thing, to the right patient, in the right way, at the right time' by rationalising and improving the quality of foot health management. Further to this, they now focus on the assessment and management of foot and ankle problems associated with rheumatoid arthritis.

The aim of these revised guidelines is to provide all podiatrists who may be managing patients with RA with recommendations for the evidence based and best practice management of RA related foot and ankle problems.

2. BACKGROUND TO RHEUMATOID ARTHRITIS

2.1 Epidemiology and Clinical Features of RA

Rheumatoid Arthritis (RA) is an auto-immune, systemic, inflammatory joint disease with a chronic, unpredictable and fluctuating course (Conaghan et al 1999). There are around 400,000 adults in the UK with RA and approximately 20,000 new cases every year (Symmons et al 2002). Up to 4 out of every 10 working people with RA lose their jobs within five years; three quarters of these are for reasons directly related to their condition (Young et al 2002). Barrett et al (2000) suggest 1 in 7 give up work within one year of diagnosis with health and related costs of between £0.8 and £1.3 billion.

RA commonly affects the foot having diverse multidimensional implications including pain, changes in gait, deformity and restrictions in the choice of footwear (Bouysset et al 2006). The basic pathological changes in the rheumatoid foot result from synovitis coupled with mechanical stress (Spiegel & Spiegel 1982). These structural and functional changes often affect gait and mobility (Woodburn 2002, Turner et al 2006), impacting on the patient's quality of life (Wickman et al 2004). The foot is often the first area of the body to be systematically afflicted by RA (Otter et al. 2004). 75% of patients with RA report foot pain within 4 years of diagnosis (Lohkamp et al 2006), with the degree of disability progressing with the course of the disease. Shi et al (2000) states that virtually 100% of patients report foot problems within 10 years of disease onset.

Specifically, the common manifestations of RA in the foot include hallux valgus, valgus heel deformity and lesser toe deformities. This foot deformity also predisposes to callus formation and in a number of patients, foot ulceration particularly in cases with poor tissue viability. Further to this, bacterial and fungal skin infections and nail pathologies are more prevalent in this patient group adding to the serious risk of ulceration and systemic infection. The risk of

opportunistic infections is increased if the patient's medical management is with immunosuppressive drugs (Wilski 1993, Jones 1997).

2.2 Recommendations for the Management of RA Foot Problems

Woodburn and Helliwell (1997) report that the goals of foot care for patients with RA are to relieve pain, maintain function and improve quality of life using safe and cost-effective treatments, such as palliative foot care, prescribed foot orthoses and specialist footwear. Foot health needs for the patient with RA are varied. They range from simple foot care advice, palliative care for nails and skin and orthotic / specialist footwear provision through to management of ulceration and infection (Helliwell 2003, Korda and Balint 2004).

Specific tools for measuring the impact of foot pathology on foot pain function and disability in patients with rheumatic diseases have been validated (Helliwell et al 2005 Garrow 2001, Budiman-Mak et al 1991, Platto et al 1991). These are now being used in clinical practice as well as in research.

It is becoming increasingly recognised that management strategies for RA should be aggressive, comprising proactive management and prompt intervention (Luqmani et al, 2006: Emery et al, 2002). The Arthritis and Musculoskeletal Alliance (ARMA 2004) recommends that all patients with suspected RA should be seen by a specialist in rheumatology within 12 weeks to confirm diagnosis and enable prompt and effective treatment, and have access to a full multidisciplinary team (MDT) assessment and intervention early in the disease process, including foot health assessment. Further to this, Woolf et al (2007) suggest that management requires an integrated coordinated multidisciplinary, multi-professional approach, with care focussed upon the needs of the affected person, providing access to a combination of expertise and competencies.

Given that podiatrists are considered the experts in the management of foot and ankle problems and recognised by NICE (2009) as primary provider of foot health services for this patient group, they should be an integrated part of the MDT. This view is supported by ARMA (2004), the British Society for Rheumatology (BSR) (Luqmani et al 2006) and the National Institute for Clinical Excellence (NICE 2009) who all strongly advocate the need for a dedicated and specialist podiatry service for the diagnosis, assessment and management of foot problems associated with RA along with periodic review.

Patient organisations (Arthritis Research UK, Arthritis Care, and the National Rheumatoid Arthritis Society) also recommend that patients have access to specialist foot care and increasingly rheumatologists are requesting specialist foot care services for their patients (Williams 2001a).

In this respect, podiatry care should be made available to all patients with rheumatoid arthritis and patients should understand the role of the podiatrist in helping them to effectively manage their foot health and how to seek help should they experience problems. Good communication between health professional and their patients' is essential. People with RA should have the opportunity to make informed decisions about their care and treatment, in partnership with their

health professionals (NICE 2009). Treatment and care should take into account peoples' needs and preferences.

3. PODIATRY SERVICE PROVISION

3.1 Philosophy of Podiatry Services for People with RA

The broad philosophy of podiatry management of people with RA is to relieve pain, maintain function and mobility, prevent or minimise deformity and reduce the risk of ulceration thereby maintaining or improving the individuals' independence and overall quality of life.

Podiatry services should provide a specific and dedicated service for the diagnosis, assessment and management of foot problems associated with RA that can be provided in a variety of settings, such as local clinics, hospital out-patient departments, and rheumatology departments (both outpatient and inpatient). However, it is acknowledge that some patients choose to access private podiatry care from HPC registered practitioners.

3.2 Clinical Specialist Role

A podiatry team led by a dedicated podiatry clinical specialist in rheumatology is desirable. This specialist should provide specialist care directly to patients, provided advise for other members of the podiatry and multidisciplinary team (MDT) and facilitate the development of appropriate clinical skills in other members of the podiatry team This clinical specialist should work within the rheumatology department (outpatients and inpatients) for at least part of their work schedule.

The advantages of this are that the specialist podiatrist can:

- Improve the profile of podiatry services within rheumatology
- Provide timely interventions for acute problems using extended practices that historically have required referral to secondary care.
- Provide timely referrals to appropriate members of the MDT.
- Develop inter professional working practices.
- Develop their role as advisor to the MDT

3.3 Essential Requirements for a Podiatry Service

Based on the national recommendations (NICE 2009 and ARMA 2004) the following are considered the essential requirements that a podiatry service is expected to provide for patients with RA:

- A team of podiatrists with knowledge of the foot health management of patients with RA and knowledge of the medical and rehabilitation management of the disease.

- A system for prioritising referrals so that foot pathologies are managed in a timely way

- The facilities for rapid assessment for patients should urgencies occur so that patients in acute pain or at risk of infection receive timely interventions. Patients who are being managed with biologic therapies should have immediate access to a specialist podiatrist if they present with foot ulceration or other infections affecting the foot.

- Provision of the appropriate facilities / skills for baseline vascular and sensory assessment i.e. hand held Doppler ultrasound and 10g monofilament. It is known that patients with rheumatoid arthritis are more at risk than the general population for coronary heart disease (resulting in circulatory insufficiency to the lower limb), vasculitis and neuropathy. Baseline and annual assessments of the vascular and neurological status of patients will both identify and monitor any problems or changes (Kitas 2003).

- Annual review and assessment of foot health in RA patients with identified foot problems (NICE 2009)

- The skills to provide biomechanical assessment of foot structure and function

- Provision of the appropriate facilities for biomechanical assessment of foot structure and function with either manufacturing or supplying foot orthoses. It is know that foot orthoses are a vital and effective intervention in rheumatoid arthritis (Woodburn et al 2002(a), McSween 1999, Hodge et al 1999, Budiman-mak et al 1995)

- Provision of specialist footwear or referral to an orthotist depending on local arrangements. It is known that many foot problems cannot be accommodated in normal retail footwear and the benefits of specialist prescription footwear are recognised (Chalmers et al 2000, Fransen and Edmonds 1997)

- Individual patient education and care plans. Patients need information to enable them to make informed choices about their treatment. The information should be provided with professional support and guidance with the emphasis on behavioural change rather than just information giving (Reisema et al 2002).

- A system of providing prompt and appropriate information to the referrers and other appropriate members of the multidisciplinary team. This is to facilitate good communication and collaboration between the podiatrist and the other members of the team so that care is timely and appropriate..

