Health Services Research, Economics and Outcomes Research

Young Investigator Award Winner

301. THE EFFECTS OF SURGICAL VOLUMES AND TRAINING CENTRE STATUS ON OUTCOMES FOLLOWING TOTAL JOINT REPLACEMENT IN ENGLAND

A. Judge[1], J. Chard[1], I. Learmonth[2] and P. Dieppe[1]
[1]*MRC Health Services Research Collaboration, University of Bristol, Bristol, United Kingdom and* [2]*Academic Department of Orthopaedics, University of Bristol, Bristol, United Kingdom*

Background: Literature from North America suggests that the numbers of procedures carried out in a hospital are related to outcomes (less procedures leading to worse results), particularly in cardiac surgery. Other literature suggests that standardisation of procedures leads to improved outcomes. In the light of the changing nature of the provision of joint replacements in the UK (e.g. the introduction of Independent Sector Treatment Centres, ISTCs), we have examined the hypothesis that surgical volumes and training centre status affect the outcomes seen after total hip or knee joint replacement in England.
Methods: The Hospital Episode Statistics (HES) for England were examined, with retrieval of data on all hip or knee joint replacements in NHS hospitals between financial years 1997 and 2002. The exposures explored were the volume of replacements/annum in an NHS Trust, training centre status and whether the admission was routine or emergency. Four surrogate measures of an adverse outcome, available within HES, were assessed: 30-day in-hospital mortality, length of stay in hospital, readmission within one year and surgical revision within 5 yr. Age and sex were controlled for as potential confounders.
Results: Data from a total of 281 360 hip replacements and 211 099 knee replacements were examined. The numbers of these operations performed in low volume Trusts (defined as Trusts doing $<$100 joint replacements/annum) is small and decreasing. Adverse events, as defined, were also uncommon. However, significant associations between adverse outcomes and low volume units were still detected. For example, the odds ratio for in-hospital death within 30 days of hip replacement in Trusts doing $<$50 hip replacements/annum is 2.11 (95% CI 1.22–3.65) compared to Trusts doing 251–500 operations/annum. Similarly, surgery in non-training centres is more likely to result in mortality than that in training centres (OR 1.22 95% CI 1.03–1.45). Similar trends were found for all outcomes examined, and for both hip and knee joint replacement.
Conclusions: In England there are fewer adverse events following joint replacement in high volume Trusts and orthopaedic training centres. Further research should be undertaken to ascertain whether patient-related outcomes are affected in a similar way. These data have implications for private orthopaedic practice in the UK and for the current move to undertake more joint replacements in ISTCs.
Disclosure: This work was commissioned and funded by the UK Department of Health.

302. THE EFFECTS OF CO-MORBIDITY AND SOCIOECONOMIC STATUS ON WALKING SPEED FOR PEOPLE WITH MUSCULOSKELETAL DISEASE

S. A. Ayis, S. Ebrahim, P. Juni and P. A. Dieppe
Social Medicine, University of Bristol, MRC HSRC, Bristol, United Kingdom

Background: Maintenance of a good walking speed is essential to independent living, allowing people to cross the road safely. Those with musculoskeletal disease often have reduced walking speed. This study investigates determinants of slower walking, other than musculoskeletal disease, which might provide valuable additional targets for therapy.
Methods: We analysed data from the Somerset and Avon Survey of Health, a community based age-sex stratified survey of 28 000 people aged over 35. Those reporting hip or knee pain at baseline (1994/5) were studied, and recalled 7–8 yr later (2002–4). At baseline, a total of 2706 participants reported pain; 2204 were suitable and available for follow up and 1284 (58%) of them, took part. Six metres walking speed was tested in 1078 (84%) of the 1284.

A walking speed of $<$1.0 metres/second was used as the primary outcome. Baseline characteristics, including co-morbidities and socioeconomic factors, were tested for their ability to predict reduced walking speed, using multiple logistic regression analysis.
Results: As expected, age and severity of musculoskeletal symptoms were predictive. Two other large independent risk factors emerged: the presence of a cataract and low socioeconomic status. Having a cataract increased the odds of slower walking speed by 3.9 (95% CI: 1.7–9.0). Compared to social class I, those in social class 5 had an increased odds ratio of 7.6 (95% CI: 2.4–23.5) and there was a linear trend across all 5 classes. These risk factors were independent of age, gender, body mass index and all health conditions.
Conclusions: Co-morbidities and socioeconomic status affect walking speed, and thus the ability to live independently, in people reporting joint pain. Clinicians should note that poor vision may add greatly to the impact of a musculoskeletal disease. The independent effect of socioeconomic status argues for use of the biopsychosocial model.
Disclosure: No conflicts of interest to declare.

303. DO MUSCULOSKELETAL DISORDERS HAVE A MEDIATING ROLE IN 'CATASTROPHIC DECLINE' IN LOCO-MOTOR FUNCTION IN OLDER PEOPLE?

S. A. Ayis, S. Ebrahim and P. A. Dieppe
Social Medicine, MRC HSRC, Bristol, Devon, United Kingdom

Background: Older people often experience 'catastrophic decline' in loco-motor function, but in the absence of a clear precipitating event, it is not clear what causes this. This study investigates the role of musculoskeletal disorders (MSKD).
Methods: Data from the UK Office of National Statistics Growing Older Survey of 2001 were analysed. Self-report data on socio-demography, disease and a range of functional activities were available at baseline from 999 people, 531 (68%) of whom responded to a follow-up survey one year later (mean age 73.4; 47% women). 'Catastrophic decline' in loco-motor function was defined as reporting the need for help in any of three activities (walking 400 yards, climbing stairs or getting on a bus) where no such problem was present at baseline. In addition to the reporting of musculoskeletal disease, needing help or inability to carry heavy shopping, to cut toenails or do heavy housework were used as functional markers of MSKD severity. Predictors of 'catastrophic decline' were explored using a recursive logistic analysis.
Results: Age over 70 (OR 4.2, 95% CI 1.3–13.7), hearing problems (OR 2.8, 95% CI 1.1–7.3) and poor self-reported health (OR 8.2, 95% CI 2.9–23.8), were the only demographic or disease related variables that predicted 'catastrophic decline'; the reported presence of musculoskeletal or other chronic diseases were not predictive.

However, self reported MSKD was predictive of the markers of musculoskeletal function (OR 1.6, 95% CI 0.9–2.9). In addition, these functional markers were themselves predictive of 'catastrophic decline' (OR 6.8, 95% CI 2.2–20.8).
Conclusions: Sudden loss of loco-motor ability in older people is associated with increasing age and poor self-reported health status, but not with the presence of chronic disease. However, it is likely that musculoskeletal problems (such as limited reserves of strength and endurance, as well as restricted range of motion and joint pain) may act as mediators of age-associated 'catastrophic decline' induced by other, perhaps psychosocial, factors. These findings have implications for clinicians concerned with the rehabilitation of older people.

