Poster Viewing III

239. ARMA-BASED AUDIT OF RHEUMATOLOGY SERVICE DELIVERED PREDOMINANTLY OUTSIDE THE TRADITIONAL HOSPITAL SETTING

Beverley Travers, Sonya Henderson and Sreekanth Vasireddy
Dept of Rheumatology, NHS Bolton, Bolton, UK

Background: In recent years, there has been a move to deliver rheumatology clinics outside the traditional hospital setting, but there is insufficient information regarding its impact on standards of care delivered such as appropriate access to health professionals. At its inception in 2005, our department took over an existing cohort from a visiting consultant and has since delivered some clinics in a hospital setting, but the majority from a large PCT resource centre (currently 60% of doctor-led clinics and all Advanced Practitioner/Specialist nurse clinics including Biologics clinics). We aimed to audit the experience of inflammatory arthritis patients in our department with respect to published ARMA Standards of Care guidance.

Methods: An adapted, scannable version of the ARMA inflammatory arthritis audit tool (patient questionnaire) was developed in house. 100 anonymized forms were printed and distributed to consecutive consenting patients identified by clinicians in rheumatology clinics. Returned forms were scanned using the SNAP software and retrieved data was summarized using descriptive statistics.

Results: Of 92 responders, 90 were suitable for analysis (average age 74 years). 80% had rheumatoid arthritis, 7% psoriatic arthritis and 8% ankylosing spondylitis, with 80% having the disease for > 10yrs. Within first 6 months of diagnosis 81% reported seeing a Rheumatologist, 24% a Nurse Specialist, 13% an Advanced Practitioner, 19% a Podiatrist, 23% a Physiotherapist, 20% an Occupational Therapist. 86% reported being reviewed annually or more often by a Rheumatologist. Within first 6 months, 49% recollected being offered DMARDs, 47% an anti-inflammatory, 46% a pain killer, 32% steroid injections and 18% steroid tablets. 83% of patients felt that they had been involved in decisions about their treatment. Written information offered/given was reported by 53% about disease and treatments and by 37% about support organizations. 49% reported being offered information on exercise programmes in the department at initial diagnosis. Of 32 free text comments, 28 were positive, 2 neutral and 2 negative about aspects of current service.

Conclusions: Patients seem to have had appropriate access to health professionals similar to a service delivered in a traditional hospital setting. Specifically, most were being reviewed by a rheumatologist annually or more often and most felt they were involved in decisions about their treatment. Several responders had the first diagnosis before the inception of our department, when there was a limited service in the district, reflected in the responses to questions pertaining to the first 6 months from diagnosis. The overall perception of current care delivered seems to be positive and this is probably no worse than a traditional service delivered from a hospital setting. We conclude that comprehensive patient-centred rheumatology clinics can be effectively delivered outside the traditional hospital setting.

Disclosure statement: All authors have declared no conflicts of interest.

240. MODIFIED PILATES EXERCISES FOR LOW BACK PAIN: DO THEY HELP?

Elizabeth J. SeQueira2, Patricia J. Cornell1 and Selwyn Richards1
1Rheumatology, Poole Hospital NHS Foundation Trust, Poole, UK; 2Physiotherapy, Poole Hospital NHS Foundation Trust, Poole, UK

Background: Guidelines recommend group exercise for patients with low back pain that are no longer improving with 1:1 therapy and include a back and fitness exercise group and a group aimed at core stability exercises. A modified Pilates programme for people with low back pain has been developed by the Australian Physiotherapy Pilates Institute (APPI). The aim of Pilates is to improve deep abdominal muscle endurance, reduce pain and improve function and prevent recurrence. The aim of this survey was to assess whether core stability exercises in the form of a modified Pilates class were effective.

Methods: Training was undertaken in the APPI programme. A Pilates exercise group offered weekly classes of 1h duration for 6 weeks. Adult with low back pain patients were referred and assessed as needing core stability exercises. Exclusions included red flags, unstable angina, acute or acute on chronic flare, pregnancy, or unable to get down and up from the floor. The Roland Morris (RMQ) and the Measure Yourself Medical Outcome Profile (MYMOP) were completed at the first and last session. Feedback forms for comments about the classes were also completed.

Results: 75 data sets were collected. Demographics were M:F 1:5 Age range 20–75 (mean 50.5 years).

The RMQ scores were analysed as a significant change if the score had changed by greater than 3 points. The MYMOP scores were an aggregate of the first and second symptom and separately for the functional activity. A change in MYMOP score of 1 point was taken as significant for this assessment.

Conclusions: Patients were keen to try the pilates classes. The MYMOP questionnaire showed that symptoms in 58.7% of patients had improved and functional activity had improved in 42.7% patients. However, according to the RMQ Pilates exercises made no difference to 72% of respondents (Table). There were limitations to this study; patients were able to see their initial MYMOP score, which might have influenced their final score. The RMQ might not be sensitive enough for this population of patients as the scores were rarely high enough to indicate disability form their back pain. Pilates is widely promoted as an effective exercise regime for the spine. This is the first large assessment of an NHS population pilates class. Further studies could compare pilates exercise classes to other back exercise programmes and investigate the continuation of these exercises by participants in the community. The results show encouraging support for increase in functional ability and improvement in symptoms.

Disclosure statement: All authors have declared no conflicts of interest.

241. GUIDELINES FOR THE USE OF ANTI-CCP ANTIBODIES

Abdul Khan, Shameen Hasan, Robin Withrington and Alison Leak
Rheumatology, QEQM Hospital, Margate, UK

Background: We bid to introduce anti-CCP AB for rheumatologists after our first pilot of their use in RF positive patients with diagnostic dilemma (1). The Trust department issued guidelines for their use (2007) including (a) request once only, (b) Consultant requests only. Consider in:

1. Undifferentiated inflammatory arthritis where diagnosis is unclear
2. RF positive patients with inconsistent clinical findings
3. Patients with RA at diagnosis
4. Patients with RA going onto biological therapy.

Methods: We audited our use of the 2007 Trust guidelines. Out of 812 requests between 4.07 and 5.08, a stratified sample was taken from each consultant’s practice and the fifth patient was chosen. Out of sample of 70, data were available on 69 patients. RF by nephelometry is considered negative under 20 IU, low pos 21–50, positive > 50.

Results: (a) In only 3% was the CCP a repeat test, (b) 75% were requested by Consultants but 25% by either Rheumatology specialty nurses or Rheumatology trainees. The majority of requests were for undifferentiated arthritis (54%) and patients with RA of 1–4 yrs (28%). In 24% (35%), the CCP was positive and 45% (65%) negative. CCP
positive results were found in only 1 of 22 RF negative patients, 3 of 22 with low pos RF, but 20 of 25 with RF > 50. 75% of patients found to be CCP positive were started on new treatment, usually a change or addition of DMARD. In 62% cases where CCP was negative the patient was given another diagnosis or discharged.

In 2008 after a meeting including Rheumatologists, Kent and Medway Pathology Network issued further guidelines, recommending use only when the result will influence patient’s management, principally:
1. Patients with symptoms of RA but negative RF
2. RF positive patients with no obvious cause.

It was noted that ‘Further discussion should establish whether addition of anti-CCP to the patient care pathway can help stratify patients into groups that may benefit from biological therapy’. Local guidance is currently being revised, also taking into account the 2009 NICE guidance for considering anti-CCP measurement in people with suspected RA if the patient is negative for RF and if there is a need to inform decision making about starting combination therapy. Local immunology advice now states that there may be reason to test in selected cases if both RF and CCP are raised; this may suggest a poorer prognosis.

Conclusions: Clinicians may feel more strongly than immunologists about the usefulness of anti-CCP in aiding decision making about use of biologic therapy. £20 for a test done once in early or suspected RA seems good value if this helps select patients requiring more aggressive therapy.

Disclosure statement: All authors have declared no conflicts of interest.

Reference

242. ADHERENCE TO RCOPTH GUIDELINES IN MONITORING PATIENTS ON HYDROXYCHLOROQUINE BY RHEUMATOLOGISTS IN NORTH STAFFORDSHIRE

Jaswant Sandhu, Annie Joseph and Jon C. Packham
University Hospital of North Staffordshire, Stoke-on-Trent, UK

Background: Hydroxychloroquine (HCQ) is used as a disease-modifying anti-rheumatic drug (DMARD) in a variety of different rheumatic conditions. A major concern is the rare possibility of HCQ induced retinal toxicity potentially resulting in irreversible vision loss, which may progress even after HCQ discontinuation. Adherence to the Royal College of Ophthalmology (RCOphth) guidelines for HCQ use (endorsed by British Society for Rheumatology) has been reported to be variable nationally. This study assesses evaluates adherence to the RCOphth guidelines in North Staffordshire.

Methods: An electronic DMARD database for all patients attending rheumatology outpatient clinics in North Staffordshire over 2 months (May-June) 2009 was used to identify those on HCQ therapy. Patient’s age, weight, height, demographics, diagnosis, HCQ dosage, liver and renal function were collected. Medical notes were reviewed. At HCQ initiation (baseline screening) and annual follow-up (monitoring), records were scrutinized for documentation of visual function enquiry, pre-existing visual impairment / eye disease, near visual acuity and optometry/ophthalmology referral. Treatment dosage in mg/kg/day was calculated using ideal body weight (IBW) or actual body weight (ABW) if height was unrecorded.

Results: 77/651 (12%) patients were on HCQ therapy. Full medical notes were available in 67 (87.0%) patients and electronic notes/letters in 10 (13.0%) patients. Mean age was 62.0 ± 15.3 years. There were 61 (76.7%) females. The most common reason for HCQ use was rheumatoid arthritis.

At baseline, Visual impairment enquiry was documented in 47/77 (61%) medical records and near visual acuity in 6/77. All patients had renal and liver function tests with 1/77 documented liver abnormality (auto-immune hepatitis).

All patients were monitored at least annually. Enquiry of visual symptoms was recorded in 22 (28.6%) patients and near visual acuity in 1 patient. No patients had concomitant retinal disease.

20/66 (30.3%) patients were above the maximum recommended dose > 6.5 mg/kg/day (range 6.51-8.79 mg/kg/day), (IBW in 45 patients, ABW in 21 patients, weight unrecorded in 11 patients).

3 of 22 (13.6%) patients presented with new onset visual symptoms at follow-up. Following ophthalmology review, none were judged to be HCQ related.

Conclusions: The adherence to RCOphth guidelines on monitoring patients on HCQ in North Staffordshire is variable, mirroring the national picture. Adherence may be improved by additional training of rheumatology specialist nurses to undertake visual acuity assessment. Ideal body weight calculators should ensure that patients receive HCQ doses within the guidelines. Patients presenting with new onset visual symptoms or impairment may be initially considered for optometrist assessment, prior to ophthalmology referral.

Disclosure statement: All authors have declared no conflicts of interest.

243. AUDIT OF ANTI-TNF TREATMENT IN PATIENTS WITH ANKYLOSING Spondylitis in the Royal Glamorgan Hospital

S. Lyle1, James C. Martin2, Rhiannon M. Goodfellow1, Ceri Rhys-Dillon1, Julie T. Morgan1, S. Mogford3 and J. Rowan-Phillips4
1Rheumatology, Royal Glamorgan Hospital, Llantrisant, UK; 2Occupational Therapy, Royal Glamorgan, Llantrisant, UK; 3Physiotherapy, Royal Glamorgan, Llantrisant, UK

Background: The multi-disciplinary AS clinic was established at the Royal Glamorgan Hospital in 2005 and is held on a 2 monthly basis. Patients attending the clinic are diagnosed according to the modified New York criteria for AS. Eligibility for and response to TNF blockers was initially assessed using the British Society for Rheumatology guidelines (BSR 2004) and then superceded by NICE guidance on adalimumab, etanercept and infliximab for ankylosing spondylitis (TA143- May 2008). An audit of patients on TNF blockers was undertaken to compare clinical practice with NICE guidelines.

Methods: Patient notes and the rheumatology database were reviewed. Demographic data along with eligibility criteria were collected for all AS patients treated with TNF blockers. Disease activity measurements, response to treatment and follow up data were collected for patients on treatment. The NICE patient data collection tool (Audit criteria TA143) was used to collate the information. Data was audited against the eleven criteria of the guideline.