- Clinical documentation for recording of assessments, management plans, treatments and other interventions. In addition to the legal requirements for documentation of clinical treatments they can be used for purposes of audit

- An effective system of Continuing Professional Development, which includes
    - Annual Update Courses in Rheumatology
    - Multidisciplinary training

3.4 'Gold Standard' Requirements for a Podiatry Service

This would include all the essential criteria plus the following desirable criteria

- A team of podiatrists, led by the clinical specialist in the management of patients with RA. A designated clinical lead with advanced skills, experience and competencies would co-ordinate the service at a clinical level and be responsible for cascading new evidence based practice to other members of the podiatry team. They would act as clinical advisor for the team and be responsible for ensuring appropriate CPD in this area.

- The facilities for providing telephone advice and rapid assessment for patients

- Access to/provision of the appropriate facilities/skills for advanced vascular and neurological assessment such as Doppler assessment for ABPI's, vascular ultrasound.

- Provision of the appropriate facilities and skills for lower limb mechanics and foot pressure assessment. Many rheumatic disorders affect both the architecture and function of the foot and lower limb resulting in abnormal gait and increased foot pressures. Quantifiable assessment of these will enable monitoring and timely intervention. Where available, In-shoe foot pressure assessment will identify the effects of orthotic and footwear interventions (Hodge et al 1999, Minns and Craxford 1984)

- The facility for an annual review and assessment of all RA patients. This is so that patients who do not have current problems are monitored at least annually in order to detect problems early.

- An effective system of Continuing Professional Development, which includes

    - The development of advanced clinical skills such as soft tissue and intra-articular injection techniques, imaging modalities
    - The training in skills such as lipid and blood pressure monitoring
    - Attendance at regional, national and international rheumatology meetings and
    - conferences (for example, the British Society of Rheumatology Conferences)
    - Support for research (either uni-professional or multi-professional) in collaboration with outside agencies (for example, universities, medical schools, and medical charities).

4. REFERRAL GUIDELINES

It is recommended that all patients with rheumatic diseases, which manifest themselves in the foot and ankle should have access to a dedicated and specialist podiatry service (NICE 2009, Williams and Bowden 2004). The Standards of Care for people with Musculoskeletal Foot Health Problems (2008) document states that **all patients** should be referred **within 3 months of diagnosis**, not just those with a problem.

Essential standard
All patients should be referred for foot health assessment within 3 months of diagnosis of RA (PRCA 2008)

4.1 Referral Pathway

A pathway of referral should be in place to facilitate patient referrals to the specialist podiatrist service by any member of the podiatry team, the multidisciplinary rheumatology team, primary care team or private practitioners.

A question about foot problems and foot pain should be included in any assessment by consultants and their teams or primary care specialists to facilitate an appropriate and timely referral of the patient to the podiatry service.

4.2 Foot Screening Pathway

The aim of the Foot Screening Pathway (Appendix 1) and the Primary Assessment/ Annual Screening Tool (Appendix 2) is to enable any member of the podiatry team or other designated personnel assessing a patient to identify those patients who are at risk from ulceration or the development of deformity and to initiate appropriate and timely interventions care. It is recommended that private practitioners who manage patients with RA for general foot care on a regular basis make links with the specialist podiatry services in order to facilitate timely referral of those patients who foot health deteriorates.

Thorough assessment and review are essential in managing patients' foot health with the aim of reducing pain, improving mobility and independence. Further to this, podiatrists aim to provide holistic care enabling patients with RA to maximise their potential to fulfil their social and occupational roles.

Individual podiatry services will have different clinical arrangements for new and existing patients with RA in both primary and secondary services (and private practice) However, an initial structured foot assessment and screening must be carried out for all patients with RA at the first point of contact with any podiatrist and then referral on to the specialist podiatrist if the management needs require specialist intervention or the input from the multidisciplinary team. The structured foot assessment should be repeated periodically to detect any changes in foot health status.

5. PATIENT AND FOOT HEALTH ASSESSMENT

Clinical assessment should be systematic and thorough. The following components of a patient assessment / screening process should be carried out as a minimum standard of care for all new or existing patients presenting with new foot pathologies (see Appendix 1 and 2) . This enables an individual tailored care plan to be produced. It is recommended that all existing patient records are updated in line with these standards.

5.1 Essential Requirements for Assessment

Podiatry referral should be offered to all patients with RA and a Baseline Assessment should include:-

- Full Medical and surgical history (including disease duration).
- Medication and pain management.
- General health and systemic factors, examination for signs of extra-articular features of disease- nodules, bursa, vasculitis, tendonitis, tenosynovitis.
- Detailed assessment of foot and lower limb function and structure (both non weight-bearing and weight-bearing).
- Feel, look and move the foot assessing the foot position, deformities, range of movement and location of painful, tender, swollen sites.
- Assessment of foot pain using a scale of 0 (no pain) -10 (worst pain imaginable)
- Assessment of patients' main presenting problem, the pattern of distribution and chronological development of symptoms. The impact of the problem, patients' perceptions/knowledge and expectations also needs to be addressed.
- Vascular assessment based on clinical signs and patients' symptoms. Foot pulses should be assessed using Doppler ultrasound which provides an objective measurement of vascular status.
- Sensation assessment with 10g monofilament as a minimum.
- Assessment of nails, skin lesions and tissue viability also noting history of previous ulceration.
- Examination of the patients' footwear and its suitability for both home and outdoor use (Footwear Suitability Scale – Appendix 3).
- Assess the need for pressure relief and foot orthoses.
- Assess the need for referral for patients' requiring a surgical opinion or to other members of the MDT such as physiotherapy, occupational therapy or orthotist.
- Lifestyle and social factors- ability to self care, neglect, smoking, alcohol, occupation and activity/mobility.
- An annual review of foot health should be offered. Patients should be monitored and reassessed for changes in foot health and general health status. Allowing further outcomes to be predicted and patients' treatment and management plans to be changed accordingly

Essential Standards

All people with RA and foot problems should have access to a podiatrist for assessment and periodic review of their foot health needs. (NICE 2009)

Referral to a Podiatrist is an integral part of the **early** management of RA patients. (SIGN 2000).

5.2 'Gold Standard' Requirements for Assessment

In addition to the essential standards it is desirable that the following are also carried out:

- Baseline measurements of foot pain, function and health status using measurement tools such as the Foot Function Index (Budiman Mak et al 2006), Leeds Foot Impact Scale (Helliwell et al 2005) or the Salford Rheumatoid Arthritis Foot Evaluation Index (Walmsley et al 2010).Appendix 4
- The use of tools such as DAS28 to evaluate disease activity
- ABPI if further investigation of vascular status is required.
- Assessment of tendon reflexes where indicated
- All existing patient records are updated in line with these standards.
- Direct referral for x-rays / ultrasound / MRI scans for detailed assessment and diagnosis

5.3 Musculoskeletal Ultrasound for Foot and Ankle Pathology

Ultrasound imaging is an aid to musculoskeletal assessment and diagnosis (Wakefield, et al 1999; Backhaus et al 2001; Balint et al 2001). It is painless, harmless (no ionising radiation), is readily accessible for use within the clinical environment and is relatively inexpensive. Additional advantages over other imaging techniques are that any area of the foot can be scanned rapidly at one time-point and treatments such as guided steroid injections can be implemented immediately (Bowen 2003). Traditional grey scale ultrasound imaging allows visualisation of synovitis, joint capsule rupture, bursitis, tenosynovitis, tendonitis and tendon rupture, joint surface irregularities and erosions, osteophytes, loose joint bodies and foreign bodies (Coakley et al 1994; Koski 1998; Backhaus, et al 1999; Schmidt et al 2000; Wakefield et al 2000; Grassi, et al 2001; Bowen, et al 2010). Newer MSUS machines with power Doppler and Colour flow features also allow for evaluation of inflammation within the foot structures. (Brown et al 2008).

Specific competencies for ultrasound performed by non radiologists have been rigorously developed (Brown et al 2007). The most recently proposed framework for development of competencies in MSUS scanning techniques recognises the challenges of training and recommends that learning is tailored to areas directly relevant to a clinician's discrete field of practice (Brown et al 2007).