304. AN ECG FOR AMBULATORY ACTIVITY? THE VALIDITY OF NUMACT [MARK III]

I. Atchia[1,2], P. Heslop[3], D. Walker[1,2,3] and F. Birrell[1,2,3]
[1]*Rheumatology, Northumbria Healthcare NHS Trust, Ashington, Northumberland, United Kingdom,* [2]*University of Newcastle upon Tyne, Newcastle, United Kingdom and* [3]*Musculoskeletal Unit, Freeman Hospital, Newcastle, United Kingdom*

Background: The objective recording of ambulatory activity using the Numact (Newcastle University Monitor of Activity) has previously been demonstrated to be relevant, objective, reliable, valid, quantifiable and sensitive to change. However, the monitor was bulky and some participants found it difficult to use, especially when multiple assessments were required. The monitor has been upgraded to a lighter, slimline version, [two sensors, each 5 cm in diameter and 1 cm in depth, linked by a single wire] in order to improve tolerability and we therefore aimed to confirm the validity of the new monitor prior to use as an objective measure of disability in therapeutic studies.
Methods: Face and content validity were initially demonstrated by real time comparison of the information gathered and recorded by the monitor with activities such as postural change (lying, sitting and standing), time standing and total number of steps. Content validity was confirmed, and criterion validity assessed for: (i) Steps: using concurrent monitoring with video observation for a wide range of frequencies and amplitude of steps; and (ii) Energy: comparing ambulatory energy calculated from numact recording with standardized treadmill activity. Construct and discriminant validity were analysed by comparisons of 8 recordings in normal volunteers with 8 recordings of volunteers with hip osteoarthritis. The mean values of ambulatory energy (product of number of steps over 24 h and amplitude) were compared using the *t*-test for independent samples.
Results: Subjects found the monitor to be easy and comfortable to wear and it did not interfere with their activity. Recorded number of steps for a range of frequencies between 1 to 3 Hz correlated well with the video monitor (Spearman correlation between video step count and Numact was 0.975). Mean (S.D.) Numact ambulatory energies were: 81 902 in normal and 44 681 in the hip OA group, with the difference found to be significant (2-tailed *t*-test; $P < 0.009$). (Data from the treadmill activity monitoring will be available during the conference).
Conclusions: Numact III is easier to use than the previous version and is very promising as an objective measure of functional capacity for studies in lower limb arthritis- analogous to the ECG for the objective confirmation of ischaemic heart disease. Compliance and validity of data collected have been demonstrated. Further work is needed to assess its discriminant validity, which is being undertaken as part of a therapeutic trial of ultrasound guided hip injection.

305. COST-UTILITY ANALYSIS OF A BRIEF PAIN MANAGEMENT PROGRAMME AND PHYSICAL TREATMENTS FOR LOW BACK PAIN: RESULTS FROM AN ECONOMIC ANALYSIS ALONGSIDE A RANDOMISED CLINICAL TRIAL

D. G. T. Whitehurst[1,3], E. M. Hay[1], M. Lewis[1], J. P. Raftery[2], S. Bryan[3], G. L. Yao[3] and R. Mullis[1]
[1]*Primary Care Sciences Research Centre, Keele University, Stoke-on-Trent, Staffordshire, United Kingdom,* [2]*Wessex Institute for Health Research and Development, University of Southampton, Southampton, United Kingdom and* [3]*Health Economics Facility, University of Birmingham, Birmingham, United Kingdom*

Background: Recommendations for the management of low back pain in primary care highlight the need to identify and address psychosocial factors at an early stage. This study assesses the cost-utility of a brief pain management programme (BPM) compared with physical therapies (PT) for patients consulting primary care with subacute low back pain.
Methods: The study was conducted from a health care perspective, addressing NHS and private health care. Back pain related resource use data were collected during the 12-month follow-up. Quality-adjusted-life-years (QALYs) were calculated based on patients' EuroQol EQ5D responses using area-under-the-curve analysis. Baseline utility imbalances between groups were controlled for using a multiple regression-based adjustment. Multiple imputation was used to handle missing cost and EQ5D data. The non-parametric bias corrected and accelerated (BCa) bootstrap was used to analyse 'mean differences'.

Cost-effectiveness was expressed as the incremental cost-per-QALY gained, with uncertainty handled using a cost-effectiveness plane and acceptability curve. Sensitivity analysis considered a complete-case analysis and variation in the unit cost of private health care.
Results: BPM was associated with significantly fewer treatment sessions. Secondary care referrals and private health care use were more frequent (although not significantly greater) in the PT group.

There were no statistically significant differences in mean health care costs, EQ5D scores or QALYs between groups (see Table 1). Point estimates showed that PT was more effective and more costly, with an incremental cost-per-QALY of £2362. If the NHS were willing to pay at least £4000 for each additional QALY, PT provides the best value for money. Sensitivity analysis showed minimal variation in results, with the complete-case analysis demonstrating that multiple imputation can help to reduce uncertainty around key results.
Conclusions: Physical therapies (PT) provide a cost-effective primary care management strategy for subacute low back pain. However, the absence of a clinically superior treatment package suggests that BPM could provide an additional approach, delivered in fewer sessions. Larger adequately powered studies are necessary to further investigate the potential benefits of BPM.

TABLE 1. Health outcomes over 12 months by treatment group.

Outcome	BPM ($n=201$) mean (SD)	PT ($n=201$) mean (SD)	Mean Difference$^{\psi}$ (95% BCa CI)
Treatment sessions	3.61 (2.33)	4.32 (2.24)	−0.72 (−1.24, −0.20)$^{\alpha}$
Baseline EQ5D	0.70 (0.30)	0.70 (0.28)	0.01 (−0.05, 0.06)
3-month EQ5D	0.76 (0.38)	0.79 (0.30)	−0.03 (−0.08, 0.02)
12-month EQ5D	0.77 (0.34)	0.78 (0.32)	−0.01 (−0.06, 0.02)
QALYs	0.755	0.777	−0.02 (−0.06, 0.01)
Health care costs	142.33 (261.3)	194.52 (445.6)	−52.19 (−119.2, 10.5)

$^{\psi}$Mean Difference = BPM-PT. $^{\alpha}$Parametric 95% CI.

Disclosure: This study was supported by a Project Grant awarded by the UK National Lottery and the North Staffordshire Primary Care Research Consortium. The authors have no conflict of interests to declare.