Results: A total of 25 patients had received anti-TNF treatments with a ratio male to female 19:6. Patient age [49.1 ±(1/-10.6 yrs;mean(S.D.)]. All patients fulfilled criteria for diagnosis and eligibility for treatment, BASDAI [6.84 ± 1.18 (4.95-9.06); mean ± s.d. (range)] SPINAL PAIN [7.78 ± 1.59 (4.6-9.6)] (criterion 1). 6 patients are no longer on treatment, 1 deceased, 1 moved area, 1 side effects and 3 failed to meet the criteria. 24/25 patients fulfilled NSAID criteria (criterion 2). NSAID was contraindicated in the remaining one patient. First post-treatment assessment took place of the remaining patients at 3 months (criterion 3) in 8/19 (42.1%), at 4 months 10/19 patients (52.6%) and at 6 months 1/19 (5.3%). At this initial assessment 100% (19/19) fulfilled response criteria at first follow up assessment. BASDAI [2.50 ± 1.92 (0.47-4.3)] change in score of [-4.28 ± 1.56 (7.48 – 1.58) SPINAL PAIN [2.87 ± 1.38 (0.6-5.2)] change in score of [-4.91 ± 1.89 (7.5-0.9)]; (criterion 4). 0% of patients were intolerant of TNF blockers before first review (criterion 5). 0% of patients were followed up 12 weekly thereafter but most were reviewed 16 weekly (criterion 6), 1 patient who failed the response criteria at 16 weeks was reviewed at 16 weeks rather than 6 weeks (criterion 7) and fulfilled response criteria (criterion 8). 0% of patients were switched (criterion 9), 1 patient (5.2%) was initiated and remained on Infliximab (criterion 10 and 11).

Conclusions: Clinical practice complied 100% with diagnosis and eligibility criteria. Due to the timing of our clinics, it was impossible to meet review assessment time scales of 12 weeks and it was identified that less than half of patients were reviewed at the required time point, most are reviewed within 4-6 months. Review of clinical practice is being undertaken as to whether clinics should be held on a monthly basis or local practice would be to adopt 16 week review times with 8 week reassessment if required.

Disclosure statement: All authors have declared no conflicts of interest.

244. RETROSPECTIVE AUDIT OF A PHYSIOTHERAPIST-LED SHOULDER CLINIC

Diane Moss, Hilary Wilson and Anne McEntegart
Rheumatology, Stobhill Hospital, Glasgow, UK

Background: Physiotherapy led clinical assessment including diagnostic ultrasound (US) and corticosteroid injection (CSI) are increasingly used in our clinic to manage shoulder disease. We wished to assess the effectiveness of this approach. Our aims were to:
1. Characterize the range of shoulder problems referred to our clinic; and
2. Measure outcome following ultrasound scan and CSI.
However on an individual basis, 10 (22%) patients scored below 3 dissatisfaction. was completed for each patient and the results entered on an Excel

Results: 8 patients had adhesive capsulitis, 6 impingement syndrome, 6 rotator cuff tears and 2 calcific tendinitis. 7 of the patients had an inflammatory arthropathy. 14/22 patients were referred for physiotherapy and 50% of these subsequently had full resolution of their symptoms. > 50% of patients required none or only one return clinic appointment after US and CSI. Only four patients required orthopaedic surgery.

Conclusions: The majority of patients noted some improvement in pain and range of movement post corticosteroid injection. However a partial response was observed in 50-64% of patients (Table). From these results it may be worth considering guided injections as these have been shown to be more effective.

Over half the patients (84%) were referred to physiotherapy and 50% of these patients achieved full resolution of their symptoms with physiotherapy intervention. This highlights the importance of patients receiving physiotherapy modalities if they have not obtained full ROM or abolition of pain following CSI.

4. Follow up clinic visits after US and CSI were low with the majority of patients needing 1 or none.

Outcome after CSI

<table>
<thead>
<tr>
<th>Range of movement</th>
<th>Complete Response</th>
<th>Partial Response</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>7 (32%)</td>
<td>14 (46%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td></td>
<td>10 (45%)</td>
<td>11 (50%)</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

Disclosure statement: All authors have declared no conflicts of interest.

245. DO PATIENTS WHO SUFFER WITH LUPUS APPRECIATE A SPECIALIST CLINIC?

Julie T. Morgan, James C. Martin, Ceri Rhys Dillon and Rhian Goodfellow
Rheumatology, Royal Glamorgan Hospital, Llantrisant, UK

Background: Historically all Lupus patients were reviewed in the general rheumatology clinic. In December 2006, a specialist lupus clinic was set up, the purpose being to provide an improved level of service for this particular group of patients.

The objectives of this audit were:

a) to identify whether patients were satisfied with the clinic;
b) to identify any areas that could be improved.

Methods: A Patient Satisfaction Questionnaire was distributed to 70 patients. 54 were returned, 2 were blank, returned by patients who felt unable to complete the questionnaire as it was their first visit to the clinic. A further 7 were incomplete and withdrawn from the audit. 45 were used in the final analysis. The 45 questions for analysis were divided into 6 groups:

- Group A - General Satisfaction
- Group B - Giving of information
- Group C - Empathy with the patient
- Group D - Technical Quality and competence
- Group E - Attitude towards the patient
- Group F - Access and Continuity

A score of 1-5 was allocated to each question. An analysis sheet was completed for each patient and the results entered on an Excel spreadsheet. Overall scores of above 3 indicates satisfaction and below 3 dissatisfaction.

Results: 41 (91%) of the 45 patients were satisfied with the clinic. Only 4 (9%) patient’s overall scores did not reach satisfaction level. The overall score of each category achieved satisfaction level (Table). However on an individual basis, 10 (22%) patients scored < 3 for access and continuity, which was the lowest scoring group. Only 1 patient showed dissatisfaction with technical quality, whilst 31 (68%) scored 4 and over, which was the highest scoring group.

Conclusions: Over 90% patients who used the Lupus Clinic were satisfied with the service. An average score of > 3.5 was achieved for each category. Category F (access and continuity) was the lowest scoring group. Category D (technical quality and competence) was the highest scoring group. There were three areas of concern to the patients:

(a) Feedback from blood test results, either from the clinic or their GP.
(b) The length of wait to get an appointment if there was any alteration in their condition, e.g. ‘flare ups’
(c) How to get advice over the telephone if they had a problem.

These findings are being addressed.

Disclosure statement: All authors have declared no conflicts of interest.

246. AN AUDIT COMPARING THE MANAGEMENT OF PATIENTS WITH ESTABLISHED RHEUMATOID ARTHRITIS AT THE ROYAL LANCASTER INFIRMARY WITH RECENT NICE GUIDELINES

Laura Gould1 and Marwan Bukhari2
1School of Medical Education, University of Liverpool, Liverpool, UK; 2Department of Rheumatology, Royal Lancaster Infirmary, Lancaster, UK

Background: The National Institute of Clinical Excellence (NICE) issued guidance on the management of rheumatoid arthritis (RA) in adults in February 2009. Included were standards on the management of patients with established RA. Available audit tools focused on patients with newly-diagnosed RA and lacked patient input. An audit questionnaire tool was created to measure standards of care in patients with established RA. The questionnaire was to be filled in by the patients and their doctor or nurse.

The aim of the audit was to find out if standards within the NICE guidance were being adhered to within the rheumatology department at the Royal Lancaster Infirmary. The audit focused on review and flare-up appointments, regular blood tests for CRP and drug toxicity, as well as the documentation of disease activity scores (DAS28).

Methods: Seventy-three patients with established RA filled in the audit questionnaire at their routine or emergency out-patient appointments between 11/09/09 and 04/11/09. Additional information was gained from clinical records if the questionnaire was left incomplete, where possible.

Results: Seventy-nine percent of patients felt the frequency of their review appointments for RA were suitable to their needs ‘all of the time’ (n = 58). The location of review appointments were suitable ‘all of the time’ for 89% of patients (n = 65). Eighty-four percent of patients were aware that they had rapid access to flare-up appointments (n = 61). Of these patients, 97% knew how to access the service. Interestingly, 45 patients felt that they would benefit from more information on the flare-up service, which included 21 patients who already knew how to access the service. All patients in this audit who considered themselves to be on medication warranting toxicity monitoring had regular blood tests. Ninety-six percent of patients on DMARD therapy were having ongoing drug monitoring for DMARD therapy at frequencies within the BSR guidelines (n = 52). CRP levels were not measured since the issue of the guidance in 64% of patients (n = 47). DAS28 scores were measured at every visit for 35 patients (48%) but this question was left unanswered in 28 questionnaires (38%).

Conclusions: The audit tool proved useful in auditing the management of patients with established rheumatoid arthritis. Most patients were satisfied by the frequency and location of their review appointments. It was recommended that leaflets with information on the flare-up service be posted to all patients with established rheumatoid arthritis, as many patients felt they would benefit from this information. The measurement of CRP levels fell significantly short of the 100% target. Therefore, it is recommended that CRP levels are used to calculate DAS28 scores instead of ESR levels, as DAS28 scores are meant to be recorded routinely. When re-auditing, a new electronic database will be used to measure the frequency of DAS28 scoring.

Disclosure statement: All authors have declared no conflicts of interest.

247. COMPARISON OF BSR GUIDELINES 2004 AND NICE GUIDELINES 2008 ON ANTI-TNF TREATMENT OF ANKYLosing SPONDYLITIS

Sarah Hassan, Sayqa Butt, Chris Deighton and Kate Gadsby
Rheumatology, Derby Royal Hospital, Derby, UK
Background: Prior to NICE guidelines 2008, anti-TNF therapy was prescribed for ankylosing spondylitis (AS) patients in accordance to BSR guidelines. Both guidelines specify the same criteria for treatment; however, the BSR specifies assessments 1 month apart whereas NICE stipulates 3 months apart.

All patients are assessed for treatment response at 3 months. Both guidelines define a 50% reduction or \( \geq 2 \) cm fall in BASDAS and spinal pain score reduction \( \geq 2 \) cm. NICE specify treatment continues only if response maintained at 3 monthly assessments. We wanted to discover if delay in treating start had an effect on baseline scores or treatment response. Additionally we wanted to assess if treatment effect is maintained in these patients over a sustained period.

Methods: A retrospective audit was performed on 59 AS patients on the Derby database. 42 patients were following BSR guidelines and 17 patients following NICE. BASDAS and spinal pain score were measured. The mean scores were compared at each pre-assessment for both data groups. The groups were then compared alongside each other.

The mean scores for post-assessment were calculated and percentage decrease in scores recorded and analysed according to the guidelines' criteria.

Results: Both groups were well-matched for age and disease duration. Mean BASDAS score increased by 3.5–4% from initial pre-assessment to 4 week assessment in BSR patients (range 6.91–7.19). Spinal pain score decreased by 2.9% (range 7.6–7.8). In NICE patients, mean BASDAS score decreased by 1–1.5% from initial pre-assessment to 3 month assessment (range 6.58–6.69). Spinal pain score also decreased by 7% (range 7–7.5). Both data groups demonstrated rapid rates of improvement in scores 3 months post-treatment. BSR patients: 53.2% reduction in mean BASDAS and 38.3% in mean spinal pain score. NICE patients: 52.7% reduction in mean BASDAS and 57.3% in mean spinal pain score. Percentage reductions in mean BASDAS and spinal pain scores are not satisfactory to satisfy \( \geq 50\%\). In the BSR group, mean percentage decrease of 56.6% in BASDAS score is maintained at 60 months in 5 patients who have reached this duration. Mean decrease of 3.9 units in spinal pain score is also maintained in these patients. The NICE patients have so far have been followed up to 12 months maintain a mean percentage reduction of 57% from their baseline BASDAS. The mean unit drop range is 2.89–3.29. The spinal pain score is also maintained at a reduction of \( \geq 2 \) cm within the 12 months. The mean unit drop range is 2.6–3.4.