<u>Uses for Musculoskeletal Ultrasound</u>

* Effusions and impingements of the ankle joints.
* Visualisation of synovial hypertrophy, especially within the metatarso-phalangeal joints
* Tenosynovitis of extensor digitorum longus, extensor digitorum brevis, flexor digitorum

longus, flexor digitorum brevis, tibialis anterior, tibialis posterior, peroneus longus and peroneus brevis tendons.

* Visualisation of Achilles tendon in its full length - calcification, ruptures and retro-calcaneal bursitis can be differentiated.
* Diagnosis of synovitis via Power/Colour flow Doppler, especially within the metatarso-phalangeal joints.
* Diagnosis of morton's neuroma.
* Diagnosis of adventitial (within plantar fat pad) and anatomical (intermetatarsal) bursitis.
* Diagnosis of persistent post operative pain.
* Screening of diabetic and rheumatoid patients for high metatarsal pressures.
* Guidance of needle placement for steroid injections

6. MANAGEMENT OF FOOT PROBLEMS

6.1 Focus of Management

Treatment and care should take into account peoples' needs and preferences. People with RA should have the opportunity to make informed decisions about their care and treatment, in partnership with their health professionals.

Good communication between healthcare professionals and patients is essential. It should be supported by evidenced-based (where possible) information / care plan tailored to the individual person's needs. Treatment and care and information given should be appropriate to the individual and take into account cultural, religious, language needs and be accessible to people with physical, sensory or learning disabilities (NICE 2009).

Following a detailed assessment a management plan will be formulated between the podiatrist and the patient. This may involve referring the patient to other members of the rheumatology team for advice on interventions such as foot surgery, physiotherapy, specialist footwear or steroid injections.

Dependent on the presenting problems the podiatrist may offer the following interventions (each is then covered in detail),

- Management of plantar callus
- Conservative and surgical management of pathological nail conditions
- Foot orthoses and Footwear (Advise / therapeutic)
- Management of Foot Ulceration
- Patient education relating to all issues surrounding foot health
- Referral for a surgical opinion

- Joint injections or referral to the member of the multidisciplinary team responsible for this
- Referral to other members of the rheumatology team i.e. physiotherapy, occupational therapy, specialist nurses, orthotists and consultants

Regardless of the intervention/s, regular review appointments and open access to the podiatry service for any developing acute problems

6.2 Management of Plantar Callus

In rheumatoid arthritis (RA) prominent metatarsal heads are subject to excessive shear and compressive forces during gait. These stresses stimulate the stratum corneum to produce well circumscribed painful skin lesions or callosities.
This area is poorly researched with only two small trials investigating plantar callus reduction in RA. Stableford at al (2000) demonstrated that reduction of plantar callus with scalpel debridement in rheumatoid arthritis reduces forefoot pain (up to 48%) but for a very limited time (7 days). Reduction in callus resulted in an increase in forefoot pressures in 10 out of 14 feet.
This was not statistically significant but indicates that reduction of callus over prominent metatarsal heads may lead to tissue damage. This would be of particular concern in patients with the following factors

- Foot deformity
- Reduced tissue viability (long term steroid therapy, vasculitis, concurrent peripheral vascular disease) and/or neuropathy.

The second study (Davys et al 2005) also demonstrated a reduction in pain in 38 participants but concluded that the effect was no greater than sham treatment. Localised pressure or gait function was not significantly improved following treatment. The management of plantar callus should include the following,

- Patients should be informed about both the cause and management of the callus.
- Removal of superficial callus over plantar bursae must be avoided altogether.
- It is recommended that removal of thick callus is carried out cautiously and frequently.
- If infection is suspected, then overlying callus should be debrided in order to expose the underlying infection. In the case of foot ulceration, it is appropriate that surrounding callus and necrotic tissue is debrided.
- Pressure relieving and functional orthoses have been demonstrated in studies to reduce forefoot pressures should be provided (Hodge et al 1999, MacSween et al 1999, Redmond et al 2000, Woodburn et al 2002(a))
- Advice about the use of emollients for dry plantar callus should be given. Patients should be encouraged to self manage by applying emollient daily and to use a foot file on these areas at least three times a week.
- Ideally adhesive plantar padding should not be used to provide pressure relief especially where there are concerns regarding tissue viability. If localised protection is required, a dry dressing held in place with bandage can be used.
- Footwear advice should be provided so that shoes are deep and wide enough to accommodate the patients feet (see section on footwear and orthoses).

- Therapeutic footwear should be considered and if appropriate the patient referred to an orthotist
- If the patient has severe pain in the forefoot and/or severely affected mobility, it may be appropriate to refer the patient for a surgical opinion

Essential Standard Callus should be assessed in relation to symptoms and causative factors before debridement is considered.

6.3 Conservative and Surgical Management of Pathological Nail Conditions

Onychomychoses

Onychomycosis (OM) is an infection of the nail unit that can be caused by various species of dermatophytes, yeasts, molds and even some bacteria. OM infects between 5 and 13% of the population with increasing frequency as patient age increases and there is an increased association with immune-compromised hosts (Bodman 2003). Bodman (2003 also identified that if OM is left untreated, it can lead to subungual and skin ulceration, in patients with RA.

The most sensitive diagnostic test is histopathological analysis of a nail clip biopsy. A Periodic Acid-Schiff stain (PAS) test is commonly used as a quicker and more sensitive diagnostic workup than traditional fungal cultures (Arca et al 2004). There are five types of OM:

- Distal Subungual Onychomycosis (DSO)
- Superficial White Onychomycosis (SWO)
- Proximal Subungual Onychomycosis (PSO)
- Total Dystrophic Onychomycosis(Primary) (TDO)
- Total Dystrophic Onychomycosis (Secondary) (TDO)

Treatment of onychomychoses

- Regular Podiatry treatment. Thorough debridement of all dystrophic and hypertrophic nail plates to relieve painful pressure and facilitate topical agent penetration to the nail bed. This also allows the podiatrist to check for subungual ulceration.
- Topical Therapy. Topical Lacquers such as Trocyl (Tioconazole), Loceryl (Amorofine) and Lamisil (Terbinafine). These treatments can be effective in the treatment of early infections with limited involvement, such as DSO and SWO. Occasional local irritation and hypersensitivity reactions can occur, such as mild burning, erythema and itching.
- BNF (2009) states systemic antifungal treatments are more effective than topical treatments and Terbinafine is the drug of choice for OM. Oral antifungal therapies e.g. Sporanox (Itraconazole) and Lamisil (Terbinifine hydrochloride) are frequently used as they have a broad spectrum of activity and require a short duration of treatment. These

treatments would be recommended for PSO and TDO. There are many possible contra indications which require caution when prescribing.

- Hepatic and Renal Impairment
- Risk of exacerbation of Psoriasis
- Risk of Lupus-erythematosus like effect. (Autoimmune Disease)
- Pregnant and nursing mothers.
- Drug interactions

Patients with known or suspected immunodeficiency need to complete blood counts and monitoring as the drug may induce a transient decrease in absolute lymphocyte counts which may cause severe neutropenia. If clinical signs and symptoms are suggestive of a secondary infection and full blood count shows a neutrophil count <1000 cells/mm treatment should be discontinued.

Essential Standard
Fungal infections (of the nail and skin) must be investigated and treated. If left untreated they can lead to ulceration and secondary bacterial infection. Discussion with the patients GP or consultant is advised before systemic treatment is instigated

Onychocryptosis

Onychocryptosis (O/C) is a common problem for which patients seek Podiatry treatment. The nail may puncture the soft tissue and allow bacterial invasion resulting in paronychia and infection, often accompanied by hypergranulation tissue.

Treatment of onychocryptosis

In the first instance for mild O/C regular conservative podiatry treatment should be carried out in an attempt to resolve the situation. If indicated an appropriate dressing regime and antibiotic therapy should be arranged to assist management of localised infection. If the condition fails to resolve or presents as gross O/C with pain, infection and / or hypergranulation tissue, partial or total nail avulsion should be considered as first line treatment.