306. THE ICF CORE SETS FOR LOW BACK PAIN: DO THEY TELL US WHAT MATTERS TO PATIENTS?

R. Mullis[1], J. Barber[1] and E. M. Hay[1,2]
[1]*Primary Care Sciences Research Centre, Keele University, Keele, Staffordshire, United Kingdom and* [2]*Staffordshire Rheumatology Centre, Haywood Hospital, Stoke on Trent, Staffordshire, United Kingdom*

Background: The International Classification of Functioning, Disability and Health (ICF) provides a framework for the description of health-related states through a system of domains classified from body, individual and societal perspectives. Development of the Core Sets within the ICF arose from the concept of using condition-specific health status measures, and was intended to provide a link between the salient ICF categories and specific conditions or diseases. The ICF core sets for low back pain (comprehensive and brief) were developed by consensus, to define the typical spectrum of problems in LBP patients and to enable the rating of patients included in clinical studies (Cieza *et al.* 2004).

The aim of this work was to establish the extent to which the Core Sets encompass key items identified by LBP patients as relevant to the problems they encounter.

Methods: 406 patients recruited into a LBP treatment trial (Hay *et al.* 2005) were asked to identify:

(1) A specific activity or task made most difficult by their back pain
(2) one thing they really enjoy doing usually but are unable to do because of back pain

Responses were recorded as free text. The key components were extracted, and mapped onto the ICF by 2 independent researchers.
Results: On Q1, 397 patients were able to identify a most difficult activity. Of these, 326 (80%) fell within the Brief Core Set for LBP, and all (bar 2) were contained within the Core Set. Many patients reported similar problems, with 385 items (95%) classifiable as activities and participation. Sleeping (reported 12 times) falls within the bodily functions dimension.

On Q2, 312 patients were able to identify a usually enjoyed activity. Of these, 56 (18%) fell within the Brief Core Set for low back pain. All of the remainder (bar 1 item) were encompassed by the Core Set.

At an individual level, 8 patients chose the same activities in both questions. However, a clear link existed between many chosen items e.g. 'bending' as the most difficult task with 'gardening' as the thing usually enjoyed.
Conclusions: In Q1, tasks identified as 'most difficult' had a high level of inclusion within the Brief Core Set, which is in keeping with the aims of the ICF classification system.

However, in Q2 most items were not included within the Brief Core Set for LBP. Whilst some are not essential to basic functioning e.g. sport and leisure activities, they had all been chosen by patients without prompting, and serve to enhance quality of life. These data were drawn from participants in a clinical study i.e. the very people for whom the Brief Core Set was devised. The low level of inclusion of these items within the Brief Core Set suggests that further work, incorporating additional patient input may be necessary to ensure that a relevant and comprehensive core framework is identified.

307. HOPE AND DESPAIR IN PATIENTS' BELIEFS ABOUT BACK PAIN AND ITS TREATMENT

M. Corbett, N. Foster and B. N. Ong
Primary Care Sciences Research Centre, Keele University, Keele, Staffordshire, United Kingdom

Background: Research on back pain has highlighted that psychological and social factors may influence the way people think about pain, and in turn shape their pain experiences. As a result more attention has been given to lay beliefs about the cause, consequences and treatment of back pain, in particular, how they impact on people's sense of self, on meaning and social functioning. Specific research has focused on how people form representations of the threat posed by illness and this is relevant for the study of back pain. Leventhal's self-regulatory model postulates that illness representation is influenced by beliefs that are centred around five dimensions: identity, time-line, cause, consequences and cure/control (Leventhal *et al.* 1992).

One of the aims of the Beliefs about Back pain Study (BeBack Study) is to investigate the perceptions of patients and healthcare professionals about LBP and its treatment. The qualitative study presented in this paper focuses on patients' beliefs.
Methods: The BeBack study uses a mixed methods approach, comprising a longitudinal survey with a nested qualitative interview study. 26 patients have been purposively sampled from the responders to the survey questionnaires, and been interviewed in depth about their beliefs relating to back pain. The interviews have been recorded and fully transcribed, and the NVivo data management system is used to aid analysis. Interpretative Phenomenological Analysis is the main analytical method deployed, but narrative analysis is applied where appropriate.
Results: People hold elaborate views and beliefs about the cause of their back pain, the type of pain they are experiencing, how long they think it will last, how it has affected their everyday life and whether or not they think it can be cured or controlled. People's beliefs shape their behaviour and expectations of treatment and its outcome. Furthermore, the presence of co-morbidity provides a context for pain beliefs and impacts on coping behaviour. The narratives of hope and despair play an important role, and are particularly salient when expressed as unanswered questions about cure and control.
Conclusions: The dimensions of Leventhal's model can be applied to the analysis of our qualitative material. At the same time, further issues have emerged that cannot be fully explained by the model, in particular, people's expressions of hope and despair and the consequences of these beliefs on the experience of back pain. We will present selected findings and discuss their theoretical implications.

The authors acknowledge programme grant support from the arc (Arthritis Research Campaign) UK.

308. WORK INSTABILITY, FUNCTIONAL IMPAIRMENT AND DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS

A. M. Macedo, S. P. Oakley, A. Kaul, R. Davies, J. Grumley, G. S. Panayi and B. W. Kirkham
RA Centre, Department of Rheumatology, Guy's & St Thomas' NHS Foundation Trust, London, United Kingdom

Background: Many patients with rheumatoid arthritis (RA) leave work prematurely. The Work Instability Scale [1] (WIS) has been developed to identify RA

patients at risk of work disability [2]. The relationship of the WIS scores with the outcome of work disability has not yet been established [3]. Research suggests that functional ability defined as HAQ $\geq$1.0 and to a lesser extent disease activity, are predictive of work disability [4, 5]. To date the relationship between RA-WIS, HAQ and assessment of disease activity has not been studied. This study investigated the influence of functional impairment (HAQ) and disease activity (DAS_{28}) upon the risk of work disability (RA-WIS).

Methods: Working RA patients attending the RA Centre at Guy's Hospital, between May-September 2005, were evaluated by RA-WIS, HAQ questionnaire and DAS_{28} scores. Correlation was evaluated by Spearman coefficient (rho) and multiple regression. Patients were then defined as 'work stable' (RA-WIS $<$10) or 'work unstable' (RA-WIS $\geq$10); having 'good function' (HAQ $<$1.0) or impaired function (HAQ $\geq$1.0); and inactive disease (DAS_{28} $\pm$2.6) or active disease (DAS_{28} $>$2.6). The influence of functional impairment and active disease were calculated as odds ratio (OR) and adjusted OR using logistic regression (Stata Version 6.0, TX, USA).