Conclusions: There was no difference in baseline measurements of the 2 groups. Patients following NICE guidelines showed slight improvement at baseline, but not enough to exclude them from commencing treatment. All patients showed a rapid sustained treatment response, which has been maintained in the BSR group to 5 years and continues. Anti-TNF is an effective treatment for AS. It is unclear whether making patients wait for 3 months is of any benefit.

Disclosure statement: All authors have declared no conflicts of interest.

248. SUPPLEMENTING VITAMIN D THROUGH A NURSE-LED CLINIC

Veronica Love, Narabda Kara, Marie Gohery and Andrew Keat
Arthritis Centre, Northwick Park Hospital, Harrow, UK

Background: Vitamin D deficiency is a common problem in our local population reflecting, in part, the ethnic mix. In clinical practice, oral supplementation is frequently ineffective for reasons that may include misunderstanding, poor absorption and incidental non-compliance.

So we set up a monthly Vitamin D injection clinic to ensure effective supplementation of Vitamin D by regular injection. In order to evaluate this new service we undertook a survey of patients' knowledge about Vitamin D and experience of the injection service.

Methods: A questionnaire was sent to patients indicating that they had received a Vitamin D injection over a 6 month period. Data from these 44 patients concerned.

Results: Over a 6-month period, 93 people were referred to the Vitamin D clinic; 81 attended and 44 (84%) completed and returned the questionnaire. Data from these 44 patients concerned.

One hundred and sixty-nine patients (81%) had heard of Vitamin D and 25 (58%) were aware that it makes bones stronger. 28 (64%) were not aware that lack of Vitamin D can cause Rickets, 24 (59%) that it could cause osteomalacia and 24 (59%) that it might contribute to osteoporosis.

Vitamin D supplements: 33 patients had already been prescribed oral supplements but 7 admitted to not taking them. Reasons included: absorption problem (1); did not like the taste (1); would not consume an animal product (gelatine) (2); told by their GP to stop as calcium levels were normal (2); did not think Vitamin D to be important (1).

Vitamin D injection clinic: 35 (81%) recalled being given dietary advice and 33 (77%) being given leaflets. 20 (51%) recalled discussing side effects and 9 (21%) described side effects post injection, including dizziness (2), light headedness (1), itchiness (1), a lump (1), sleepiness (1), tiredness (1) tingling left leg (1) and piles (1). None required treatment. 38 (93%) felt they were more informed about Vitamin D and were satisfied with the service.

Conclusions: This clinic is low cost and supports a vulnerable section of our local community. The low response to the survey may be due to the lack of understanding of written English Language. Almost all patients felt informed and satisfied, improved their understanding the role of and need for Vitamin D.

Disclosure statement: All authors have declared no conflicts of interest.

249. SURVEY OF MRI REQUESTS FROM AN ACUTE SPINAL ASSESSMENT SERVICE

Alexandra Lewis, Richard Robinson, S. Bastawrous and B. Roychowdhury
Glen Clwyd Hospital, Denbighshire, UK

Background: In May 2008, a musculoskeletal triage service CADAMs (Conwy and Denbighshire Access to Musculoskeletal Services) was started, with the aim to improve access for patients with musculoskeletal conditions and to improve the patients’ journey. As part of the Triage Service, a new Acute Spinal Assessment Service (ASAS Clinic) was set up, to be run by Extended Scope Physiotherapists with expertise in back pain, with clinical supervision from one of our Orthopaedic Consultants.

Previous research suggests that Extended Scope Physiotherapists (ESPs) do not use additional resources of MRI imaging, any more extensively than their medical counterparts.

Currently the E.S.P. Physiotherapists, have to discuss patients potentially requiring Spinal MRI scans, with the Orthopaedic Consultant, for his approval and authorization of the scan request. This survey was undertaken to see whether the requests put forward for an MRI scan by the E.S.P. physiotherapists, were felt to be appropriate and what the outcome of the scan was in individual cases.

Methods: Our survey included all spinal MRI requests suggested by the ESP, Physiotherapists from August 2008 to February 2009.

The MRI scan results were noted and the patient outcomes following the MRI were taken from case notes (where available), to see if having the MRI scan had actually altered the patient’s management.

Results: The ESP physiotherapists recommended 34 MRI scans over 6 months (38% of total requested by the Orthopaedic consultant).

M.R.I. results are as follows: 10 patients with Disc Bulges; 15 patients with Nerve Root Entrapment; 6 patients with Degenerative change; 1 patient with Dysraphism; 2 patients- nothing abnormal detected (to exclude cauda equina). Outcomes following M.R.I. 1 patient referred for Tertiary Orthopaedic Opinion; 1 patient referred for Tertiary Neuro-surgery; 11 patients referred for local Orthopaedic opinion (2 had epidurals); 6 patients referred to Pain Team(3 went on to have epidurals) 8 patients referred to Physiotherapy; 2 patients chose to self-manage; 3 patients DNA’d review appointment.

Conclusions: Our Survey findings show that ESP MRI suggested requests are accurate and justifiable. Using a combination of clinical assessment and MRI results, the ESPs are able to refer to the appropriate specialists. This is in keeping with previous research and audit findings. Recommendations are as follows:

1) The development of guidelines for when the ESPs in ASAS clinics should request imaging.

2) The development of autonomous local radiological requesting for ESP Physiotherapists.

3) To repeat the survey 6 months after the ESPs are granted radiological requesting rights.

Disclosure statement: All authors have declared no conflicts of interest.
250. THE COST OF PATIENT ADVICE: A TELEPHONE ADVICE LINE AUDIT

Samantha Roskell, Barbara Douglas, Heather Keating, Sally Giles, Jacky McPeake, Caueline Molley, Venkat Chalam, Diamuld Mulherin, Thomas Price and Thomas Sheeran
Rheumatology, Cannock Chase Hospital, Cannock, UK

Background: In 2009, the RCN published guidelines regarding the use of telephone advice lines for people with long-term conditions. The authors considered these guidelines in conjunction with information from the Payment By Results tariff of April 2009 and concluded there was a need for and audit of our existing telephone advice line service. The objectives were to address clinical governance issues and management of telephone advice lines, including the volume of calls received, delays in dealing with enquiries and the variation and appropriateness of the calls. Current service development issues and payment for advice line calls.

Methods: The audit began with a facilitated workshop (provided as a service by Schering-Plough IFX 109-104), where the authors identified and confirmed key issues and concerns regarding telephone advice line services across Staffordshire. The audit form with call classification (see Table) was produced and audit parameters agreed. The audit was conducted over a 4-week period.

Results: A significant proportion of calls are administrative in nature, 251 calls or 33% were related to general information checks, queries regarding biologics funding, outpatient appointments or internal health care professional enquiries. 352 or 46% of calls were medical related enquiries including blood result checks, medication queries and urgent admission or outpatient appointments. 93 or 12% of calls were relating to patient education and counselling. Just under 8% of calls were received from external health care professionals or health care at home. The mean time for managing a call is 15 min, which approximately equates to 62.75h were spent dealing with administrative enquiries. The authors suggest that 46% of call (n=392) were related to the management of medical enquiries and prevented an outpatient visit. It is proposed that this activity may be commissioned under HRG-4: non face to face appointments and have the potential to attract a tariff of £23 per episode (reference DH-097469. CEM/628 National-Tariff-2009-10).

Conclusions: The findings of the telephone advice line audit will support the development of local commissioning plans for the delivery of telephone advice lines. The outcomes will influence recommendations for service development, a part of this process will be to secure patient and public involvement in the review of proposed service developments. The process has also influenced the development of clear protocols for the management of the local telephone advice line and supports compliance with the recommendation in the RCN guidance, including information sheets with all telephone contact numbers with guidance of who to call when. Biologic funding information sheet to reiterate to patients each step of the funding process to promote awareness. To develop nurse telephone clinics using protocols and public involvement in the review of proposed service developments.

Disclosure statement: All authors have declared no conflicts of interest.

251. EVALUATION OF THE POOLE RHEUMATOLOGY WEBSITE: ANALYSIS OF ‘HITS’ AND ENTRY SITES

Susan R. Benjamin, Paul W. Thompson and Patricia Cornell
Rheumatology, Poole Hospital NHS Trust, Poole, UK

Background: The website www.poole.nhs.uk/our_services/rheumatology/index.asp was established in 2000 within the rheumatology department and is now managed by the hospital IT department. The website has a home page and includes sections such as: the team, occupational therapy, footwear, exercise, research, news updates and all our information leaflets. The leaflets have sections on drug treatments, children's treatment and general information such as driving with arthritis, coping with a flare and swine flu. The site also has links to organizations such as Arthritis Care, NRAS and NAS.

Methods: We used AWStats, a free tool that generates advanced web streaming, ftp or mail server statistics, graphically, to analyse website traffic from January to June 2009 and recorded the number of times pages have been viewed (hits) and which pages were used for entry to the site.

Results: During the 6 month period a total of 6510 hits were made on 76 pages. The number of hits per page for the most viewed nine pages is shown in the Table. Row 1 shows the total number of hits for that page from whichever derived access route. Row 2 shows the number of direct-entry hits as the result of a specific search from outside the website.

Conclusions: The website is well used with particular interest in amitriptyline, which we recommend as adjuvant therapy for pain relief. The pages related to drug information were entered directly more than the pages related to our services. This suggests that the drug information related hits were reached via a search engine rather than as the result of general site browsing and an indirect or random approach. The data will help in refining our keywords. We plan to survey our users and make formal evaluation using tools such as the Health website rating instrument www.hi.org.

Disclosure statement: All authors have declared no conflicts of interest.
Patients with RA (39 females: 2 males) had a mean age 60.1 ± 11.2 years and mean disease duration 19.2 ± 10.7 years. At follow up (FU) 22 (53.7%) patients had surgery, 14 (34.1%) did not need surgery (9.8%) and 4 (9.8%) were listed for surgery. 26 foot and ankle operations were performed on 22 patients, of which 23 (88.4%) were foot procedures, 1 reafoot and 1 ankle. In the non surgery group; 2 were referred to another speciality, 5 declined surgery, 5 equivocated and surgery was deemed inappropriate in 2. 31 (75.6%) patients returned the questionnaire, 17 (54.2%) of whom had surgery.

In the surgery group the baseline LFISF score was 14.4 ± 3.0 and FU was 11.6 ± 6.8 (P = 0.085). Baseline LFISF was 20.1 ± 6.8 and FU was 16.6 ± 8.7 (P = 2.1; P = 0.051). In the foot that had surgery the baseline pVAS was 58.3 ± 23.1 and post surgery pVAS was 26.2 ± 21.4 (t = 3.8; P = 0.002).

In the non-surgery group the baseline LFISF score was 12.5 ± 4.7 and FU 13.6 ± 5.7 (NS). LFISF score was 21.9 ± 8.6 and FU was 20.7 ± 9.6 (NS). The baseline pVAS for the left foot was 33.4 ± 24.3 and FU 46.8 ± 30.4 (NS). The pVAS for the right foot was 56.0 ± 27.9 and FU 51.5 ± 32.2 (NS).

Conclusions: In a selected group of patients seen in the combined clinic, foot and ankle surgery resulted in a significant reduction in pain with a strong trend towards improvement in foot related QOL. There was no change in the non-surgery group over the 2 year period indicating more treatment options are required for those unsuitable for surgery. Careful selection of patients demonstrated the benefits of combined care suggesting more specific guidelines are required to aid appropriate surgical referrals.

Disclosure statement: All authors have declared no conflicts of interest.

253. PHARMACEUTICAL CARE FOR RHEUMATOID ARTHRITIS PATIENTS ON METHOTREXATE ATTENDING AN OUT-PATIENT HOSPITAL CLINIC

Louise Azzopardi1, Steve Hudson2, Carmel Mailla3, Karen Cassar4, Bernard Coleiro5, Paul J. Cassar 6, Doris Aquilina2, Franco Camilleri2, Anthony Serracino Inglott2 and Lilian M. Azzopardi6

1Pharmacy, Mater Dei Hospital, Msida, Malta; 2Strathclyde Institute of Pharmaceutical Sciences, University of Strathclyde, Glasgow, UK; 3Medicine, University of Malta, Msida, Malta; 4Rheumatology, Mater Dei Hospital, Msida, Malta; 5Specialist Nurse, Mater Dei Hospital, Msida, Malta; 6Pharmacy, University of Malta, Msida, Malta

Background: Pharmaceutical care is the responsible provision of pharmacotherapy with the aim of achieving definite outcomes that improve or maintain a patient’s quality of life in relation to various conditions such as rheumatoid arthritis. The aim of the study was to measure the patients’ expectations of clinical pharmacists’ contributions to the care of rheumatoid arthritis patients on methotrexate.