Essential Standard
Consultant advice should be taken on ingrown nails (O/C) if the patient is being managed with a biologic therapy and where there are signs of clinical infection and or the need for nail surgery

Before undertaking nail surgery, a thorough assessment should be carried out (as per local requirements) and informed consent obtained.

It is advised that **all** patients with RA undergoing nail surgery (regardless of their medical management) should have a written agreement by their consultant or GP obtained by the podiatrist planning to carry out the procedure.
The final decision to carry out nail surgery should take place on the day it is planned and cancelled if there are any changes in general or foot health or medication that may have implications to the procedure or post operative healing.

Prior to any decision regarding nail surgery it may be useful to consider the following:

- ESR and CRP should be checked prior to surgery to check current disease activity
- The trauma of a local anaesthetic and nail surgery on a patient with active disease can increase the risk of vasculitis progressing to gangrene.
- Raynauds phenomenon is characterised by an abnormal vasospastic response of the digital arterioles to emotional or temperature changes. Nail surgery should never be attempted during a vasospasm as the local anaesthetic stays in place longer acting as a partial tourniquet. It may be advisable to carry out the surgery in the warmer summer months
- Prostocycline infusion may be necessary to maximise the circulation to the area
- Patients taking immuno-suppressive drugs may require prophylactic antibiotics and possibly suspension of their therapy. Consultant advice should be sort as necessary.
- The patient's medication may need to be increased in preparation of the trauma to the body during the surgical procedure.
- The optimum time for surgery may be after the patient has had a disease flare up whereby close monitoring and altered medication has resulted in disease stability.
- The use of a tourniquet may not be advised for the whole time during surgery. Some consultants prefer that tourniquets are only used during phenolisation of the nail matrix.

This guidance is not intended to replace any local trust nail surgery policy or protocol which should be followed accordingly.

6.4 Foot Orthoses and Footwear

The benefits of foot orthoses (insoles) and footwear have been recognised and recommended "Functional insoles and therapeutic footwear should be available for all people with RA if indicated" NICE (2009). For the purposes of clarity foot orthoses and footwear options will be discussed separately. However, the practitioner should always consider them together in relation to footwear suitability, choice of foot orthoses and the potential mechanical effect of the footwear on not just the foot but the orthoses as well.

Foot orthoses

Foot orthoses are provided to two main groups of patients with RA; those with foot problems associated with early disease and those with more established foot problems. The use of appropriate footwear (Fransen and Edmonds 1997, Williams et al 2007) in conjunction with foot orthoses has been recognised as minimising the pain and disability associated with RA (Hodge 1999, MacSween 1999) when there is established foot deformity. The choice of foot

orthoses in relation to design and function is dependent on the amount of motion in the joint of the foot. This factor is not dependent on disease duration as some patients with early disease have limited motion and some with longer disease duration have good range of motion within the joints of the foot.

It is demonstrated that foot orthoses not only achieve pain reduction in the early RA foot but have a sustained effect on the foot structure and hence achieve stability of the joints of the foot and improve the patient's mobility (Woodburn at al 2002(a)).
Therefore, there is the potential to prevent major functional and structural foot problems by providing foot orthoses early on in the disease process if joint mobility is still good. However, as foot changes have the potential to occur within 2 yrs of disease onset (Turner et al 2006) it is essential that patients are referred for assessment of foot function as early as possible following diagnosis.

Essential Standard

Patient with a diagnosis of RA should be assessed as soon as possible following diagnosis for structural problems with the lower limb and foot.

All patients with RA and foot pain should be considered for foot orthoses and /or footwear advice, irrespective of disease duration.

Once the structural problems are established and joint mobility is reduced, management consists of reducing symptoms of pain and resultant mobility problems. Further to this, redistributing foot pressures may contribute to the prevention of tissue breakdown and ulceration over high pressure areas of the foot.

Essential Standard

Patients with established foot deformity should be assessed for accommodative foot orthoses and footwear advice/ specialist footwear

There is a broad range of devices that employ a variety of different approaches to modify foot and lower limb structure and function with general consensus within services providing them that foot orthoses include these main groups:

- Simple cushioning insoles
- Insoles to which additional padding/additions can be applied
- Contoured insoles intended to change the function of leg and foot joints, either:
    - Custom made to a cast of the patient's foot
    - Supplied off the shelf +/- adaptations

However, the boundaries between the modes of action of the types are not always exact and an individual device may include elements of more than one type or mode of action. However, Clark et al (2006) concluded that foot orthoses;

- reduce pain and improve functional ability

- Both hard and soft foot orthoses have the potential to reduce forefoot pain
- Hard foot orthoses have the potential to reduce rearfoot pain in patients with early RA
- Hard foot orthoses have the potential to reduce hallux abducto valgus

There is only anecdotal evidence for the use of simple cushioning insoles. Two small studies indicate that prefabricated metatarsal padding (dome and bar shapes metatarsal pads) reduces mean peak plantar foot pressure by up to 21% with bars and 12% with domes (Jackson et al 2004) and both equally (Hodge et al 1999)

Hard Contoured foot orthoses are provided in order to improve the function of the foot and/or lower limb. This assumes that there is some mobility in the joints of the foot in order to improve function and realign the bony architecture. They are particularly useful for use in patients with early diagnosis of RA. In this case there is an attempt to not only reduce pain but to maintain good foot function and hence structure whilst the foot is vulnerable to deformity due to the combination of the inflammatory process and abnormal mechanics.

Customised accommodative orthoses (total contact orthoses) are designed so that the material follows closely the contours of the underside of the foot. The purpose is to redistribute the pressures applied to the foot by standing and walking more evenly. This is particularly useful where there are areas of increased pressure, for example, under the metatarsal heads. In this instance the pressure is shifted to areas of the foot that do not normally bear weight such as the arch area (Li et al 2000). They are particularly used where there is limited or no joint mobility such as in the established RA foot and where tissue viability is poor. These orthoses are often made from materials that also provide a cushioning effect, such as softer EVA or with additional foam linings.

Essential Standards

Functional foot orthoses should be provided where the tarsal joints are unaffected.

Accommodative / cushioning orthoses should be provided for those patients with structural foot deformity, painful symptoms and activity restriction

Footwear

The choice of orthoses is governed by the suitability of the patient's footwear, which may not accommodate the ideal foot orthoses for their particular problem.

All footwear is in itself capable of modifying the structure and function of the body and therefore falls clearly within the definition of orthoses and may the only thing that needs changing to solve functional problems.

Inappropriate footwear can be both a major contributing factor to foot impairment. However, when it is right it has the potential to alleviate pain and increase mobility and independence (with or without foot orthoses).

Footwear can be sub divided into three main groups:

- Standard retail footwear
- Niche retail including comfort footwear as well as extra depth, extra width and odd-size suppliers.
- Specialist therapeutic footwear
    - standard or 'stock' footwear
    - modular footwear based on a stock base and customisable to individual needs
    - made to measure or bespoke footwear

Standard Retail footwear

There are now many manufacturers of retail footwear that are both appropriate for the foot health of our patients The features of retail footwear that makes them ideal for the RA foot would be -

- Stable heel – broad enough for stability or elongated / flared to increase this effect further
- Extended heel counter
- Padded topline – to reduce irritation to the retro-calcaneal area and the infra-malleolar areas
- No prominent internal seams
- Winged toe puff
- Increased toe spring or rocker sole – to reduce forefoot plantar pressures
- Low laced – for ease of access

(Williams 2006, Sherrington and Menz 2003)

The suitability of retail footwear can be assessed using the Footwear suitability tool (Nancarrow 1999) see Appendix 3

Essential Standard Footwear assessment and advice should be given to all patients.