Results: DAS were available for 40 patients, HAQ for 45 and RA-WIS for 62. Fifty-four percent of patients were 'work stable' and 46% 'work unstable'. DAS-HAQ comparison was possible in 35 patients, HAQ-WIS in 45, DAS-WIS in 40 and multivariate analysis in 35. HAQ and DAS scores correlated moderately (rho 0.62, OR 5.2). Functional impairment (HAQ $\geq$ 1.0) and active disease (DAS $>$ 2.6) were independently associated with work instability (RA-WIS $\geq$ 10) with adjusted OR of 14.5 and 51.1 respectively. Multiple linear regression found similar results.

	Continuous data			Dichotomised data		
	ρ	Coefficient	(95% C.I.)	OR	Adjusted OR	(95% C.I.)
HAQ	0.72	3.18	(0.61, 5.75)	15.8	14.5	(1.33, 748.6)
DAS	0.61	1.79	(0.49, 3.09)	17.0	51.1	(3.49, 748.6)
		Adjusted $R^2 = 0.49$			Pseudo $R^2 = 0.56$	

Conclusions: Functional impairment (HAQ) and disease activity (DAS) are independently associated with work instability scores (WIS). There was only moderate correlation between DAS and HAQ. These results suggest that functional impairment and work instability are only partially explained by disease activity and that other factors play an important role. These results suggest that disease suppression alone will not normalise function or reduce work disability.

References

1. Leeds Rheumatoid Arthritis Work Instability Scale, © 2001, The University of Leeds; All rights reserved.
2. Gilworth G. Arthritis Care & Research 2003;493:349–54.
3. Allaire, S. Arthritis Care & Research 2003;49:85–9.
4. Puolakka, K., *et al.* Ann Rheum Dis 2005;64:130–3.
5. Sokka T. J. Rheumatol 2001;28:1718–22.

309. UPTAKE OF INFLUENZA VACCINATION IN RHEUMATOLOGY PATIENTS

E. Pickavance and L. J. Kay

Newcastle Musculoskeletal Research Group, Freeman Hospital, Newcastle upon Tyne, Tyne & Wear, United Kingdom

Background: The Chief Medical Officer recommends vaccination against influenza in high risk individuals, including immunocompromised patients. Some might argue that this includes all patients with inflammatory rheumatic diseases, but local guidelines indicate that at the very least this includes patients treated with systemic corticosteroids, anti-TNF therapy and DMARDs. National guidelines recommend that 70% of the target population should be vaccinated, and this target is reached in the general north east population. Previous work has shown varying rates of uptake in patients with rheumatic disease.

Methods: Patients attending rheumatology outpatient and monitoring clinics were surveyed. The questionnaire was piloted and included questions about influenza vaccination, rheumatic disease diagnosis and treatment, other factors conferring eligibility for flu vaccination, and whether they recalled vaccination being recommended. Trust audit committee approval was given.

Results: 140 patients were surveyed, including 84 women. 68.6% were aged under 65 yr. The majority had a diagnosis of RA, with fewer having SLE, psoriatic arthritis and ankylosing spondylitis. 107 were eligible for influenza vaccination according to the CMO's recommendations, on grounds other than immunosuppression. 99 were taking at least one DMARD, including 10 patients treated with anti-TNF therapy.

71 patients had received the flu jab in the last year. 34 of these had other factors making them eligible for flu jab, including diabetes, age over 65 and chronic respiratory disease. 55 of the 99 patients taking DMARDs had been vaccinated, including 4 of the 10 receiving anti-TNF therapy. 19/99 patients recalled being given advice about flu immunisation by the rheumatology department.

Reasons given for lack of vaccination included: not knowing the vaccine was available to them (64%); not wanting the vaccination (16%); forgetting to arrange vaccination (2%); other (18%).

Conclusions: Immunisation against influenza is not performed at the recommended rate in patients with rheumatic diseases attending our clinics. Immunisation appears to be determined by the patient's age and co-morbid conditions rather than by their rheumatic disease and its treatment. This suggests that there is low awareness of patients' eligibility for the flu jab by virtue of their rheumatic disease and its treatment, despite written communication with general practitioners. A smaller number of patients are aware of their eligibility for the flu jab but decline it.

Recommendations:

- that patients in the monitoring clinic are reminded to request the flu jab.
- that posters should be put in the rheumatology department publicising availability and importance of flu jab.
- that clinic letters specifically mention eligibility for flu jab at the appropriate time of year.
- that this audit is repeated.

Disclosure: This work formed part of a special study module at the University of Newcastle.

310. SUBCUTANEOUS METHOTREXATE IS AN EFFECTIVE ALTERNATIVE TO BIOLOGIC AGENTS. RESULTS OF A REVIEW OF SERVICE PROVIDED

K. Lindsay, S. Shiela, H. Lesley and M. Sarah

Rheumatology, Dewsbury District Hospital, Dewsbury, West Yorkshire, United Kingdom

Background: Anti-TNF agents are indicated if a patient has failed 2 or more DMARDs including oral methotrexate (MTX). However a significant minority are ineligible for (e.g. prior malignancy) or go on to fail all three currently available anti-TNF agents due to inefficacy/adverse reaction. Methotrexate is a safe and longstanding effective drug which if tolerated can maintain remission in rheumatoid or seronegative arthritis. Subcutaneous (s/c) methotrexate has been shown to be safely administered and effective in those patients in whom oral methotrexate has produced intolerable side effects without sufficient efficacy. There are approximately 900 patients with RA in this hospital and approximately 40 are on anti-TNF agents.

Methods: We studied the notes of every patient in our hospital who had s/c MTX administered in the calendar year 2004 and included those who had stopped it prior to the end of the year. Oral MTX had been tried prior to s/c MTX in all patients. It was not used if the patients had neutropenia or pulmonary complications. We studied reasons for failing oral MTX and disease control was labelled stable, partial or failed by a rheumatologist or rheumatology nurse specialist at the time of the audit which was a period from March to June 2005.

Results: In our hospital 51 patients had weekly s/c MTX in 2004 and of these 29 (57%) had been commenced in the year 2004. Of the entire group 47 patients (92%) had rheumatoid arthritis and 4 had psoriatic arthritis. Most were female (75%). Mean disease duration was 8.8 yr (range 1–32 yr). Oral MTX had been switched to s/c due to side effects in 18, lack or loss of effect in 31 and poor compliance in 2. The side effects responsible for discontinuation were diarrhoea (4), nausea (5), both (2), headache (1), rash (1), blackouts (1), mouth ulcers (1) and alopecia (1). By June 2005, 35 (68%) of patients were stable on their current dose of s/c MTX whilst 12 had achieved partial control (required intramuscular or intra-articular steroid in the last 3 months). Table 1 demonstrates the disease control against the year of starting s/c MTX

TABLE 1. Outcome of patients started on subcutaneous methotrexate by year

Year of commencement	Stable control	Partial control	Failed	On biologics	Total
2004	20	9	2	2	29
2003	8	3	2	2	13
2002	4	0	0	0	4
2001	3	1	0	0	4

One patient not in the table commenced methotrexate in 1998 in another hospital

Conclusions: Subcutaneous MTX is a well tolerated and and effective alternative to anti-TNF agents. It is suitable for those with intolerable gastro-intestinal and some other side effects to methotrexate and is an alternative method of disease control when anti-TNF agents are contra-indicated. Our study of patients who were selected for s/c MTX were all eligible for anti-TNF agents according to NICE guidelines. This study also shows for the year 2004 only 8% went on to anti-TNF therapy.