Methods: The main outcome measures used were quality of life (the Health Assessment Questionnaire) and the Medical Outcome Short Form (SF-36); patients’ beliefs and concerns (Beliefs About Medicines questionnaire) and their wanting for information (Desire for Information questionnaire). Patients were randomized to two groups (A and B).

At phase 1, Group A patients were administered the questionnaires at baseline and then offered a pharmaceutical care session. At phase 2 they were re-assessed using the same questionnaires. At phase 3 the patients were re-assessed for the third time. Group B patients were assessed at baseline, re-assessed a second time at phase 2 and then offered a pharmaceutical care session. At phase 3 these patients were re-assessed. During the pharmaceutical care session, pharmaceutical care issues were identified and categorized into drug therapy problems requiring changes or checks.

Results: Eighty-eight rheumatoid arthritis patients on methotrexate (82% female) with a mean age of (n,±d) 61 (12) years participated in the study. A total of 106 pharmaceutical care issues were identified. Of these, 72% were changes were changes requiring an alteration in the drug therapy plan and 28% were checks requiring further assessment.

The majority of the changes in drug therapy or the drug therapy process were related to inappropriate compliance (29%), followed by additional medication needs (18%), unnecessary drug prescribed (17%), suboptimum dose and adverse effects (12% each), ineffective drug prescribed (9%) and dose too high (3%). The majority of the checks in drug therapy process identified were related to adverse drug reaction (32%), therapy followed by inappropriate compliance (17%), unnecessary drug prescribed (7%), ineffective drug prescribed and dose too high (1% each).

The quality of life of the patients improved significantly following the pharmacist’s session (P < 0.05) for both the Health Assessment Questionnaire and the SF36 questionnaire. The pharmaceutical care session resulted in a statistically significant lower degree of information, a lower extent of information desired, a reduced concern expressed about the medicines and a greater expression of necessity towards the medication (P < 0.05) compared with prior to the pharmaceutical care session.

Conclusions: The individualized pharmaceutical care plan offered by the pharmacist was essential in addressing drug therapy plan problems. The study showed that a consultation with a rheumatology and specialist pharmacist improves the patients’ quality of life.

Disclosure statement: All authors have declared no conflicts of interest.

254. NEGOTIATING TARGETS FOR TREATMENT OF RA WITH PATIENTS

Sandra Robinson, Heslop Peta, Lilley Margot and Walker David

Rheumatology, Freeman Hospital, Newcastle Upon Tyne, UK

Background: The new NICE guidance on the management of RA suggests that a target for treatment is negotiated with patients. This seems to be a fusion between the treat to target studies that have suggested that multiple treatments are effective and the stated aim of putting the patient at the centre of their treatment. The details of how this should be done are not specified. The standard medical approach would be to measure a version of the DAS score as has been used in the studies. However this may be a complicated concept for patients without a scientific background and it may be that patients would specify one or more simpler targets relating to symptoms and activities.

Methods: We used semistructured interviews, first seeking information on their knowledge and understanding of DAS scores and CRP. Second, they were then invited to suggest outcomes that they would regard as positive and measurable. Discussion of DAS, CRP, restricted activities that were important to them and adverse symptoms measured on a VAS scale were prompted.

Results: Eight interviews were conducted. No patient understood what a DAS score was let alone understood the dynamics or was in a position to set a target. Three participants knew that the CRP was a blood test that measured inflammation. One identified the benefits of an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP. Many participants identified that they would like to have less pain but did not feel that the VAS was an adequate way of measuring it or an objective test. They did not know what other things can affect the CRP.

Discussion: All authors have declared no conflicts of interest.

255. HEALTH PROFESSIONALS’ AND PATIENTS’ VIEWS ON PRIMARY CARE SERVICES FOR OSTEOARTHRITIS

Cindy Mann1 and Rachael Gooberman-Hill2

1Bristol Implant Research Centre, North Bristol NHS Trust, Bristol, UK; 2Clinical Science at North Bristol, University of Bristol, Bristol, UK

Background: Osteoarthritis (OA) is a significant health problem that merits greater attention due to its substantial contribution to disability rates. Patients are required primarily to self-manage the condition and may feel their symptoms are dismissed as an inevitable part of ageing. Previous studies have identified that patients lack information about the disease, about specific self-help strategies such as exercise and
about local resources. Clinical Assessment and Treatment Services (CATS) are a recent development providing access to multi-disciplinary assessment, referral and treatment. However patients must still access service through the GP and for many people with OA acts as a staging post on the route to surgery rather than a resource to support self-management. There remains a gap in the care of people who have not reached this stage. The aim was to identify whether nurse-led clinics in primary care could potentially deliver significant health care improvements to those with OA.

Methods: Qualitative methods were used to explore the opinions of patients and health professionals about current OA care and the possible distribution of nurse-led clinics. Two focus groups of eight patients each, all with a diagnosis of hip or knee OA, were conducted. Twelve health professionals, including GPs, physiotherapists, practice nurses, orthopaedic surgeons, a rheumatologist and an occupational therapist were interviewed. The transcripts were transcribed and analysed using the method of constant comparison to develop a final list of codes, which were then grouped into themes. The researcher was a rheumatology nurse specialist based in secondary care and formerly a practice nurse in primary care.

Results: Both patients and health professionals saw OA as an illness that did not receive sufficient attention and felt that more should be done at the time of diagnosis to provide information and education to promote self-management. Patients identified problems including lack of information, delayed diagnosis, difficulty accessing a joint replacement, lack of time and continuity in seeing a GP and lack of follow-up. They would have liked access to a specialist in arthritis and more information about diet, exercise, aids and resources. Patients also wanted to know more about the disease itself including likely progression. Some health professionals felt that a model of self-management reflecting those in other chronic conditions would be more helpful than an episodic treatment-orientated model. Both patients and health professionals felt that physiotherapy and occupational therapy provision in the community was inadequate.

Conclusions: Consideration should be given to the development of more proactive care for those with early OA. Access on demand to an OA specialist in primary care might make it easier for patients to discuss their concerns and meet their needs for information, making them feel more supported and enhancing self-management.

Disclosure statement: All authors have declared no conflicts of interest.

256. COMPLYING WITH RA TREATMENT GUIDELINES AND BEST PRACTICE WHEN YOUR CLINICS ARE FULL FOR 6 MONTHS

Darshan Jagannath, Elaine Healey, Carolyn Goddard and Mark T. Pugh
Department of Rheumatology, St Mary’s Hospital, National, UK

Background: The shift toward multiple drug treatment and frequent review of patients with new rheumatoid arthritis has caused most established units problems with dealing with the increased volume of work. Many attempted intensive management of lists and swapping between different clinicians to provide capacity but failed to release the necessary spaces, estimated as 6-8 per week. We considered floating lists but were aware of the impact this has on routine waiting times of 6 months or more. Our solution was to establish a weekly clinic, the intensive therapy clinic (ITC) with protocol driven management, undertaken by one member of the team on a monthly rota basis, equivalent to one extra 2.5h clinic per month per clinician. This also allowed the management of the first 20 patients with newly diagnosed RA comparing it with a recent retrospective cohort of similar patients.

Methods: Data were collected on consecutive RA patients fulfilling ARC criteria, who on presentation were felt to require DMARD therapy, including age, sex, disease duration, serum status for rheumatoid factor, time in days between presentation and commencement of treatment and a list of the drugs started, attending the ITC. Data was compared against the cohort of patients presenting in the 9 months prior to the commencement of the new clinic. The primary endpoint was to demonstrate an improved time to commencement of DMARDs. We were also interested to see if the clinic which allowed more frequent review and was protocol driven would encourage more use of multiple drug regimes.

Results: For Group A, the mean interval between the first visit and second was 34 days (range 9–63) and the interval between the second and third was 35 days (range 12–180). In group B by the end of the first visit interval was 91 days (range 2–230) and the second to third visit interval was 94 days (range 12–180). In group A by the end of the first visit 10 patients were on methotrexate monotherapy, 5 were on methotrexate and prednisolone and 5 were on methotrexate, sulphasalazine and prednisolone. In the retrospective group 9 were on methotrexate, 1 was on methotrexate and prednisolone and 2 were on prednisolone only. No patients were on combination therapy.

Conclusions: The ITC has allowed this team to half the time between presentation and first and second visits. All patients in the ITC were prescribed some form of DMARD therapy by the end of the first visit. In the retrospective group only half the patients were prescribed a DMARD by the end of the second visit and no patient was on combination therapy. We would commend the use of this model to others who need to increase clinic capacity.

Disclosure statement: All authors have declared no conflicts of interest.

257. TB SCREENING BEFORE BIOLOGICS: DO WE NEED THE T-SPOT?

Laura Gilham and Sandeep Bawa
Rheumatology, Gartnavel General Hospital, Glasgow, UK

Background: Patients receiving anti-TNFα treatment have a fivefold increased risk of developing tuberculous. This has lead to screening for TB prior to treatment. The British Thoracic Society (BTS) published its guidelines in 2005. However, since then the T-spot has been introduced, a form of the Interferon-gamma-release assay (IGRA). It has a high sensitivity at detecting latent TB infection, 90% in a recent meta-analysis compared with conventional tuberculin Skin testing (TST). IGRA has a better specificity compared with TST particularly in those who have previously had a BCG or are immunosuppressed.

Our aim was to:
1. determine adherence to the BTS guidelines with regard to anti-TNFα screening.
2. consider cost-effectiveness of the T-spot test.

Methods: The guidelines state that patients should be checked for:
- Symptoms of active TB,
- History of TB,
- Family history of TB,
- Chest X-ray.

Depending on the above factors patients either go on to have a TST or in the immunsuppressed population (majority of rheumatology patients) more detailed risk stratification based on age, place of birth, ethnic origin and the number of years resident in the UK. This balances the risks of chemoprophylaxis induced hepatitis verses tuberculous infection on anti-TNFα.

A retrospective sample of 90 patients from February 2007 to November 2009. The data were collected from the biologics register at Gartnavel General Hospital

Results: The table highlights that the current adherence to the BTS guidelines is high. However at a local level the TST has been replaced by the T-spot performed. For new data to be collected patients had a positive t-spot and received chemoprophylaxis. Of these only one had other risk factors for TB. In five cases the t-spot was indeterminate and had to be repeated. All of the repeats were either inconclusive or negative.

Conclusions: The current recommendations from the British Society for Rheumatology are to follow the BTS guidelines for anti-TNFα screening. However, the subsequent development of new TB testing measures has lead to variations in practice within the UK. Currently in the USA all patients have a TST whereas in Switzerland IGRA is used. Our gastroenterologists only perform a CXR. The t-spot does have some disadvantages. It is expensive, costing £140 per sample, which occasionally needs repeating with no further diagnostic gain. The incidence of TB in Rheumatology patients is relatively low and further comparative work needs to be conducted to evaluate whether or not its relative expense justifies any increase in diagnostic yield compared with the screening questions and risk stratification as suggested by the BTS guidelines.