In early disease many patients experience forefoot pain and changes to the shape of their foot. Many patients recall that they had to increase their shoe size to accommodate a wider forefoot. Specialist footwear manufacturers can be very helpful in offering advice and providing wider-fitting shoes. The British Footwear Association (http://www.britfoot.com/) provides detailed information about companies that make up the British footwear industry and consumer information about hard-to-find footwear suitable for all foot sizes and shapes

Specialist therapeutic footwear

Two systematic reviews (Egan et al 2003 and Farrow et al 2005) indicate that specialist footwear is likely to be beneficial in patients with RA. Two RCT's (Fransen and Edmonds 1997 and Williams et al 2007) indicate that this footwear contributes to the reduction in pain and

increased mobility in patients with RA although the effect is improved when combined with orthoses (Chalmers et al 2000)

It is generally considered that the following patients could be considered for referral for specialist footwear for the following reasons:

- Failing to obtain retail footwear to fit the dimensions of the foot (including asymmetry)
- Pressure symptoms such as skin lesions/sore areas on the feet
- Increasing foot pain due to pressure from existing footwear
- Excessive footwear 'wear' indicating that patients need more stability from increased surface area of the plantar aspect of the footwear and increased rearfoot control from the heel counter.
- History of foot ulceration where footwear has been a contributory factor.

It has been found that patients considered that it was important to receive information at the point of referral so that they can make considered choices as to whether to be referred or not (Williams et al 2008). Without some knowledge of what is available the opportunity to engage the patient in the decision making at this stage is lost and may be one of the reasons patient expectations are not met. The option of referral for a surgical opinion should be offered as an alternative to referral for footwear.

Stock footwear is specialist footwear which is available in a variety of styles and fittings, for example extra deep, and/ or extra wide and is generally suitable for mild to moderate deformity. This footwear is generally supplied with 3x3mm removable liners that provide the option for being replaced with orthotic devices. Stock footwear an modified and then it is termed 'modular'. Bespoke footwear is an option when there is major deformity such as advanced rheumatoid arthritis deformity or if there is a huge difference in symmetry, or if the foot dimensions are outside the measurements for stock footwear.

Essential standards –

Patients who are struggling with retail footwear due to deformity should be offered the option of being referred for therapeutic footwear. They should be informed of the potential benefits and limitations of this footwear (in respect of cosmesis).

Referral for surgical opinion should be offered as an alternative to referral for therapeutic footwear

6.5 Management of Foot Ulceration

It is likely that ulcers in Rheumatoid Arthritis (RA) are multifactorial in origin and these factors may contribute to the poor rates of healing.
Arterial disease as a factor has a higher incidence and prevalence in RA (McEntegart et al 2001). Traumatic ulceration, secondary to foot or ankle deformities may be made worse by poorly fitting shoes and/or sensory neuropathy which is associated with RA. Immunosuppressive therapy (especially corticosteroids), or poor nutrition (common in long standing RA), may also contribute.

The role of cutaneous vasculitis in the aetiology of ulceration can be difficult to determine in the feet. It is important to look for other clinical evidence of systemic vasculitis such as nail-bed infarcts, splinter haemorrhages, mononeuritis multiplex. Systemic rheumatoid vasculitis usually occurs in longstanding RA patients.

The aim of ulcer management is to create the best environment for healing to occur and to minimise adverse factors that delay the healing process and patient comfort.
The factors are:-

- Existing disease/medication
- Poor nutrition
- Poor patient compliance with treatments and advice
- Inappropriate management of the ulcer.

Essential Standard Optimum ulcer management can only be achieved by a holistic and integrated multi-disciplinary team approach

The foot assessment should be structured and detailed including vascular, neurological and foot structure/function assessments. Identification of risk factors such as poor nutrition, smoking and contributory factors such as ill-fitting footwear is vital as these are potentially modifiable. Ideally ESR, platelet counts, blood glucose and FBC should be checked and X-rays may also prove valuable in the management of foot ulceration.

Aims of Treatment:

- Keep free from infection / relieve pain
- Prevent deterioration / improve foot function
- Promote healing / establish wound closure
- Prevent reoccurrence / maintain tissue viability

Treatment

- Assessment of the ulcer i.e. type, location, duration, size.
- Debridement of the ulcer if necessary
- Investigations as appropriate e.g. x-ray, wound swab if clinical infection is suspected.
- Management of any infection according to local policies
- Antibiotics via GP/consultant if required
- Suitable dressings according to type of ulcer – see local Trust Protocols.
- Pressure relief and/or provision of orthoses if indicated
- Footwear assessment with appropriate action including advice, adaptation and referral to orthotist if required.
- Referral to consultant/GP/multi-disciplinary team member.
- Patient education / involvement in the management of their condition.
- Advise consultant / rheumatology team of ulcer / infection, particularly if the patient is managed with a biologic therapy

Essential Standard Contact the patient's consultant / rheumatology nurse IMMEDIATELY if the patient is being managed with Biologic therapy and develops an ulcer and/or infection.

6.6 Patient Education Related to Foot Health

Patient Education (P.E) can be defined as: a set of planned educational activities designed to improve patients' health behaviours, health status and long term outcomes (Hill, 1997). Patient education is considered to be an integral component in the armoury of R.A. management strategies, to support and facilitate self-management of the disease (ARMA, 2004). Further to this research has shown that individuals who are actively involved their own disease management have better outcomes, improved self-efficacy, less pain and reduced incidence of depression (Lorig et al, 2005; Kjeken et al, 2006).

The Standards of Care for People with Musculoskeletal Foot-health Problems (PRCA, 2008) recommend specifically that patient-centred education should be provided to enable patients to make informed choices about their foot care, and the role of the podiatrist as a vital member of the Multidisciplinary team for the management of R.A. has been reinforced (NICE 2009).

Podiatrists have a prominent role to play in symptom relief and improving overall quality of life through specific interventions, foot health advice and education (PRCA 2008), also in certain health behaviours and other aspects of the condition. There is a lack of podiatry-based research regarding the provision or effectiveness of podiatry focused P.E. related to R.A. foot problems. However, there is a large body of evidence that supports the effectiveness of P.E. for patients with R.A. that is delivered via a staged approach over the lifetime of the patient, with the content and timing of education provision being driven by the needs of the individual (Donovan et al, 1989; cited in Hill, 1997; Barlow and Wright, 1998; Barlow et al 2002; Hammond 2003; Waxman et al 2003; Hennell et al (2004); Schrieber & Colley, 2004; Fautrel et al 2005; Riemsma et al 2005; Luqmani et al 2006; Makelainen et al 2007; Koehn and Esdaile , 2008).

Using the recommendations and findings from the literature above as a guide, together with the PRCA (2008) Foot Health standards, Podiatrists can embed the following key points into the development of their Foot Health P.E. provision for individuals with R.A.

Education should be encouraged throughout the patients' medical care with each consultation becoming an opportunity for P.E and be based on an educational-behavioural approach. The content of P.E. should be individualized according to the patients' needs/wishes at the point of contact and should reflect the fluctuating nature of the disease.

It should aim to include:

- Disease specific information regarding; the causes & course of the disease and disease management.
- Details regarding access to patient support groups
- Advice regarding lifestyle choices (weight management, smoking cessation).
- Advice regarding retail/therapeutic footwear/foot orthoses.
- Maintenance of foot hygiene.

- Aspects of self-care (including safe & unsafe practices.
- Information regarding changes in foot health that should prompt further investigation.
- Access to service / providers of podiatry care

Simple information giving only has short-term, limited effects upon health behaviour, but should be used within a staged approach throughout the course of the disease. An opportune time for general information giving is early in the diagnosis, based upon the patients' own knowledge requirements. To maintain the potential effects of P.E over the lifetime of the patient, educational 'booster' sessions may be required.

Essential Standard

Patient education should include foot health self management advice and if necessary demonstration, explanation of foot problems and their impact on the individual, information on general disease management and sign posting for future foot health needs

6.7 Foot Surgery

Whilst it is recognised that advances in the medical management of RA with biologic therapies has seen a reduction in the requirement for orthopaedic surgery, many patients with the disease will go on to develop problems with their feet and ankles that may require a surgical opinion (NICE guidelines 2009).