311. THE DEVELOPMENT OF A SPECIALISED DATABASE FOR ASSESSING OUTCOME IN RA PATIENTS TREATED WITH BIOLOGICS

A. Brooksby[1], M. Somerville[2] and D. G. I. Scott[2]

[1]*Quality and Clinical Audit, Norfolk and Norwich University Hospital, Norwich, United Kingdom and* [2]*Rheumatology, Norfolk and Norwich University Hospital, Norwich, United Kingdom*

Background: The Rheumatology Department in Norwich has over 14 000 outpatient visits each year. We began prescribing biologic therapy for patients with severe rheumatoid arthritis in 2000 and currently are treating around 350 patients. Careful monitoring of patients' clinical response to biologics was recommended by NICE in 2002 advising that patients be withdrawn from treatment if responding inadequately at three months. The aim of this study was to create a database to help evaluate patients' response to biologics using a small core data set.

Methods: Response to treatment was based on change in disease activity score (DAS28) and ACR per cent improvement measured at out-patient clinic visits. The database was developed using Microsoft Access. The most vital fields were those used in the formula for calculating the DAS28 and for measuring the level (%) of ACR response. Some basic patient details (e.g. date of birth, sex, diagnosis) were also recorded.

The development of the database was carried out using a prototyping method. A basic interface was created using all the available fields and then remodelled using feedback from clinicians and other users. Fields could be moved, added or taken out completely during this process. During development, the database was integrated into routine monitoring rheumatology clinics. It provided a functional role in the calculation of DAS28 and ACR. As the details of each patient visit were entered, these calculations were carried out automatically on screen.

Results: The database started from a basic function - calculating DAS28 but over 5 yr developed a much greater level of functionality based on advice/feedback from clinicians and other users. These increased functions (reflecting evolving service and unmet needs) included:

- ACR improvement based on individual % change to identify 'near misses' (to nearest 1%).
- Structure altered to accommodate increasing need to switch patients from one biologic treatment to another.
- Graphing of individual DAS scores over time at all clinic visits, including mapping change in biologics and moving onto the main form (page).
- Summary graph to show updated numbers of patients on each biologic therapy.

The main benefits of this database were that it saved time in clinics by calculating DAS28 and provided a graphic summation of an individual patient's progress.

Conclusions: A small specialised database with disease-specific data is an effective clinical tool to quickly process complex scoring systems and make simple comparisons of patient data. The development of this database in a clinic setting alongside a new drug monitoring service has resulted in a marked improvement in clinical practice by providing a tool which meets its information needs.

Disclosure: The author, Norfolk and Norwich Hospital and University of East Anglia have entered into an agreement with Abbott Pharmaceuticals where they have the exclusive rights to distribute the developed database to Rheumatology departments in UK.

312. REGIONAL AUDIT OF THE USE OF MYCOPHENOLATE MOFETIL IN RHEUMATIC DISEASE

S. Arthanari and M. Nisar
Department of Rheumatology, Queen's Hospital Trust, Burton on Trent, Staffordshire, United Kingdom

Background: Mycophenolate Mofetil (MMF) an inhibitor of *de novo* purine synthesis is now widely used and licensed in the maintenance of transplanted solid organs. This drug has also been shown to be effective and well tolerated in lupus nephritis leading to increasing interest in MMF as a drug for induction and maintenance of remission in patients with systemic rheumatic disease. However, the cost (£2500 pa) and lack of large scale RCT evidence has led to some restriction in availability.

Methods: 84 consultant rheumatologists in two Health Regions (Trent & West Midlands) were sent a structured questionnaire exploring the extent of use, indications for and availability of MMF. In analysing the audit returns a variety of factors were reviewed including, size of department (number of consultants), teaching (TH) *vs* district hospital (DGH) status, special interest in systemic rheumatic diseases, ranking of MMF against alternative immunosuppressants.

Results: Our two page questionnaire was returned by 48 (57%) consultants in the allotted time. 31 respondents were based in a TH and 17 in a DGH. One consultant was single handed in a DGH. 8 and 24 consultants worked with at least two consultant colleagues in DGHs and THs respectively. 29 (60%) of respondents claimed a special interest in systemic rheumatic diseases. The majority (37, 82%) considered azathioprine (AZA) the first choice immunosuppreant ahead of MMF. 24 consultants (53%) routinely performed TPMT assays to predict tolerability to AZA; the other 21 respondents relied on a clinical trial of AZA. The indications for MMF included SLE (98%), MCTD (62%), Systemic Sclerosis (58%) and the vasculitides including Wegeners granulomatosis (53%). The systemic manifestation targeted most frequently was interstitial pulmonary disease (62%).

Systemic rheumatic diseases comprised up to 10% of workload for 16 (36%) consultants and up to 30% in a further 12 (27%) consultants. For 8 consultants (18%) these conditions accounted for over 50% of workload. The vast majority (41, 91%) had experienced no restriction in prescribing MMF; however, 36 consultants (88%) initiated therapy in no more than 10 cases per year.

Conclusions: The response rate, while acceptable for a questionnaire audit, is nonetheless disappointing given the specialist topic, drug and target audience. Clinicians not involved in the care of patients with systemic diseases or unfamiliar with/unable to use MMF may have failed to respond to this audit. Thus our data may indicate a falsely high level of availability. MMF is used in a wide variety of rheumatic conditions particularly with interstitial lung disease.The advent of TPMT screening is likely to increase the use of MMF ahead of AZA. With growing experience, given its good efficacy and tolerability profiles, requests for use of MMF will increase further. Thus, variations in the use and availability of this drug need to be defined and must not be underestimated. This audit will be extended to include all UK consultant Rheumatologists.