<table>
<thead>
<tr>
<th>BTS Guidelines: Screening factors checked</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms of active TB</td>
<td>88 (97.8%)</td>
</tr>
<tr>
<td>History of TB</td>
<td>88 (97.8%)</td>
</tr>
<tr>
<td>Family history of TB</td>
<td>88 (97.8%)</td>
</tr>
<tr>
<td>Chest X-ray</td>
<td>88 (97.8%)</td>
</tr>
<tr>
<td>T-spot</td>
<td>90 (100%)</td>
</tr>
</tbody>
</table>

Disclosure statement: All authors have declared no conflicts of interest.
**258. A ONE-DAY PROGRAMME FOR PEOPLE WITH ANKYLOSING SPONDYLITIS: COACHING FOR EXERCISE IN AS (COAX-AS)**

Julie H. Barlow1, Lorraine MacFarland2, Lucy Tindall1, Sheila Leighton Wright1, Jane Tooby1, Jaya Ravindran3 and Phillip Perkins4

1Coventry University, Coventry, UK; 2Rheumatology, University Hospital Coventry and Warwickshire Trust, Coventry, UK

**Background:** Exercise is a mainstay of treatment for AS but is hard to maintain in the long term. The COAX-AS was designed to increase knowledge of AS and exercise activities that could assist self-management of the condition. The programme was developed as a partnership between a local Rheumatology Department and a University. The COAX-AS comprises a talk on AS, exercise sessions supervised by a rheumatology physiotherapist and the University Sports Centre physiotherapist, relaxation and the use of gym equipment. Physiotherapy and Sports Therapy undergraduate students attend to learn more about AS and to assist with exercise supervision. The Programme is free for AS participants.

**Methods:** Three COAX-AS events were attended by a total 50 participants with AS who were invited to provide their views about the programme via a post-course evaluation form. The evaluation included ratings of each session, more general questions about value of the programme as a whole, increase in knowledge about AS, the venue, ease of access plus space for any additional comments. Data were collected and collated by a researcher independent of the COAX-AS delivery team.

**Results:** Overall, 40 (80%) participants completed a post-course evaluation. There was consensus that the COAX-AS had been an enjoyable and valuable experience with participants particularly appreciating the opportunity to learn about treatments including anti-TNF, to ask questions of health professionals and to learn new exercise and relaxation techniques that they could repeat at home and incorporate into everyday life. Through receiving information about AS and being given the opportunity to meet and learn from others with the condition, many participants reported feeling more knowledgeable and informed about their condition following attendance. Furthermore, individuals felt more relaxed and more focused on managing their AS and being given the opportunity to meet and learn from others with the condition.

**Conclusions:** The 1-day programme appears to be well received by AS participants. Results suggest that the programme is worthy of more detailed evaluation.

**Disclosure statement:** J.H.B., Wyeth - grant for delivery of programme. All other authors have declared no conflicts of interest.

**259. DOES A NEGATIVE MRI NEGATE THE NEED FOR MUSCLE BIOPSY IN IDIOPATHIC INFLAMMATORY MYOSITIS? A RETROSPECTIVE ANALYSIS**

Laura McGregor, Euan Mabon and Sandeep Bawa

Department of Rheumatology, Gartnavel General Hospital, Glasgow, UK

**Background:** Idiopathic inflammatory myopathies (IIM) are characterized by proximal muscle weakness due to inflammation in skeletal muscles. They can be classified in five major groups including dermatomyositis (juvenile/adult), polymyositis, inclusion body myositis, autoimmune necrotizing myopathy and overlap syndromes in association with connective tissue disorders. The role of MRI is well established in the diagnosis of IIM. T2 weighted MRI with fat suppression is the most sensitive and specific imaging modality. It is sensitive in detecting early signs of IIM such as muscle oedema and can evaluate the severity of disease activity. By identifying areas of increased activity, MRI can also enable targeted muscle biopsies. Ultrasound, although not as sensitive, can be used as an alternative imaging modality. Muscle biopsies are an invasive procedure, not without risk to the patient. We wished to establish if negative MRI reports correlated with negative muscle biopsy results. If so, we hypothesized that proceeding to muscle biopsy after a negative MRI would be unnecessary.

**Methods:** We retrospectively identified all patients who had undergone muscle biopsy in North Glasgow NHS trust hospitals, over the past 2 years. Baseline demographics, CK, ANA, MRI and muscle biopsy results were documented.

**Results:** In total 29 patients were identified, 16 female, 13 male. The age ranged from 14–78 (median 55). CK ranged from 48–46808 (median 418). ANA was tested in 27/29, with 7 patients being positive. EMG was poorly utilized and only performed in 6 cases (33% with changes suggestive of an active myositis). MRI was performed in 22/29, ultrasound in 3/29 and no imaging in 4/29. Of those patients who had a negative MRI result, 3/29 (10%) subsequently had a biopsy result in keeping with IIM. Two patients had negative ultrasounds, with negative biopsy results. Furthermore, MRI was positive in 5 patients who subsequently had either negative biopsies or an alternative histological diagnosis.

**Conclusions:** From this small study, it transpires that a negative MRI in isolation is not sufficient to exclude myositis. 10% of our patients with IIM had a negative MRI but positive biopsy. Conversely, 5 positive MRI results did not have any evidence of IIM on biopsy. Therefore, only if the clinical suspicion is high and a histological diagnosis will influence management, should a muscle biopsy be sought. Ultrasound is a viable alternative to identifying muscle oedema and targeting a site for biopsy. However it must be stressed that the reliability and reproducibility of ultrasound is operator dependent and this may limit its clinical application.

**Disclosure statement:** All authors have declared no conflicts of interest.

---

**260. THE IMPACT OF THE H1N1 VIRUS ON OUR RHEUMATOLOGY TELEPHONE SUPPORT SERVICE**

Ursula Bond, Joan Swan, Mortimer B. O’Connor, Jeetandera Rathi, Michael J. Regan and Mark J. Phelan

Rheumatology, South Infirmary - Victoria University Hospital, Cork, Ireland

**Background:** With the influenza season upon us much concern exists among rheumatology patients and treating physicians regarding the impact of the seasonal influenza virus. Unfortunately this year we also face the additional challenge and worry of the H1N1 virus which was first described in April 2009.

Currently our rheumatology service runs a clinical nurse specialist driven telephone support service for our patients, families and GPs. This service is provided in addition to the clinical nurse specialists daily work load. With the advent of the H1N1 virus there was an upsurge in the number of calls to our telephone support service. This upsurge prompted the auditing of these H1N1 related calls.

**Methods:** Over a 4-week period in October 2009, all calls received to the support services were recorded as H1N1 or Other. The H1N1 related calls were then further analysed and relating data was analysed using the statistical package SPSS.

**Results:** A total of 165 calls were received by the telephone support service during the study period, of which 35 were related to H1N1. This is a 27% rise in calls received. 63% (n = 22) were from patients and 37% (n = 13) from treating physicians. All calls were regarding Rheumatoid arthritis patients with all receiving methotrexate and the majority receiving concurrent anti-TNF therapy. No call resulted in any new hospital review as sufficient advice was given on all occasions over the telephone. With an estimated mean length of time for each call being 4 min a total of 140 min per month were required to deal with H1N1 calls.

**Conclusions:** The H1N1 virus and related concerns has put an increased burden on our telephone support service resulting in a large increase on our clinical nurse specialists’ daily workload. Direct mailing of guidelines to patients and treating physicians may alleviate this additional daily workload. GPs should also be made aware of available information on national and international rheumatology websites (BSR, ACR, ISR). From the H1N1 experience future epidemics should prompt the redirection of services to avoid such pressures on telephone support services.

**Disclosure statement:** All authors have declared no conflicts of interest.

---

**261. THE VALUE OF ANTI-CITRULLINATED PEPTIDE ANTIBODY IN THE DIAGNOSIS OF RHEUMATOID ARTHRITIS**

Teresa Doherty, Keith Martin, Chen Ruth and Sathianathan Panthakalam

Rheumatology Department, Eastbourne DGH, Eastbourne, UK
Background: Rheumatologists in clinical practice often face difficult decisions diagnosing or excluding rheumatoid arthritis (RA). Patients with early or undifferentiated disease may not fulfil the American College of Rheumatology (ACR) classification criteria. Anti-citrullinated peptide (anti-CCP) antibodies are more specific than rheumatoid factor (RF) in the diagnosis of RA. In support, NICE now recommend using anti-CCP antibodies in RF negative patients to help confirm a clinical diagnosis of RA.

To ascertain the diagnostic usefulness of anti-CCP antibody, we retrospectively audited patients with suspected RA, referred to our outpatients’ department during the period of 2007–09.

Methods: Records of gender, age, clinical probability, RF status, anti-CCP antibody result and the outcome were entered into a Microsoft access database. The data was analysed in three main respects: 1. Clinical probability of RA versus the result of the antibody test. 2. Number of RF positives compared with anti-CCP antibody positives. 3. Number of patients with low clinical suspicion, but with a positive RF and negative anti-CCP antibody.

Results: Total number: 342 (F/M: 244/98). Age range: 10–89 years. 216 patients (63%) had a high clinical probability and 126 (37%) had low probability of RA. 34 patients excluded as results were not available for both antibodies. 74 (24%) patients had confirmed RA on the basis of a positive anti-CCP antibody test, 14 (19%) of them had a negative rheumatoid factor and RF result not available in 5 (7%) patients. In this group 68 (92%) had a high probability and 6 (8%) had a low probability of RA clinically.

234 (76%) patients had negative anti-CCP antibodies and negative or unavailable RFs and therefore a diagnosis of RA was excluded. 13% (58%) of them did have a high clinical suspicion of RA. Only one of them had a positive RF though it had not been assessed in 8 cases.

Table 1 (N = Not available)

<table>
<thead>
<tr>
<th>RF</th>
<th>anti CCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>RF NA</td>
<td>anti CCP - 1.5%</td>
</tr>
<tr>
<td>RF and anti CCP</td>
<td>Positive</td>
</tr>
<tr>
<td>RF and anti CCP</td>
<td>Positive</td>
</tr>
<tr>
<td>RF and anti CCP</td>
<td>Positive</td>
</tr>
<tr>
<td>RF NA</td>
<td>anti CCP</td>
</tr>
<tr>
<td>RF and anti CCP</td>
<td>Positive</td>
</tr>
</tbody>
</table>

89 patients (29%) had a positive RF of which 35 (39%) had high clinical probability of RA but only 27 (30%) had a positive anti-CCP antibody. 16 patients had a low probability and positive RFs, 4 (25%) of them went on to have positive anti-CCP antibodies.

Conclusions: Anti-CCP antibody was a useful test to discriminate RA from other arthritides. Even with a low clinical probability according to the ACR criteria the diagnosis of RA was confirmed in 9%.

Disclosure statement: All authors have declared no conflicts of interest.

262. ASSESSMENT OF OUTPATIENT REFERRALS IN PATIENTS WITH INFLAMMATORY ARTHRITIS: AN AUDIT

Daniela Bondin, Madhura Castelino, Sowden Evin, Ann Gooden, Christine Peacock and Lee-Suan Teh

Rheumatology, Royal Blackburn Hospital, Blackburn, UK

Background: Inflammatory arthritis is a common musculoskeletal disorder and according to figures published by the Arthritis and Musculoskeletal Alliance (ARMA), 387,000 adults in the UK have rheumatoid arthritis, the most common form of inflammatory arthritis. ARMA guidelines clearly emphasize the importance of early diagnosis and effective treatment. Improving the quality of referral letters will help identify those patients that need to be seen in specialist clinics earlier. Earlier access of patients to the multidisciplinary rheumatology team will help improve the control of the disease and the patients’ quality of life. The aim of the audit was to assess referral letters from general practitioners (GP) to ascertain the content for relevant information that would aid in early identification of patients with inflammatory arthritis.

The audit also looked at the achievement of 12-week target between referral and attendance at the rheumatology department.

Methods: A sample of 48 patients diagnosed with inflammatory arthritis from October 2007 to January 2009 was identified. Data were manually recorded on pro formas after retrospective review of the case notes. Standards were set as per local hospital protocol to achieve 80% compliance.

Results: The results are tabulated.

Conclusions: The 80% standard was achieved with respect to the 12 week target. The referral letters had 80% documentation of the involved joints of concern but the other documentation was sub-optimal. The results have been disseminated to the rheumatology department.

As per the recommendations of the audit: 1. A leaflet has been prepared for circulation to the GPs with information regarding the necessary documentation and appropriate referral process. 2. The rheumatology department is in communication with the Primary Care Trust (PCT) to set up a dedicated early arthritis clinic to help improve the current service. We aim to re-audit 12 months from the time the recommendations have been implemented.