Reasons for surgical referral may include:

Persistent pain, stiffness, synovitis in the foot or ankle joints, tenosynovitis or tendon ruptures, foot deformities causing restriction in mobility due to pain, or recurrent ulceration, Osteomyelitis / septic arthritis. It is generally accepted that referrals for surgical opinion should be considered for patients with RA when optimum conservative management has failed to bring their symptoms to an acceptable level. However, one should always be aware of potential exceptions such as earlier synovectomy in severe disease, to prevent rapid joint destruction (Harris et al 2007)

Essential standard

Red Flags requiring urgent referral include

- Tendon rupture e.g. Tibialis posterior, Achilles Tendon
- Septic arthritis
- Suspicion of cancer

Conservative management (prior to surgical referral) should consider accommodative footwear, orthoses, steroid injections and a comprehensive individualised package of podiatry care

Coughlin (1999) describes the main intended benefits of orthopaedic surgery to be pain relief, prevention of deformity, correction of deformity, preservation of function and/or restoration of function. The overall aim is to maintain independent mobility thus improving quality of life. However, the aims of surgery need to be counterbalanced against the potential risks of:

- Infection
- Recurrence of deformity
- Non – union
- Neuro – vascular damage

For further information please see - http://www.blackburnfeet.org.uk

6.8 Steroid Injection Therapy

The structures of the foot and ankle in RA are particularly susceptible to inflammation and are amenable to both diagnostic and therapeutic injection of steroid. This therapy allows for specific targeting of localised joints which may be symptomatic even though the general disease process is controlled by oral medications. Therefore, the main indication for use of therapeutic injection therapy is for active joint inflammation and pain relief but only in the absence of sepsis.

Essential standard Consider steroid injection therapy for targeting localised, inflamed joints when the general disease is controlled (but only in the absence of sepsis).

Hay et al (1999) found that the close proximity of joints in the foot can make accurate *clinical* localisation difficult. Therefore, the use of injections can also be diagnostic if local anaesthetic is used allowing for identification of problematic structures (Helliwell et al 2007).

Administering steroids via the intra articular or localised soft tissue approaches has advantages over oral use of steroids. Typical systemic side effects seen with steroids are reduced and improvement can be rapid. Ward and Williams (2008) found improvement following corticosteroid injection up to and including 6 months post injection.

Common sites for injection include the ankle joint, subtalar joint, first metatarso-phalangeal joint, interphalangeal joints, the plantar fascia, interdigital spaces, the tarsal tunnel, retro-calcaneal bursae and tendon sheaths of the peroneal and posterior tibial tendons.

Conclusive evidence for the type of steroid used (long or short acting), +/- local anaesthetic is lacking and depends on individual consultant choices, local policies and availability. Commonly used steroid preparations include Methylprednisolone 10-60mg, Triamcinolone 10-40mg and Hydrocortisone 25-50mg depending on site of injection. Local anaesthetics used include Lidocane 1%, 2% or Bupivacaine 0.25%, 0.5%.

The benefit gained from injection therapy depends on a number of factors:

- Correct diagnosis of the presenting complaint
- Appropriateness of injection therapy as treatment option
- Degree of inflammation
- Accurate placement of the injection
- Type of steroid used
- The amount of rest following the injection
- Correction of any structural deformity using orthoses

All these factors contribute to both the benefit and duration of benefit from injection therapy. Jones et al (1993) found that clinical response was closely associated with accuracy of injection placement. In the foot, accurate placement is sometimes difficult and often injections are guided using x-ray screening or ultrasound (U/S)(Appendix 5) . Without guidance, accuracy of placement depends purely on the skill of the practitioner. Using x-ray guidance often leads to delay in performing the injection and exposes the patient to radiation. U/S guidance is seen as the way forward and is likely to become more common as clinicians are trained in the modality and the technology becomes cheaper and more readily available (Brown et al 2004).

Essential standard Injection therapy should be seen as an adjunct to conventional podiatric management in combination with attempts to correct any structural deformity using orthoses (Helliwell et al 2007)

Potential Risks

As with any invasive procedure there are potential risks, which the referring practitioner needs to be aware of and the administering practitioner needs to consider before injection is carried out and discussed with the patient before informed consent is obtained.

There is believed to be a higher risk of post injection infection associated with injections in the foot and ankle (Dixon and Graber 1981). However, anecdotally, this risk is reported to be low if

good aseptic techniques are adopted for any joint or soft tissue injection procedure. Soft tissue rupture, especially related to injections of the plantar fascia is also more likely following steroid injection (Beales et al 1999, Furey 1975).

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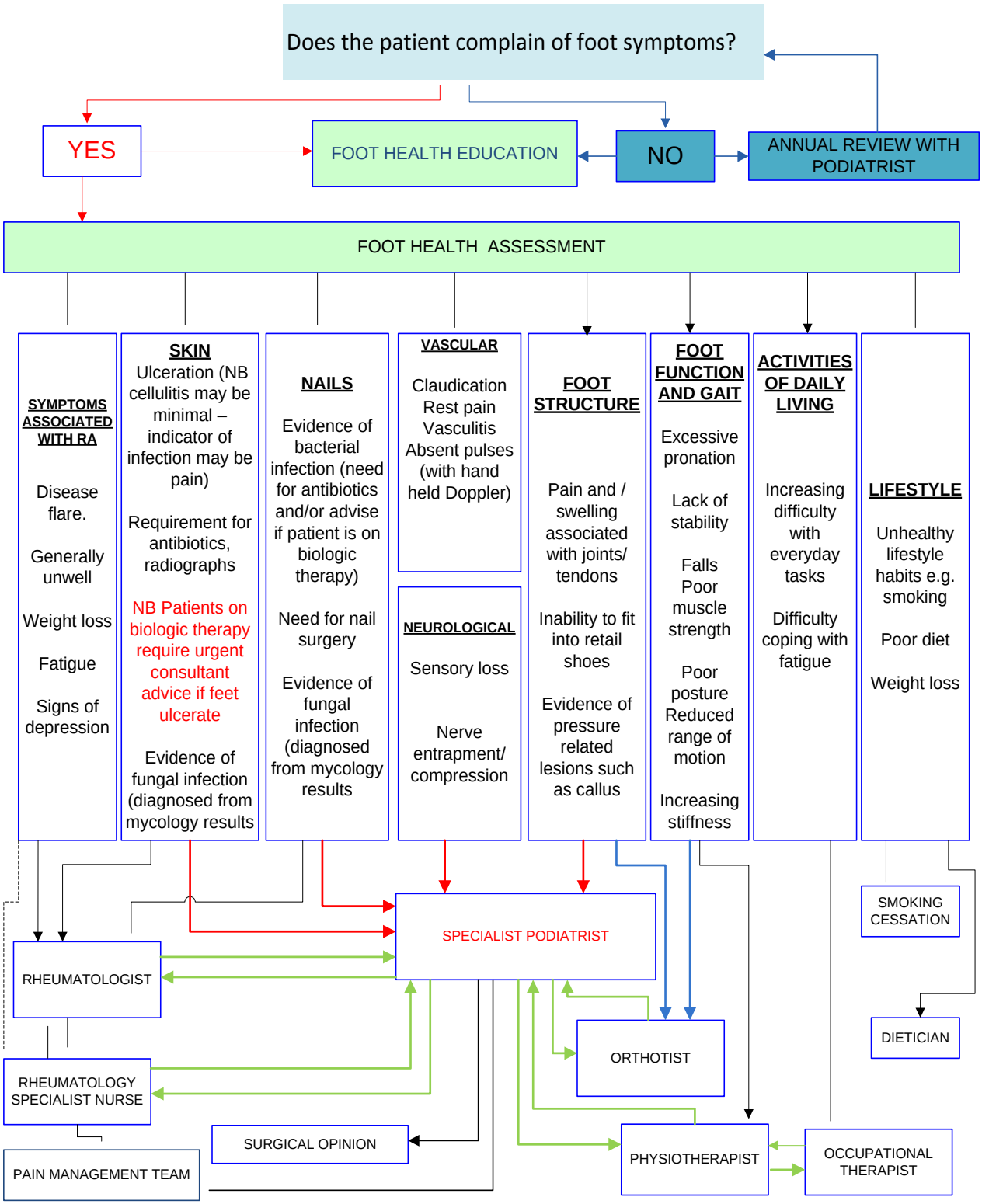
APPENDICES