313. AUDIT OF OUTCOME IN RHEUMATOID PATIENTS STARTING DISEASE MODIFYING THERAPY

T. H. Blyth[1], M. Brzeski[1], A. Carr[2], K. Park[2] and K. Wright[1]
[1]*Department of Rheumatology, Falkirk and District Royal Infirmary, Falkirk, Stirlingshire, United Kingdom and* [2]*Stirling Royal Infirmary, Stirling, Stirlingshire, United Kingdom*

Background: Outcome of various treatments in clinical trials may differ from results in routine practice. Trials have various exclusion criteria not present in clinical practice and more supervision of patients. This audit was undertaken to provide information in the Forth Valley context and looked at initial features and outcome in unselected patients starting either leflunomide (L) or methotrexate (M).

Methods: Over appoximately 18 months in 2001–2003, patients with rheumatoid arthritis starting either L or M were asked to participate in the audit. They were seen for metrology at initial visit, six months, one year and two years. Age, sex, duration of disease, previous disease modifying drugs and presence of erosions were noted at initial visit. At first and each subsequent visit Hb, ESR, tender joint count (28), swollen joint count (28), HAQ, and patient global VAS were noted and DAS 28 was calculated. Patient care was according to clinical need. If patients stopped L or M, they were not followed further.

Results: 24 patients commenced L and 68 M.

L patients had mean age of 61 yr, duration of RA 14 yr, 87% erosive, 21% male and had previously had a median of 3 DMARDs; while for M patients, figures were 59 yr, 7 yr, 25%, 80% respectively with one previous DMARD (mostly Sulfasalazine).

Clinical features at baseline

	Hb	ESR	Tend.JC	SwJC	HAQ	Global score	DAS28
L	121g/l	43	14.5	9.5	2.37	79	6.605
M	122	47	8	12	2.12	69	6.08

Sig. difference between Tend.JC ttest $P = 0.005$

Of the 24 who started L, 12 discontinued within 6 months and four more by two years, the remaining 7 continued with L at two years (29%); while of the 68 starting M, 12 discontinued in the first six months and four more by one year. A further six discontinued by two years and one died, leaving 45 (67%).

Changes for those remaining on therapy

	6 months	12 months	24 months
L (DAS)	−1.7	−1.15	−1.46
M (DAS)	−1.415	−1.27	−1.61
L (HAQ)	−0.06	−0.125	−0.25
M (HAQ)	−0.25	−0.125	−0.25

No significant differences between groups.

Only five patients (4 M,1L) (11%) had a good EULAR response and only one (L)(2%) was in EULAR remission at 2 yr. 82% (67 of 82) patients starting L or M, met the BSR severity criteria for starting anti-TNF therapy (DAS > 5.1), but only 28% (11 of 39) of those still on therapy at two years.

Conclusions: This audit follows outcome in patients taking L or M in usual clinical practice in Forth Valley. Most patients had severe disease, but were starting these therapies late in the disease course. The modest improvement in DAS may be a reflection of the duration of disease. The two year fall in DAS (both groups together) is −1.56, this would be consistent with, but somewhat worse than the conventional arm of the recent Scottish TICORA [1] study (−1.9). In our patients there was little improvement in function as measured by the HAQ. L is not well tolerated, this may be due to its' use in patients who have not tolerated other agents.

Reference

1. TICORA Grigor C *et al.* Lancet 364:263–9

314. RHEUMATOLOGY OUPATIENTS' SATISFACTION WITH CARE

H. Piper, J. M. Dias, A. Johal and R. L. Neame
Department of Rheumatology, Walsgrave Hospital, University Hospitals of Coventry and Warwickshire, Coventry, United Kingdom

Background: Asking patients what they think about their care helps ensure that local health services meet their needs. Two key changes in service have been the expansion of nurse-led clinics and increasing use of anti-TNFα drugs.

Aims

1. To survey patient satisfaction with their current care
2. To compare satisfaction among patients attending nurse appointments with those attending doctors appointments
3. To compare satisfaction between patients attending nurse-led anti-TNFα appointments with patients attending nurse-led standard DMARD monitoring clinics

Methods: We measured satisfaction using questions from the MREC approved Healthcare Commission Outpatient Survey 2004/5. This self-administered questionnaire includes questions about the perceived quality of the consultation and

basic patient demographics. Anonymous questionnaires were offered to all outpatients over a 2 week period in September 2005. Questionnaires were colour coded to enable subgroup analysis between doctors and nurses clinics, and satisfaction between patients on anti-TNFα or DMARDs.

Results: 295 of 468 (63.0%) patients attending our clinics took part in the survey. 72.3% participants were female and 27.7% male. 48.8% participants were aged 56–75. 65.4% of survey participants were attending doctors appointments, 24.4% DMARD monitoring nurse appointments and 10.2% anti-TNFα monitoring nurse appointments.

Results are shown in Table 1.

TABLE 1. Patient satisfaction: doctor clinics, nurse-led DMARD clinics, nurse-led anti-TNFα clinics

Question	Response	Doctor clinic (%)	Nurse DMARD clinic (%)	Nurse anti-TNFα clinic (%)
Did you have enough time to discuss your health problem?	Yes, definitely	91	84	93
Did Dr/nurse explain reason for treatment?	Yes, completely	89	90	96
Did Dr/nurse listen?	Yes, definitely	92	85	100
If you had important questions, did you get answers you could understand?	Yes, definitely	84	83	86
Did you have confidence in Dr/nurse?	Yes, definitely	96	92	96
Did Dr/nurse seem aware of your history?	Knew enough	95	90	100
How much information was given to you?	Right amount	91	91	93
Were you involved in decisions about your care?	Yes, definitely	80	85	76
Was the main reason you went to clinic dealt with to your satisfaction?	Yes, definitely	82	83	97
How well organized was outpatients?	Very well organized	70	66	76
Did you feel you were treated with dignity and respect?	Yes, all of the time	97	100	100
How would you rate the care overall?	Excellent	37	43	55
	Very good	44	34	35

Patient satisfaction was not statistically different for patients attending nurse-led DMARD monitoring appointments *vs* doctors appointments. There was no statistical difference in satisfaction between patients attending anti-TNFα *vs* DMARD monitoring clinics.

Conclusions: There are currently high levels of patient satisfaction with our outpatient rheumatology service. This survey also supports the value of nurse-led clinics and suggests that satisfaction with care is independent of treatment received.

315. A CASE STUDY OF EFFECTIVE DRUG BUDGET PLANNING: RITUXIMAB (MABTHERA™) FOR THE TREATMENT OF RHEUMATOID ARTHRITIS (RA) IN THE NHS

U. Geary and G. J. Lewis
Healthcare Management, Roche Products Ltd., Welwyn Garden City, Herts, United Kingdom

Background: Rheumatoid arthritis affects approximately 479 000 people in the UK, with an additional 30 000 new cases being diagnosed each year. This results in a significant financial impact upon the NHS, with prescription costs accounting for £341 million in 2000. (ARC, The Big Picture). With an ageing UK population, NICE guidance and the sequential prescribing of anti-TNFs, the increasing use of anti-TNF therapy represents a growing funding challenge to the NHS. Consequently, the ability to accurately estimate the future drug expenditure associated with RA is increasing in importance and may also help to optimise patient access to new technologies.