Results

Patients diagnosed with inflammatory arthritis in secondary care (n = 48) %

Patients seen in Specialist clinic within twelve weeks 91.7

of a referral made by the GP 60.4

GP diagnosis of inflammatory arthritis 87.5

Morning stiffness documented as a symptom 70.8

Documentation of joints of concern by GP 68.8

Documentation of swollen joints 72.9

Documentation of painful joints 29.0

Documentation of the number of swollen joint 18.8

Documentation on whether symptoms affected the patients’ work status 17.0

Blood tests taken (ESR, CRP and/or ESR) 75.0

Patients started on anti-inflammatory medication 63.0

Disclosure statement: All authors have declared no conflicts of interest.

263. UK AQUATIC PHYSIOTHERAPY STANDARDISED DATA COLLECTION PROJECT

Sarah-Jane Ryan1, Elizabeth Bryant1, Anna Carter2, Sarah Cox2, Ann P. Moore1, Anne Jackson2 and Jacqui Pattman1

1School of Health Professions, University of Brighton, Eastbourne, UK; 2Department of Physiotherapy, Western Sussex Hospitals NHS Trust, Worthing, UK; 3Department of Physiotherapy, East Sussex hospitals NHS Trust, Eastbourne, UK; 4Department of Physiotherapy, Brighton and Sussex Hospitals NHS Trust, Brighton, UK; 5Aquatic Therapy Association of Chartered Physiotherapists, London, UK

Background: The national hydrotherapy data collection project is the first UK standardized data collection project in aquatic physiotherapy. Aquatic physiotherapy (previously known as hydrotherapy) is often key to rehabilitation and maintenance of the rheumatology patient (1). The project was intended to provide a snapshot of practice to give an insight for clinicians to reflect on their practice; a benchmark for service delivery; evidence of clinical effectiveness for managers and service commissioners.

Methods: The HyDAT project was intended to provide a snapshot of practice involving consultation with aquatic physiotherapists and service users. 117 physiotherapists took part in this study and the HyDAT team received 1,762 completed patient data sets from 74 locations across the UK. The standardized data collection project was intended in this project, the HyDAT, was based on work by Moore et al. (2–5).

Data collected included patient details; diagnoses; referral information; treatment details; outcome of referral, goal achievement and service related details.

Results: The data collected using the HyDAT tool were entered into SPSS (version 15) and analysed. In total 1,762 completed data sets were received. 70% of patients were aged 40 years and above, 62% were female, 34% were retired. 73% of patients had a long-term condition. 62% had mobility problems coexisting with their reason for referral. 35% had difficult social circumstances. 25% had a condition described as severe by the treating physiotherapist. 20% had communication or sensory difficulties. 14% had back pain (the most frequently reported reason for referral).

47% of patients were referred from NHS medical consultants. Average (median) number of weeks waiting was 2 weeks. 55% of patients were described as having at least one of ranges or movement exercises, active strengthening exercises, self-management, functional exercises. The average (mode) number of treatments was 6. 10% were given specialist aquatic therapy interventions e.g. Bad Ragaz. Halliwick, Watsu or Al-Chi. 77% of all patients achieved all or some of their goals on discharge.

Average (median) number of weeks waiting time was 2 weeks (Range 0–157, IQR 4).

Conclusions: The HyDAT project has provided a comprehensive database of aquatic physiotherapy activity across the UK. It is hoped that this project will facilitate clinicians to reflect on their aquatic
physiotherapy practice. It also demonstrates that standardized data collection (supporting evidence based practice) can be undertaken in the clinical field. Ongoing work is likely to involve further collaboration in the UK and perhaps overseas.

**Disclosure statement:** All authors have declared no conflicts of interest.

**References**
1. Eversden et al., 2007
2. Moore et al., 1996
3. Moore et al., 1998
4. Moore et al., 1999
5. Moore et al., 2006.

264. **MAKING MONEY AND SAVING MONEY FOR YOUR DEPARTMENT IN THE NEW NHS**

Maria Juarez, Annette Quilter, Lyn Williamson, David Collins and Elizabeth Price

**Rheumatology, The Great Western Hospital NHS Foundation Trust, Swindon, UK**

**Background:** NHS budgets are increasingly tight with a predicted 10% cut by 2011. Increasingly departments are being assessed on their financial performance and are expected to achieve yearly savings targets. Service line reporting has been introduced to streamline this process. Thus clinicians need to find ways of saving and making money for their departments. Here we share strategies that we have used.

**Methods:** Review of our department’s performance with regard to drug prescribing and day case activity reimbursement.

**Results:**
1. Reducing your drug budget without compromising prescribing: Drugs can be prescribed using their branded or generic name. Generally prescribing by generic name is cheaper than using the branded alternative. However there are some important exceptions to this rule:
   - **Sulfasalazine:**
     - Generic: Sulfasalazine E/C 500 mg, 112 tablets £16.15
     - Branded: Salazopyrin EN 500 mg, 112 tablets £8.43
   - **Azathioprine:**
     - Generic: Azathioprine 25 mg tablets £8.15; 50 mg tablets £7.52
     - Branded: Imuran 25 mg tablets £10.99; 50 mg tablets £7.99

We analysed our expenditure on these drugs for a period of 19 months before and after switching to branded prescription. Each prescription equated on average to 3 months supply. Before switching: 810 sulphasalazine prescriptions at a cost of £45,769; 165 azathioprine prescriptions at a cost of £5,022. After switching: 1203 salazopyrin prescriptions at a cost of £22,452; 202 Imuran prescriptions at a cost of £2,901. This equates to savings of £23,317 (51%) on Sulphasalazine and £2,121 (42%) on azathioprine despite a higher number of prescriptions after the switch.

2. Maximising your income: Under payment by results (PbR), episodes of care are captured using OPCS-4 codes (classification of intervention and procedures) and paid according to calculated Healthcare Resource Groups (HRG). Codes are assigned to procedures, diagnosis and length of stay. This information is obtained from discharge summaries.

We audited coding and grouping procedures in our day case unit over a 6 month period. Results: 161 episodes of care, 10 mistakes resulting in omission of £3,229 reimbursement. Errors were due to: patients being booked under the wrong consultant hence being reimbursed to other departments (n = 2, £811). Episode of care not being recorded and therefore not being coded (n = 2, £811). Wrong code assigned to procedure or episode of care (n = 6, £1807). As a result we reviewed our practice to ensure that all episodes of care are recorded and that discharge summaries are complete so that coding is accurate.

**Conclusions:** Strategic prescribing saves money. Diagnostic accuracy is critical to maximize reimbursement.

**Disclosure statement:** All authors have declared no conflicts of interest.

265. **AN AUDIT OF THE BSR GUIDELINES FOR THE MANAGEMENT OF ANCA ASSOCIATED VASCULITIS TREATED WITH IV CYCLOPHOSPHAMIDE**

Yueyang Chao1, Janice Mooney2, Richard Watts2 and Karly Graham2

1Norwich School, Norwich, UK; 2Health and Social Sciences Institute, University of East Anglia, Norwich, UK

**Background:** Anti-neutrophil cytoplasm antibody (ANCA) associated vasculitides, include Wegener’s granulomatosis (WG), Churg-Strauss syndrome (CSS), microscopic polyangiitis (MPA), mainly affect the small blood vessels [1]. Current therapeutic regimens have improved patient prognosis and survival rates significantly.

**Methods:** An audit of all patients’ notes who attended a day unit for IV cyclophosphamide for primary systemic vasculitis between 1st Jan and 31st Jul 2009 were included to compare a local hospital protocol against BSR guidelines [2].

**Audit standards:**
1. Patients should have their standard dosage of cyclophosphamide reduced for age and renal function.
2. Patients should have their FBC between day 10 and the day of next pulse.
3. Patients with WBC < 4.0 and/or neutrophils count < 2.0 must postpone pulse until WBC > 4.0 and neutrophil count > 2.0.
4. Patients who had their pulse postponed must have their dosage reduced.
5. Patients on IV cyclophosphamide therapy should be given mesna treatment.
6. Patients should have urinalysis done at every clinic/infusion.
7. Patients should be counselled regarding risks of infertility.
8. Patients should receive Septin 960 mg, thrice weekly as prophylaxis against pneumocystis.
9. Patients should receive a maximum cumulative dose of 10g of cyclophosphamide, assuming 3 pulses at two weekly intervals and 7 at three weekly intervals (i.e. 6 month course) and a dose of 1g/ pulse.

**Results:** 22 patients: median age 62 years (range 35–78), 12 female, 5 WG, 2 MPA, 3 renal vaculitis, 12 others.

- Standard 1: 9 (40.9%) correct dosage given, 9 (40.9%) dose reduced too much, 4 (18.2%) patients should have had their dosage reduced.
- Standard 2 and 6: all 100% met.
- Standard 7: 20 sets of data available. 9 counselled regarding risks of fertility and documented in the medical notes; 8 signed a consent form and verbal consent was obtained for the ninth.
- Standard 8: 20 sets of data available. 9 counselled regarding risks of fertility; 5 signed a consent form, 3 didn’t. The female patients were all post menopausal before starting cyclophosphamid and one of the male patients was infertile.
- Standard 9: 17 patients cumulative doses of < 10g; 5 patients cumulative doses of > 10g. 4/5 had several pulses, although the cumulative dose of each course was < 10g, 1 patient has required several pulses over a 7 year period.

**Conclusions:** This audit found that 6/9 standards were met. 3 areas for improvement were identified:
1. Clinicians need to be vigilant in reducing the dose of cyclophosphamide to take into account patient ages and renal function.
2. Discussion regarding side-effects of cyclophosphamide treatment and written consent should be recorded in medical notes.
3. Cumulative dose of cyclophosphamide exposure should be recorded in the notes after each visit.

**Disclosure statement:** All authors have declared no conflicts of interest.

266. **IS IT FEASIBLE TO USE 10-YEAR FRACTURE RISK TO INFORM TREATMENT IN FRACTURE CLINIC?**

Fraser Birrell2,1, Mike Reed1 and Susan Croyle1

1Orthopaedic Department, Wansbeck General Hospital, Newcastle upon Tyne, UK; 2Musculoskeletal Research Group, Newcastle University, Newcastle upon Tyne, UK

**Background:** The British Orthopaedic Association’s Blue Book best practice advocates that all patients who have sustained fragility fractures should be screened and/or treated for osteoporosis. FRAX is a simple online tool which can be used to calculate 10-year fracture risk and local guidelines incorporating National Osteoporosis Guideline Group (NOGG) treatment thresholds, but it is not known if this can effectively inform treatment decisions in fracture clinic and drive service improvement. The objective of this study was to establish the feasibility of this approach for all first time trauma clinic patients who have attended with fragility fracture, using existing resources.

**Methods:** An orthogeriatric nurse practitioner attended trauma clinic each morning for a period of 3 months (November 2008-January 2009) in order to screen patients as per local guidelines. Any patients missed were screened by telephone. A FRAX score was also calculated to
Foam treatment decisions. Appropriate patients who needed DXA were referred directly by the nurse practitioner. A letter of advice was sent to the GP, noting that results would be forwarded. GPs were notified letter only if patients needed treatment.

Results: This study included all low trauma fractures and showed that 134 eligible patients were identified and of these 92.5% were screened and had FRAX scores taken. The FRAX scores were as follows: 9 (fracture risk major fracture risk range 2.8%–28%); 11 humeral fractures (major fracture risk range 2.6%–45%); 84 other fractures (major fracture risk range 1.5%–27%). 50% of patients were in the green zone, 33.1% were in the orange zone (referred for bone densitometry and 16.8% were in the red zone (treatment advised). Data on adherence to therapy will be presented on this cohort at the meeting.

Conclusions: This study shows that developing the role of a designated person in trauma clinic can achieve excellent levels of screening for osteoporosis risk. As a direct result of this study, plans have been put in place for a permanent screening service to be implemented in fracture clinic. FRAX scores can feasibly inform management with existing guidance. Surgical appliances records were completed by each doctor who performed the USS and abnormalities found and changes of treatment as a result of USS. Our objectives were to establish how many patients had MSK USS performed over one month, what structural changes USS demonstrated and how the management of patients changes because of USS.