Appendix 1

Foot Screening Pathway for People with RA



NB IN THE ABSENCE OF A SPECIALIST PODIATRIST -

- ADVISE SHOULD BE OBTAINED FROM THE PATIENTS CONSULTANT AS DENOTED BY A RED LINE
- ADVISE SHOULD BE OBTAINED FROM AN ORTHOTIST AS DENOTED BY A BLUE LINE
- **BLACK LINE**S DENOTE DIRECT REFERRAL
- **GREEN LINES** DENOTE MULTIDISCIPLINARY WORKING BETWEEN THE CORE RHEUMATOLOGY MULTIDISCIPLINARY TEAM

Appendix 2

Example of Primary Assessment / Annual Screening Tool

Name: _____ NHS No: _____
Address: _____ Unit No: _____
D.O.B. _____
GP: _____ Consultant: _____
Diagnosis: _____ Duration: _____

Relevant Medical History: _____
Allergies: _____

1. Medication:
   NSAIDS: _____
   DMARDS: _____
   STEROIDS: _____
   BIOLOGIC: _____
   OTHER: _____

2. Vascular Assessment:

		Right	Left
Palpation	DP	palpable / non palpable	palpable / non palpable
	PT	palpable / non palpable	palpable / non palpable

Doppler Assessment:
DP _____
PT _____

Intermittent Claudication:	yes ☐	no ☐	yes ☐	no ☐
Rest Pain:	yes ☐	no ☐	yes ☐	no ☐

Other relevant information _____

3. Neurological Assessment:

	Right	Left
10g Monofilament:	normal / abnormal	normal / abnormal

Symptoms: sharp pain ☐ burning ☐ dull ache ☐ numb ☐ tingling ☐ other ☐

4. Foot Structure Assessment:
Previous foot surgery / injury: _____

Extra articular features:
N/A
Bursae sites _____
Nodule sites _____
Subluxed met heads _____
Foot position: _____
_____

Range of joint movement - NWB:	Right	Left
Ankle – knee extended	flexible / reduced / rigid	flexible / reduced / rigid
Ankle – knee flexed	flexible / reduced / rigid	flexible / reduced / rigid
Subtalar	flexible / reduced / rigid	flexible / reduced / rigid
Midtarsal	flexible / reduced / rigid	flexible / reduced / rigid
1st Ray	flexible / reduced / rigid	flexible / reduced / rigid
HAV stage	1 / 2 / 3 / 4 / 5	1 / 2 / 3 / 4 / 5
Lesser toe involvement	2 / 3 / 4 / 5	2 / 3 / 4 / 5

5. Nail / skin problems
   Nail pathology _____
   Skin pathology _____
   Callus sites _____
   History of ulceration yes ☐ no ☐ site _____
   Current ulcer yes ☐ no ☐ site _____

   Cause arterial / vasculitis / small vessel disease / pressure
   Treatment details _____
   _____

6. Current pressure relief / orthotic management
   Type: simple insole ☐ pre-mould ☐ functional ☐ TCI ☐
   NA ☐

   Footwear: retail ☐ stock ☐ modular ☐ bespoke ☐
   Appropriate yes / no
   Uses footwear sufficiently to benefit foot health yes / no
   If no why? Uncomfortable ☐ appearance ☐ weight ☐ other ☐

7. Mobility: _____

8. Social factors: _____

9. Presenting complaint: _____

10. Any other relevant information (inc any treatment given):

_____

11. Plan / Action / Collaboration:

Routine podiatry treatment	☐	X-ray / MRI / US	☐
Annual recall / self referral	☐	Bloods	☐
Wound care management	☐	Injection clinic	☐
Orthotic intervention	☐	Education	☐
Consultant Rheumatologist	☐	Orthopaedic opinion	☐
Rheumatology Nurse	☐	Vascular investigation	☐
MDT. Specify.....	☐	Orthotist / Footwear	☐

Other _____

Clinician's Signature: _____ Date: _____

Appendix 3

Footwear Suitability Scale (Nancarrow 1999)

1. Is the heel of your shoe less than 2.5cm (1")?	As the height of your heel increases the pressure under the ball of your foot becomes greater. Increased pressure can lead to callus and ulceration	
2. Does the shoe have laces, buckles or elastic to hold it onto your foot?	If you wear slip on shoes with no restraining mechanism, your toes must curl up to hold the shoes on. This can cause the tops of your toes to rub on your shoes leading to corns and calluses. Secondly, the muscles in your feet do not function as they should to help you walk, instead they are being used less efficiently to hold your shoes on	
3. Do you have 1cm (approx thumb nail length of space between your longest toe and the end of your shoe when standing?	This is the best guide for the length of the shoe, as different manufacturers create shoes which are different sizes. Your toes should not touch the end of the shoe as this is likely to cause injury to the toes and place pressure on the toe nails	
4. Do your shoes have a well padded sole?	Shoes should have supportive, but cushioned sole to absorb any shock and reduce pressure under the feet	
. Are your shoes made from material which breathes?	A warm, moist environment can harbour organisms such as those which cause fungal infections	
6. Do your shoes protect your feet from injury?	The main function of footwear is protection from the environment. Ensure your shoes are able to prevent entry of foreign objects which can injure the foot. If you have diabetes a closed toe is essential to prevent injury to the foot.	
7. Are your shoes the same shape as your feet?	Many shoes have pointed toes and cause friction over the tops of the toes which can lead to corns, callus and ulceration. If you can see the outline of your toes imprinted on your shoes, then the shoe is probably the wrong shape for your foot	
8. Is the heel counter of your shoe firm?	Hold the sides of the heel of your shoe between the thumb and forefinger and try to push them together. If the heel compresses, it is too soft to give your foot support. The heel counter provides much of the support of the shoe and must be firm to press	
If you have not put a tick in every box, your footwear is probably not protecting and supporting your foot as it should be		

APPENDIX 4

The Salford Rheumatoid Arthritis Foot Evaluation Instrument is a Patient reported Outcome Measure that can be used in clinical practice to evaluate the impact of foot problems on the lives of people with RA. This enables you as a clinician to evaluate your interventions and monitor the foot health of your patients. Please copy this and use in your clinical practice. This Instrument was developed by Steven Walmsley who has engaged with patients and clinicians in its development – if you require any further information please contact Steven via the email below.

It would be useful to collate information about patient's foot health before and after interventions with the University of Salford as a central 'hub' for this activity. If you are interested in collaborating in this initiative please contact Dr Anita Williams a.e.williams1@salford.ac.uk

Salford Rheumatoid Arthritis Foot Evaluation Instrument
Part A: Fixed Scale

Date:
Patient I.D:

INSTRUCTIONS – Please Read

This part of the questionnaire requires you to think specifically about **HOW THE RHEUMATOID ARTHRITIS IN YOUR FEET AFFECTS YOUR DAILY LIFE**. Please answer all of the following questions by circling the answers that best apply to your **EXPERIENCES WITH YOUR FEET over the past 3 MONTHS**.

About Your Feet and You					Subscale I
1) The severity of pain in my feet is:	Extremely painful (4)	Very painful (3)	Moderately painful (2)	Mildly painful (1)	Not painful (0)
2) The severity of burning in my feet is:	Extremely Severe (4)	Severe (3)	Moderately Severe (2)	Mild (1)	Non-Existent (0)
3) I experience pain in the balls of my feet:	All the time (4)	Very often (3)	Often (2)	Not very often (1)	Never (0)
4) I feel unstable when walking because of my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
5) I experience problems with my feet in the morning: *	All the time (4)	Very often (3)	Often (2)	Not very often (1)	Never (0)

Please make sure you have answered every question on this page

Page 1 of 3

About Your Feet and You					Subscale I
6) I experience problems with my feet in the evening:	All the time (4)	Very often (3)	Often (2)	Not very often (1)	Never (0)
7) My feet are one of the areas of my body worst affected by my rheumatoid arthritis:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Feet and Your Daily Life					Subscale D
8) The difficulty I experience walking because of my feet is:	Extremely Difficult (4)	Difficult (3)	Moderately Difficult (2)	Slightly Difficult (1)	Not Difficult (0)
9) The difficulty I experience standing because of my feet is:	Extremely Difficult (4)	Difficult (3)	Moderately Difficult (2)	Slightly Difficult (1)	Not Difficult (0)
10) I cannot be as physically active as I would like to be because of my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
11) I am concerned that my feet will get worse:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
12) I am not sure what I can do for myself about the problems I have with my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
13) I am cautious about walking on my feet too much because I feel it could make their condition worse:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please make sure you have answered every question on this page

About Your Feet and Your Daily Life					Subscale D
14) I sometimes feel that the problems I have with my feet greatly restrict me:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
15) I feel that I slow down the people I walk with because of my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
16) My everyday activities require more planning because of the problems I have with my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
17) I feel that my feet have a big impact on my life:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Footwear					Subscale F
18) I have a limited choice of footwear:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
19) My footwear causes my feet to hurt when I walk in them:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please make sure you have answered every question on this page

Thank you for completing Part A of this questionnaire.