This preliminary work presents an objective framework to estimate the budget impact of rituximab to assist the NHS in effectively planning for its implementation. Rituximab (Mabthera™), a monoclonal antibody which selectively binds to and depletes CD-20 positive B lymphocytes, is expected to receive EU marketing authorisation in Q2 of 2006. Rituximab's anticipated indication is for the treatment of active rheumatoid arthritis in adult patients when the response to an anti-TNFα therapy has been inadequate.

Methods: An interactive Excel model was developed to estimate the total number of patients eligible for rituximab from a given population using published epidemiology data. Clinical effectiveness data for all drugs was taken from relevant clinical trials. The model assumed that anti-TNF therapy could be administered sequentially, patients failing to respond to initial anti-TNF treatment would commence rituximab therapy. Patients failing to respond to rituximab would subsequently return to anti-TNF therapies. Drug costs and dosing assumptions were taken from the BNF. It was assumed rituximab patients are retreated every nine months.

Results: Based upon a local population of 1 000 000 it is estimated that 704 patients will be eligible to receive anti-TNFα treatment, with an estimated 47% of these patients assumed to receive anti-TNF treatment. The estimated annual cost of treating these patients using existing anti-TNF therapy is £3.06 m. The inclusion of rituximab as a treatment option after an inadequate response to an anti-TNF generates an annual cost of treatment of £2.97 m, a reduction in annual drug costs of £85 000.

Conclusions: With respect to drug costs, a treatment strategy that includes rituximab is less expensive compared to a treatment strategy based only upon existing anti-TNF therapy alone. This cost saving is driven by the significantly lower annual average treatment costs of rituximab compared to existing anti-TNF therapy. Over a 3 yr time horizon the implementation of rituximab for those patients with an inadequate response to an anti-TNF offers the potential to reduce existing NHS drug expenditure in RA.

Treatment costs

Treatment	Average annual drug cost
Rituximab	£4657
Infliximab*	£9295
Adalimumab	£9295
Etanercept	£10 070

*Incl. initial loading dose.

316. STEROID CARD CARRIAGE IN RHEUMATOLOGY PATIENTS

A. Ironside and L. J. Kay
Newcastle Musculoskeletal Research Group, Freeman Hospital, Newcastle upon Tyne, United Kingdom

Background: All patients prescribed systemic corticosteroids for more than 3 weeks should receive a Steroid Treatment Card, according to the Department of Health (1998). This card carries important messages for patients and health professionals about steroids, but there is no clear direction about which health professionals should issue these cards.Our aims were to assess levels of issue and carriage of the cards and identify who issued them.

Methods: Patients attending rheumatology outpatients or day case unit over a 4 week period, taking oral corticosteroids for at least 3 weeks, were surveyed. The questionnaire was piloted and contained questions about steroid treatment, card issue and carriage, and the source of the card. The survey was registered as an audit project.

Results: 32 patients were included, 84.4% were female and the median age was 54. Median steroid dose was 5.5 mg/day, for a median duration of 228 weeks. Most common diagnoses were rheumatoid arthritis (31.3%) and SLE (31.3%), but some were treated with steroids for non-rheumatological diagnoses e.g. chronic obstructive pulmonary disease. 20/32 patients had been issued with a steroid card. 16 of these 20 patients carried their steroid card at all times. Cards had been issued most commonly by the hospital doctor (45%), and less frequently by the hospital pharmacist (25%), nurse (20%) and GP (10%). Patients on higher doses of steroid were more likely to have cards, with 100% of patients taking at least 25mg/day having and carrying a card. Interpretation of these results may be limited by the small study size.

Conclusions: Rate of issue of steroid cards, as recalled by patients, falls below recommended levels. Many patients may therefore not be aware of important complications of steroid therapy, relevant health messages and appropriate actions to take. The majority of patients who have a card do carry it with them at all times but a proportion do not. The majority of cards are issued by hospital doctors but responsibility appears to be shared between hospital doctors, pharmacists and nurses.

Recommendations:

1. Responsibility for steroid card issue should be determined and agreed locally
2. Carriage of the steroid card should be checked
3. Patients should be educated about the need for steroid card carriage and about the advice carried on the card

Disclosure: This work formed part of a special study module at the University of Newcastle.

317. PATIENTS' VIEWS ON THE QUALITY OF HEALTH CARE AND THE PERSONAL IMPACT OF RHEUMATOID ARTHRITIS ON THEIR IDENTITY: A QUALITATIVE STUDY

H. Lempp[1], D. L. Scott[2] and G. H. Kingsley[3]
[1]*Academic Department of Rheumatology, King's College London School of Medicine at Guy's, King's College and St Thomas' Hospitals, London, United Kingdom,* [2]*Department Of Rheumatology, King's College Hospital NHS Trust, London, United Kingdom and* [3]*Department of Rheumatology, University Hospital Lewisham NHS Trust, London, United Kingdom*

Background: The management of people living with Rheumatoid Arthritis (RA) has progressively shifted from inpatient based care to outpatient clinics in the UK. At the same time the importance of the full participation of patients in their own

care, based upon the expertise they have from personal experience has now been recognized. Our study was conducted to (i) identify for healthcare professionals the key patients' experiences, expectations and needs as they attend primary and secondary care and (ii) how living with RA impacts on patients' identity within the private and public domains. The emphasis was to uncover patients' perspectives with the view to tailor appropriate service delivery through a multi-disciplinary approach to treatment.
Methods: Qualitative study using data from semi-structured interviews with 26 patients who live with RA, stratified by gender, ethnicity and disease duration, based on the treated prevalence cohort of patients attending two outpatient clinics in England.
Results: Patients highlighted four aspects which influence their attitude and approach towards health care staff in primary and secondary care: (i) their past experiences with the NHS, (ii) their own health beliefs, (iii) professional attitudes and (iv) organizational aspects. Apart from the physical impact of RA on patients' lives, their accounts revealed detailed descriptions of how their identity is affected in relation to their private lives, their public roles and responsibilities, including their private *and* public domain.
Conclusions: Most patients see themselves now as active participants in their care. They appreciate acknowledgement from health care staff of their contribution towards self-management of their RA and welcome more equal dialogue with multi-disciplinary team members. More open communication between staff and patients would provide care more closely matched to the difficulties experienced by patients.

I have nothing to disclose.