Methods: A survey was performed to evaluate the efficacy of musculoskeletal ultrasound scans (MSK USS) in an outpatient setting, Poole Hospital NHS Foundation Trust. The Department of Rheumatology has one USS machine with power Doppler. Three of the consultants have training in the use of MSK USS. Our objectives were to establish how many patients had MSK USS performed over one month, what structural changes USS demonstrated and how the management of patients changes because of USS.

Results: 4 Rheumatologists performed MSK USS on 66 patients. 27 patients (41%) were new referrals to rheumatology, 17 (26%) were from practitioner-led Rheumatology follow-ups and 22 (33%) were from practitioner-led Rheumatology follow-up clinics (patients with inflammatory arthritides). Anatomical structures examined were hand and small joints in 31 patients, wrist in 19 patients, knee in 11, foot in 9, ankle in 6, elbow in 5, shoulder in 5, hip in 3, other sites in 4 patients. In 20 out of 66 patients (30%) USS were normal, in 46 patients (70%) there were various abnormalities. Synovitis was found in 31 patients, tenosynovitis in 7, erosions in 6, bursitis in 3, osteoarthritis with osteophytes in 3, partial rotator cuff tear in 1 patient. In 37 patients (56%) treatment was changed as a result of the USS. Most frequent changes were: injection performed (9 patients), DMARDs increased (5), not started on DMARDs/biologics (3), site of aspiration not performed (4), biologic agents started (3), injection determination (2). In 13 patients (20%) doctors would have
Background: Associated with increasing age, previous injury and obesity, it is estimated that approximately 25% of the post-retirement population experience OA symptoms in their knee joints. It is a main reason for GP consultation and consequently a combination of pharmacological and non-pharmacological modalities, notably exercise, are key to successful management. Previous studies have suggested that adherence to guidelines is limited and pharmacological interventions predominate. The aim of this audit was to establish the impact of knee OA in primary care, recording incidence and management strategies; and determine the cost of frequently used interventions.

Methods: Eleven GP surgeries were recruited from a large city in South West England. Read code database searches identified individuals who were over-50 and diagnosed with knee OA for at least six months. Data on contact numbers, prescription preferences, referral to other agencies and associated costs of management strategies were also collected.

Results: Population prevalence of knee OA was 3.5% and mean annual GP consultation was 2.2 contacts at a cost of £211,200 per annum. 58% received drug therapy, predominantly paracetamol, whilst 14% received intra-articular injections. 31% were referred to physiotherapy, whilst 47% received an orthopaedic referral, with a 45% progression rate to surgery. 27% of those referred to orthopaedics had not received previous physiotherapy. An estimated £15,000 was allocated to physiotherapy (based on 1 assessment and 2 treatment sessions per patient) whilst approximately £1.2m was spent on prosthetic replacement in 2008/09.

Conclusions: Population prevalence appeared to be lower than reported elsewhere, however we were reliant on appropriate Read code allocation and did not include chronic knee pain as part of our search criteria which may have increased prevalence. Most patients diagnosed with OA were being managed pharmacologically, but only a minority had been referred to physiotherapy/exercise schemes. There also appeared to be some guideline inversion in that patients were being referred for orthopaedic opinion prior to physiotherapy/exercise review. This audit demonstrates that there appears to be some guideline inconsistency and that considerable amounts of patients are not being offered clinically and cost effective interventions such as exercise.

Disclosure statement: N.E.W., South Bristol Consortium - Study funding. All other authors have declared no conflicts of interest.

272. THE CLINICAL EFFECTIVENESS OF AN 8-WEEK EXERCISE PROGRAMME FOR PATIENTS WITH RHEUMATOID ARTHRITIS

Robert Caine1, Matthew Williams1, Anne Breslin1, Catherine Owen2 and Yasmeen Ahmad3

1Physiotherapy, Betsi Cadwaladr University Health Board, Bangor, UK; 2Rheumatology, Betsi Cadwaladr University Health Board, Bangor, UK

Background: It is generally agreed that rheumatoid arthritis (RA) patients benefit from various forms of exercise. We run a rheumatoid exercise programme (REPS) as part of our MDT service. REPS is a combination of aerobic, resistance and stretching exercise stations. The stations are completed as part of a circuit, where each subject exercises for a duration of 1–1.5 min. In the past, we have allowed patients to attend REPS for as long as they felt necessary and although it was not formally measured the subjects certainly seemed to benefit. However, recently we have structured the programme to a set number of weeks, followed by instruction to join a community exercise programme. The programme is based over 8 weeks with a one hour session each week. This audit will look at whether an 8 week programme is sufficient to improve fitness and well-being in RA suffers.

Methods: We prospectively assessed 40 consecutive RA patients through the REPS programme. We used the 1 min sit to stand test (STS) and the 1 min shuttle walk test (SWT) to assess objective fitness levels. We used the health assessment questionnaire (HAQ), the 28 joint disease activity score (DAS 28) and the visual analogue scale (VAS) for pain as further measures of disability, activity and pain. The above measurements (excluding the DAS 28) were taken at week 1 and week 8 of the programme. The DAS 28 was extracted from the most recent medical or nurse practitioner clinic to the week 1 and week 8 measurements. All participants were instructed, as is normal for the REPS programme, to exercise daily using exercises similar to those performed in the group.

Results: Thirty-two (80%) patients completed the full programme. The median age and disease duration were 50 (range 31–74) years and 7 (range 2–17) years, respectively. The female to male ratio was 5:3.
The table demonstrates the results, which show statistical significant improvement of fitness level (STS and SWT), disability, pain and disease activity.

**Conclusions:** This audit has demonstrated that the REPS has a positive impact on the fitness and well being of those who take part. It is safe, well tolerated and not restricted to any age group or disease duration. RA patients are now encouraged to exercise to improve their physical fitness, function and disease activity. But the patient’s major barrier to exercise is lack of education, confidence and time constraints. The REPS programme can overcome most of these issues and be positively incorporated as part of the RA multi-disciplinary care.

### REPS programme results

<table>
<thead>
<tr>
<th></th>
<th>Week 1</th>
<th>Week 8</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min STS (meters)</td>
<td>9.31 (3.51)</td>
<td>12.22 (3.40)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>1 min SWT (meters)</td>
<td>77.94 (15.25)</td>
<td>86.81 (15.05)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>HAQ</td>
<td>1.86 (0.64)</td>
<td>1.42 (0.74)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>DAS 28</td>
<td>3.07 (1.13)</td>
<td>3.07 (1.13)</td>
<td>0.01</td>
</tr>
<tr>
<td>VAS (mm)</td>
<td>48.6 (22.8)</td>
<td>40.2 (18.5)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

**Disclosure statement:** All authors have declared no conflicts of interest.

### 273. PARTNERSHIP WITH PRIMARY CARE TO DEVELOP OSTEOPOROSIS SERVICES AND PROMOTE FRACTURE RISK REDUCTION STRATEGIES

Linda Morgan\(^1\), Alistair Blair\(^2\) and Fraser Binns\(^2,3\)
\(\text{\footnotesize \cite{Northumbria Healthcare NHS Foundation Trust, Newcastle upon Tyne, UK; Newcastle University, Newcastle upon Tyne, UK; Wellway Surgery, Northumberland, UK}}\)

**Background:** Approximately three million people in the UK have osteoporosis and there are over 230,000 fragility fractures every year. Many patients are never assessed for future fracture risk. The North of Tyne Osteoporosis Treatment Guidelines (NOT) were launched in October 2009 and provide a tool to identify and manage those people who are at high risk of fragility fracture. The objective of this study was to: 1) assess knowledge of new NOT guidance, 2) to gain an understanding of GPs interest in developing osteoporosis services and 3) engage primary care in this process.

**Methods:** A short survey was distributed by email and post to all practices in Northumberland and North Tyneside. The survey asked about awareness of the NOT Guidelines; interest in developing Osteoporosis services; interest in developing risk registers and ten year fracture risk assessment data for their patients, at either practice level or Practice Based Commissioning (PBC) group level. Practices interested in collecting fracture risk assessment data were asked whether they would prefer to collect and develop data using existing staff or independent external staff, at no cost to the practice.

**Results:** 78 surveys were sent out, with a 49% response rate, 3 weeks after first mailing (postal strikes occurred during this period), 95% of those who responded were aware of the NOT guidelines, with 89% indicating an interest in osteoporosis service development. 66% of the replies were positive when asked about developing risk registers. 92% of the responses were in favour of having ten year fracture risk assessment data for their patients, with 14/38 expressing a preference for developing services at a practice based level; 13 favouring PBC group level; 3 stated either; 3 both; and 5 did not give a preference. Comments suggested that practices were ‘overwhelmed by extra work at present’ with 21 from the 38 responses preferring an external staff member to work with them to develop services locally.

**Conclusions:** The NOT guidelines have been launched successfully. There is a high level of interest from primary care in developing risk registers and local ten-year fracture risk data, despite the lack of Quality and Outcomes Framework (QOF) payment for this. The response rate was as expected for a survey of this type: we plan to see if this can be improved using other survey methods.

**Disclosure statement:** All authors have declared no conflicts of interest.

### 274. AUDIT ON UPTAKE OF INFLUENZA AND PNEUMOCOCCAL VACCINATIONS IN PATIENTS ATTENDING RHEUMATOLOGY CLINICS AT A UNIVERSITY HOSPITAL IN THE NORTH-WEST UK

Jagdish Ramachandran Nair, Ahmad Zia and Devesh Mewar

**Rheumatology, Royal Liverpool University Hospital, Liverpool, UK**

**Background:** Influenza and Pneumococcal diseases affect a large percentage of UK population; incidence being 5–15% and 10–100 cases per 100,000 respectively, with fatal complications especially in the elderly and at risk populations. The Department of health advises annual influenza vaccination and once-only pneumococcal vaccine for adults aged > 65 years irrespective of clinical risk and those < 65 years who fall into a clinical risk category. The uptake target set for Flu vaccine for > 65 years is 70% but there is no set target for < 65 years. Data from 2007/08 for uptake of Flu jab in England was 73.5% and 45.3% for those > 65 years and < 65 years at risk, respectively. The uptake of pneumococcal vaccine for > 65 years was 69% until 31 March 2008.

**Methods:** Our population included patients with diverse rheumatologic conditions including RA, the elderly; those on DMARD and anti-TNF agents at risk of serious infections. The aim was to audit the uptake of annual influenza and pneumococcal vaccination; and assess the incidence of respiratory infections in patients > 65 years and those on immunosuppressant treatment attending Rheumatology clinics at the University hospital between Sep and Nov 2008. A questionnaire method was used.

**Results:** One hundred and fifty patients were given the questionnaires with a return of 120 responses (n = 120, 80% response). The uptake of Flu vaccine was 57% (n = 69) and pneumococcal vaccine 24% (n = 29). The uptake of Flu vaccine for people > 65 years was 68% (n = 37 of 54), the immunosuppressed 52% (n = 47 of 90) and those on anti-TNF agents 70% (n = 7 of 10).

The incidence of a respiratory infection requiring antibiotics was 32% (39 episodes) and a serious infection requiring hospital admission 1.6% (2 episodes). The majority of infective episodes (n = 31) occurred in the immunosuppressed group which also included some patients aged > 65 years.

**Conclusions:** The uptake of Flu vaccine was low in both > 65 years group and ‘at risk’ groups, lower than the national average and recommendations. The pneumococcal vaccine uptake was poor. These suggest that the awareness among the general and at risk population is low and the prescribing practices are poor especially in patients on immunosuppressant drugs.