For clinicians only

Salford Rheumatoid Arthritis Foot Evaluation Instrument

Scoring page: PART A

Date:
Patient I.D:

Please write the individual scores for each of the completed items of the subscales for Part A into the table below. For each subscale, calculate the score total.

I		D		F	
Impairment		**Disability**		**Footwear**	
Item no	Score	Item no	Score	Item no	Score
1		8		18	
2		9		19	
3		10		**Total Score**	
4		11			
5		12			
6		13			
7		14			
Total score		15			
		16			
		17			
		Total score			

Salford Rheumatoid Arthritis Foot Evaluation Instrument

Part B: Patient Preference Scale

Date:
Patient I.D:

INSTRUCTIONS – Please Read.

This part of the questionnaire requires you to think about **HOW THE RHEUMATOID ARTHRITIS IN YOUR FEET IMPACTS UPON DIFFERENT ASPECTS OF YOUR DAILY LIFE**. Please **READ THROUGH** the questions and **ONLY ANSWER ANY THAT ARE RELEVANT TO YOU BY CIRCLING THE ANSWERS THAT BEST APPLY TO YOUR EXPERIENCES WITH YOU FEET OVER THE PAST 3 MONTHS**. **IGNORE ANY QUESTIONS THAT YOU DO NOT FEEL ARE RELEVANT TO YOU.**

About Your Foot and Ankle Symptoms					FAS Domain
1) The extent of the changes in the shape of my feet is:	Extremely altered (4)	Very altered (3)	Moderately altered (2)	Slightly altered (1)	Not altered (0)
2) The severity of pins and needles in my feet is:	Extremely Severe (4)	Severe (3)	Moderately Severe (2)	Mildly Severe (1)	Non-Existent (0)
3) I experience pain in my toes:	All the time (4)	Very often (3)	Often (2)	Not very often (1)	Never (0)
4) I experience pain underneath my heels:	All the time (4)	Very often (3)	Often (2)	Not very often (1)	Never (0)
5) My feet wake me up at night because of pain:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please only answer any questions that you feel are relevant to you

About Your Feet and the Weather					EF Domain
6) Cold weather causes my foot symptoms to become worse:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
7) Hot weather causes my foot symptoms to become worse:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Feet and Getting About					IE Domain
8) Because of my feet, the difficulty I experience doing my food shopping is:	Extremely Difficult (4)	Difficult (3)	Moderately Difficult (2)	Slightly Difficult (1)	Not Difficult (0)
9) Because of my feet, the difficulty I experience performing my domestic duties in my home is:	Extremely Difficult (4)	Difficult (3)	Moderately Difficult (2)	Slightly Difficult (1)	Not Difficult (0)
10) Walking long distances can be difficult because of the problems with my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
11) The problems with my feet have stopped me walking for pleasure:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
12) Because of my feet, I have to be careful not to overdo any of my daily activities that involve my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
13) I feel confined to my house sometimes because of the problems with my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
14) I have to rely on help from other people when out in public due to the problems I have with my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please only answer any questions that you feel are relevant to you

About Your Feet and Your Family Life					EFAM Domain
15) Because of my feet, I experience difficulty looking after my children:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
16) The problems with my feet have stopped me from joining in with family activities:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
17) Because of my feet, I have difficulty looking after my grandchildren:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
18) The problems I experience with my feet create tension within my family:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
19) Because of my feet, I feel that other members of my family have had to adapt their own lives:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Experiences with Footwear					EWF Domain
20) I have to wear shoes that are too big in order for them to be a comfortable fit:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
21) It is difficult to buy footwear that my shoe inserts will fit in:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
22) I cannot wear the stylish footwear that I like:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please only answer any questions that you feel are relevant to you

About Your Experiences with Footwear					EWF Domain
23) I can only wear footwear that is provided to me by my hospital:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
24) The styles of footwear that I am restricted to wearing make me feel older than I am:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
25) I feel that there are no fashionable shoes available for me:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
26) I wear footwear that I consider to be stylish even if they are uncomfortable:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Feet and Your Personal Feelings					PF Domain
27) The restrictions that my feet impose on my life make me feel down:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
28) I am cautious about walking alone outdoors because of the problems with my feet:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
29) I find it difficult to cope with the problems my feet cause me:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
30) I get frustrated because my feet stop me from achieving the things that I want to:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please only answer any questions that you feel are relevant to you

About Your Feet and Your Personal Feelings					PF Domain
31) I am concerned about my feet changing shape:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
32) The problems I have with my feet make me feel older than I am:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
33) I try not to draw attention to my footwear because I am very self-conscious of them:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Feet and Your Social Life					SL Domain
34) I can feel isolated because my feet can stop me from socialising with friends:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
35) I have had to give up some of my hobbies because of the difficulties I have with my feet	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About Your Feet and Your Ability to Cope					PA Domain
36) I feel that I have learned to cope with the problems I have with my feet well:	Strongly agree (0)	Agree (1)	Neither agree or disagree (2)	Disagree (3)	Strongly disagree (4)
37) I try not to let the difficulties I experience with my feet get to me emotionally:	Strongly agree (0)	Agree (1)	Neither agree or disagree (2)	Disagree (3)	Strongly disagree (4)
38) It can be difficult to plan activities because of my uncertainty of how my feet will be from day to day:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please only answer any questions that you feel are relevant to you

About the Impact of Your Feet on Your Personal Appearance					VI Domain
39) The restricted range of footwear available to me means that I cannot dress how I want to:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
40) I do not like to socialise because of my unattractive footwear:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)
41) The way that I walk because of my feet makes me feel self-conscious in public:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

About the Impact of Your Feet on Your Job					IC Domain
42) My feet restrict my job roles:	Strongly agree (4)	Agree (3)	Neither agree or disagree (2)	Disagree (1)	Strongly disagree (0)

Please only answer any questions that you feel are relevant to you

Thank you for completing Part B of this questionnaire.
Please give the completed questionnaire to your podiatrist.

For clinicians only

Salford Rheumatoid Arthritis Foot Evaluation Instrument

Scoring page: Part B

Date:
Patient I.D:

Please write the individual scores for each of the completed items of the domains for Part B into the table below. For each domain, write the total number of items answered and calculate the total score.

FAS		EF		IE		EFAM		EWF		PF		SL		PA		VI		IC	
Foot and Ankle Symptoms domain		External factors that affect foot symptoms domain		Impact on everyday functioning domain		Effect on family life domain		Experiences with footwear domain		Personal feelings domain		Impact on social life domain		Personal adaptation domain		Visual impact domain		Impact on career domain	
Item no	Score	Item no	Score	Item no	Score	Item no	Score	Item no	Score	Item no	Score	Item no	Score	Item no	Score	Item no	Score	Item no	Score
1		6		8		15		20		27		34		36		39		42	
2		7		9		16		21		28		35		37		40		Number of items answered	
3		Number of items answered		10		17		22		29		Number of items answered		38		41			
4				11		18		23		30				Number of items answered		Number of items answered		Total score	
5		Total score		12		19		24		31		Total score							
Number of items answered				13		Number of items answered		25		32				Total score		Total score			
				14				26		33									
Total score				Number of items answered		Total score		Number of items answered		Number of items answered									
				Total score				Total score		Total score									