**Recommendations are to:**

1. educate and improve awareness among the patients and family;
2. provide information leaflets on flu and Pneumococcal vaccine in clinics/GP surgery;
3. reinforce need for vaccinations at clinic visits especially closer to winter;
4. provide written advice to general practitioners through clinic letters for all patients above 65 years and those ‘at risk’

**Vaccinations in patient groups in rheumatology clinics**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Total (%)</th>
<th>&gt; 65 Y (%)</th>
<th>Immunosuppressed (%)</th>
<th>Anti-TNF(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flu vaccine offered</td>
<td>64</td>
<td>68</td>
<td>57</td>
<td>70</td>
</tr>
<tr>
<td>Flu vaccine received</td>
<td>57</td>
<td>68</td>
<td>52</td>
<td>70</td>
</tr>
<tr>
<td>Pneumococcal vaccine offered</td>
<td>24</td>
<td>37</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Pneumococcal vaccine received</td>
<td>24</td>
<td>37</td>
<td>11</td>
<td>0</td>
</tr>
</tbody>
</table>

**Disclosure statement:** All authors have declared no conflicts of interest.

### 275. RETROSPECTIVE AUDIT OF ALL RHEUMATOLOGY ADMISSIONS OVER A SIX MONTH PERIOD AT A LARGE TEACHING HOSPITAL IN THE WEST MIDLANDS

Gillian M. Peffers

**Rheumatology, Selly Oak Hospital, Birmingham, UK**

**Background:** Rheumatology practice has changed significantly over the last 10 years with 22% fewer in-patient admissions and 357% more day case attendances. Practice has consequently evolved with fewer in-patient beds and expansion of day unit facilities in conjunction with extended opening hours.

We decided to audit all the rheumatology admissions for a six month period. The reason for admission and criteria for in-patient versus day unit care were examined.
Methods: Retrospective analysis of hospital coding records, ward admission diary, TCI forms and patient clinical records over a six month period July 1st to December 31st 2008

Results: 117 rheumatology admissions were highlighted through coding, of which 99 were accurate (85%). Seventy five were coded as elective admissions and 24 as emergencies. Ages ranged from 28 to 85 years with a median of 44.5 years. Male to female ratio was 1 to 3.5. Of the 75 elective admissions, 44 were for steroids, prostaclyn or cyclophosphamide infusions with clear diagnoses, 1 was for intravenous antibiotics for osteomyelitis, 11 for lignocaine infusions to treat fibromyalgia, 7 for multiple joint injections (2 of whom were on warfarin), 5 had complex problems, 5 for tissue biopsies or yttrium implants and 2 unclear. Of the emergency cases, 16 were for steroid infusions, 3 for lignocaine infusions, 2 for acute single joint flares, 2 for complex problems and 1 unclear. Eight of the 99 admissions were incorrectly coded as emergencies.

Underlying diagnoses were rheumatoid arthritis 37, connective tissue disease 29, fibromyalgia 14, spondyloarthopathy 9, combination rheumatoid and osteoarthritis 4, soley osteoarthritis 2, polymyositis 2, vasculitis 1 and unclear 1. Average duration of admission was 5.13 days with a range of 1 to 33.

Conclusions: This audit revealed several areas open to scrutiny. Firstly, there were significant coding inaccuracies. This inaccuracy could have serious implications on a business plan to expand or develop a service. Secondly, for the majority of patients, identifying clear criteria for inpatient admission over treatment in the day unit was difficult to establish. The local cost implications could also not be established due to minimal input from the finance department. A costing analysis by Lambert et al. 13 years ago concluded that there could have serious implications on a business plan to expand or develop a service. Unfortunately, our audit did not establish another important finding. A small but significant difference observed in favour of day unit costing analysis. The majority of contacts 4794 (68%) were first time enquiries. Most contacts were from parents of children and young people (3%) contacts were from young people aged < 15 years (3%) contacts were from people who did not have a diagnosis; and 999 (13%) had RA. The majority of enquiries were requests for information about arthritis (n = 4134) (58%); 3886 (55%) enquiries related to severe pain; 1595 (23%) concerned medication; 1483 (21%) enquiries concerned emotional support; and 1364 (19%) related to exercise and arthritis. Helpline staff usually mail out booklets following a contact: the most frequently sent out booklet is Coping with Pain (n = 3312) (93%), followed by Living with OA (n = 2095) (59%) and Exercise and Arthritis (n = 2098) (59%).

Helpline contacts often occur when people feel in crisis; their symptoms have changed, many are anxious and fearful and in pain, which is not being effectively managed. Some have just been diagnosed and “left to their own devices”; others with inflammatory arthritis may be going through changes in medication and coping with side-effects. Many do not know the avenues available to help manage their pain and many are not aware of their rights or the sorts of services available to help them. The majority of people just want to talk to someone. Help them. The majority of people just want to talk to someone. Help them. The majority of people just want to talk to someone. Help them.
278. WHAT DOES THE HOSPITAL ANXIETY AND DEPRESSION SCALE (HADS) MEASURE? EVIDENCE OF A BIFACTOR STRUCTURE AND ITEM BIAS

Sam Norton1, John Done3, Amanda Sacker2, Adam Young1,2 and Nigel Cox2
1Centre for Lifespan and Chronic Illness Research, University of Hertfordshire, Hatfield, UK; 2Institute for Social and Economic Research, University of Essex, Colchester, UK

Background: The Hospital Anxiety and Depression Scale (HADS) is a commonly used measure of psychological distress in patient populations. The HADS was designed to measure two correlated anxiety and depression factors, however previous research is inconclusive finding support for several alternative models. In addition, some items may be biased by the somatic features of a disease. Currently there are no published studies considering item bias in rheumatological patients. The objective of this study was to (1) examine the factor structure of the HADS and (2) assess for the presence of item bias.

Methods: The sample consisted of 160 patients attending one of the Early Rheumatoid Arthritis Study centres, for whom individual HADS item responses were available. All completed questionnaires were pooled resulting in a total sample of 1728. Alternative models were compared using confirmatory factor analysis. Item bias was assessed by examining relation between individual HADS items and covariates (disease duration, age, sex, HAQ, DAS and pain) whilst controlling for underlying level of psychological distress.

Results: Superior fit was observed for a bifactor structure ($\gamma_{200} = 87$, RMSEA = 0.04, CFI = 0.97, TLI = 0.99), indicating that the HADS taps into a general psychological distress factor as well as specific anxiety and depression factors. The HADS anxiety and depression scores correlated highly with the respective specific factor but even more so with the general factor (HADS-A: $r$ (anxiety) = 0.59, $r$(general) = 0.86; HADS-D: $r$(depression) = 0.64, $r$(general) = 0.83). Item bias was observed for item D8 “I feel slowed down” with individuals with same underlying level of psychological distress but worse disability ($b = 0.34$, $P < 0.001$) and higher disease activity ($b = 0.13$, $P < 0.001$) more likely to respond positively to the item. Further item bias was observed for item D14 “I can enjoy a good book or radio or TV programme” with females less likely to respond positively to the item than males with the same level of psychological distress ($b = 0.50$, $P < 0.001$). However, the magnitude of the bias was small and controlling for it made no substantive difference in the association between the covariates and psychosomatic distress factors.

Conclusions: The HADS total score may be used as an assessment of general psychological distress, incorporating specific features of anxiety and depression. However, factor scores, which can be calculated using a simple tool provided by the author, may provide greater insight into an individual’s psychological well-being, by allowing for the assessment of anxiety and depression separately. Although item bias was observed, it is unlikely to have a substantive effect.

Disclosure statement: All authors have declared no conflicts of interest.

results should an individual experience the onset of the condition. The common-sense model is a useful guiding framework that describes how illness perceptions include beliefs about causes, cyclicity (i.e. flaring), consequences, control and coherence. The aim of the present study was to investigate beliefs about RA among people who do not have the condition after presentation of brief information about the autoimmune nature of RA and its possible causes.

Methods: An adapted version of the Revised Illness Perception Questionnaire about RA was completed by 564 individual with no musculoskeletal health condition (50% women, mean age 20.97), the majority of whom were undergraduate psychology students. One-third of participants were provided with information that emphasized the consequences of RA and highlighted smoking and coffee consumption as epidemiologically supported potential causes. Another third of participants were provided with information that emphasized the treatability of RA and highlighted infection as an epidemiologically supported potential cause. The other third of participants were provided only with the name of the condition rheumatoid arthritis. Participants gave informed consent and were provided with debriefing information.

Results: Only 81% of participants had heard of RA; 21% reported having a relative with RA. Participants provided only with the name rheumatoid arthritis were more likely to agree that RA is caused by aging (87%), heredity (59%), injury (55%) and overwork (28%) than others (68%, 34%, 34%, 45%, respectively; all $P < 0.001$). These participants were more likely to believe that RA is controllable personally and by treatment and is coherent to patients (all $P < 0.001$). Participants informed that RA might be caused by infection were more likely to agree that RA is caused by a virus (54%) and altered immunity (64%) than others (10%, 51%, respectively; all $P < 0.001$). Participants informed that RA might be caused by smoking or coffee consumption were more likely to agree that RA is caused by diet (63%) and smoking (66%) than others (29%, 18%, respectively; all $P < 0.001$). These participants were less likely to believe that RA is cyclical (all $P < 0.05$) but more likely to believe that RA has serious consequences ($P < 0.001$).

Conclusions: The present study shows how individuals who do not have RA themselves appear to draw on generalized representations of arthritis when answering questions about the condition, particularly its relation to aging. Provision of brief information about RA and its causes has a short-term influence on ratings of the causes and impact of RA. These findings contribute to understanding of how people with RA are viewed and suggests a need for broad health education about RA.

Disclosure statement: All authors have declared no conflicts of interest.

279. APPLYING THE COMMON-SENSE MODEL OF ILLNESS PERCEPTIONS TO THE GENERAL POPULATION’S BELIEFS ABOUT RHEUMATOID ARTHRITIS

Gareth J. Treharne1,2, Zoe C. McGavock1, Anna Tonks1, Sarah A. Kafafy3, Elizabeth D. Hale2 and George D. Kitsas1,3
1Department of Psychology, University of Otago, Dunedin, New Zealand; 2Department of Rheumatology, Dudley Group of Hospitals NHS Foundation Trust, Dudley, UK; 3ARC Epidemiology Unit, University of Manchester, Manchester, UK

Background: It is important to understand the beliefs that the general population hold about rheumatoid arthritis (RA) as these beliefs form the basis of interactions with people who have the condition as well as reactions should an individual experience the onset of the condition. The common-sense model is a useful guiding framework that describes how illness perceptions include beliefs about causes, cyclicity (i.e. flaring), consequences, control and coherence. The aim of the present study was to investigate beliefs about RA among people who do not have the condition after presentation of brief information about the autoimmune nature of RA and its possible causes.

Methods: An adapted version of the Revised Illness Perception Questionnaire about RA was completed by 564 individual with no musculoskeletal health condition (50% women, mean age 20.97), the majority of whom were undergraduate psychology students. One-third of participants were provided with information that emphasized the consequences of RA and highlighted smoking and coffee consumption as epidemiologically supported potential causes. Another third of participants were provided with information that emphasized the treatability of RA and highlighted infection as an epidemiologically supported potential cause. The other third of participants were provided only with the name of the condition rheumatoid arthritis. Participants gave informed consent and were provided with debriefing information.

Results: Only 81% of participants had heard of RA; 21% reported having a relative with RA. Participants provided only with the name rheumatoid arthritis were more likely to agree that RA is caused by aging (87%), heredity (59%), injury (55%) and overwork (28%) than others (68%, 34%, 34%, 45%, respectively; all $P < 0.001$). These participants were more likely to believe that RA is controllable personally and by treatment and is coherent to patients (all $P < 0.001$). Participants informed that RA might be caused by infection were more likely to agree that RA is caused by a virus (54%) and altered immunity (64%) than others (10%, 51%, respectively; all $P < 0.001$). Participants informed that RA might be caused by smoking or coffee consumption were more likely to agree that RA is caused by diet (63%) and smoking (66%) than others (29%, 18%, respectively; all $P < 0.001$). These participants were less likely to believe that RA is cyclical (all $P < 0.05$) but more likely to believe that RA has serious consequences ($P < 0.001$).

Conclusions: The present study shows how individuals who do not have RA themselves appear to draw on generalized representations of arthritis when answering questions about the condition, particularly its relation to aging. Provision of brief information about RA and its causes has a short-term influence on ratings of the causes and impact of RA. These findings contribute to understanding of how people with RA are viewed and suggests a need for broad health education about RA.

Disclosure statement: All authors have declared no conflicts of interest.