318. VARIATION OF MUSCULOSKELETAL CONSULTATION PREVALENCE BY PRACTICE AND SOCIAL DEPRIVATION CATEGORY: DATA FROM THE GENERAL PRACTICE RESEARCH DATABASE

A. M. Clarke[1], K. Jordan[2], P. R. Croft[2] and D. P. M. Symmons[1]
[1]*Arthritis Research Campaign Epidemiology Unit, The University of Manchester, Manchester, United Kingdom and* [2]*Primary Care Sciences Research Centre, Keele University, Keele, United Kingdom*

Background: The last national data on the morbidity of musculoskeletal conditions presenting to primary care in the UK came from the 4th Morbidity Statistics from General Practice Survey (MSGP) in 1991. This survey linked consultation prevalence with a patient's socio-economic data, in order to examine differences in recorded morbidity. The prevalence of musculoskeletal disease may also vary by locality. We have used the General Practice Research Database (GPRD) to determine if recorded musculoskeletal consultation varies between practices and by deprivation category in 2001.
Methods: The GPRD is a computerised database of anonymised patient data from general practices in the UK. It currently has information on approximately 5% of the UK population (3 million people). The GPRD assigns a deprivation score (based on the Index of Multiple Deprivation (IMD) 2000) to the ward where each practice is based.

Data were available for all patients consulting with a musculoskeletal condition to a GPRD practice in 2001. In all 227 practices were 'up-to-standard' on the basis of their coding quality. Consultation prevalence rates were determined for each practice, where the denominator comprised of all adults registered at each practice. Age and gender standardised prevalence rates for musculoskeletal conditions were compared by practice.

The IMD 2000 provides a deprivation index for every ward in England, based on a range of factors including income, employment, health, education, housing and access to services. Each practice was allocated to a deprivation quartile based on ward location. Deprivation scores were available for 177 of these practices. IMD quartiles were entered into a regression model to determine if the risk of consultation for musculoskeletal disease varied across deprivation category (adjusted for age and gender).
Results: The overall prevalence of consultation for a musculoskeletal condition was 13%. Adjusted consultation prevalence rates by practice ranged from 11 per 1000 to 236 per 1000. The median (IQR) prevalence was 129 per 1000 (98, 157).

Table 1 shows the increased risk of consultation for musculoskeletal events in more deprived areas. This difference is greatest between the 3rd and 4th quartile.

TABLE 1. Relative risk of musculoskeletal event by deprivation category

Deprivation category	Relative risk (95% confidence interval)*
Q1 (least deprived)	1.00 (reference category)
Q2	1.04 (1.03, 1.06)
Q3	1.05 (1.03, 1.07)
Q4 (most deprived)	1.08 (1.07, 1.10)

*Adjusted for age and gender.

Conclusions: The consultation prevalence for musculoskeletal disease varies greatly between practices. There was a significant trend of increasing likelihood of a recorded consultation for these events, with increasing deprivation, although the differences between categories were small.

These differences may reflect actual difference in prevalence, difference in consultation behaviour or difference in coding of the reason for consultation between practices.

319. HOW EFFECTIVE ARE MUSCULOSKELETAL CARE PATHWAYS? AN AUDIT OF A PRIMARY-CARE LED, CITY-WIDE MUSCULOSKELETAL SERVICE

P. G. Conaghan[1], J. Rogers[2] and A. C. Redmond[1]
[1]*Academic Unit of Musculoskeletal Disease, University of Leeds, Leeds, West Yorkshire, United Kingdom and* [2]*Musculoskeletal and Rehabilitation Services, Leeds NW Primary Care Trust, Leeds, West Yorkshire, United Kingdom*

Background: Recent policy initiatives to address the problem of long musculoskeletal (MSK) waiting lists in secondary care have led many UK Trusts to develop care pathways for integrating primary and secondary care services. In 2000, the five Leeds PCTs established a city-wide service, to provide an assessment, diagnostic, treatment and advice service for patients with non-surgical MSK problems. The service aimed to manage all referrals in a multidisciplinary team and to direct patients to the most appropriate practitioner. Since 2001 the MSK service has also acted as the single referral point for all GP orthopaedic referrals. The aim of this study was to establish an appropriate set of measures for evaluating the service and to investigate the efficacy of the new approach.
Methods: A review team comprising primary and secondary care clinicians and managers was convened. Six areas were identified for review: (i) MSK service activity for the year 2002/03, (ii) impact on Leeds Hospitals orthopaedic activity 2002/03, (iii) independent review of case notes (104 sets of case notes, chosen for different problems), (iv) GP usage survey (all 454 Leeds GPs), (v) user satisfaction (454 GPs, 5 consultant rheumatologists, 8 orthopaedic consultants, 110 patients), vi) Staff satisfaction (35 staff).
Results: In the audit year 2002/03 the MSK team received 28 526 referrals generating 88 698 patient contacts. The orthopaedic triage service received 3656 referrals, of which 1510 were managed without recourse to secondary care. Referrals to secondary care orthopaedics were reduced in the 18 month period prior to the audit, with GP referrals falling from 809/quarter to 460 (43% decrease) and other referrals reduced from 3,363/quarter to 2622 (22% decrease). Independent record review rated the MSK team's overall care as optimal or satisfactory for 100% of spinal cases, for 59% of upper limb cases and for 83% of lower limb cases. User satisfaction varied, with 69% of GPs indicating satisfaction with the MSK medical service, 78% with the physiotherapy service, 68% with the podiatry service, but only 50% satisfied with the orthopaedic triage service. Most rheumatologists indicated satisfaction, but a quarter of orthopaedic consultants were dissatisfied with the service at that time. 86% of patients were very satisfied or satisfied with their experience.
Conclusions: The MSK service has engaged in a large amount of clinical activity with a service characterised by short episodes of care. The new approach has had an impact on orthopaedic referrals, although satisfaction with the orthopaedic triage aspect of the service was lower than for the interface role. The standards of care, as assessed by the record audit, were high for spinal and lower limb referrals but upper limb care was in need of improvement. User satisfaction varied from high to moderate, with the main concern being inflation of waiting times as demand increased. Based on these findings, a series of recommendations were formulated and changes made to services.

320. A NEW CARE PATHWAY FOR MUSCULOSKELETAL FOOT HEALTH INTERFACE CLINICS BASED ON FIVE YEARS EXPERIENCE

A. C. Redmond[1], C. Ferguson[2], L. Spencer[3], T. Dickie[4], J. Rogers[2] and P. G. Conaghan[1]
[1]*Academic Unit of Musculoskeletal Disease, University of Leeds, Leeds, West Yorkshire, United Kingdom,* [2]*Musculoskeletal and Rehabilitation Services, Leeds NW Primary Care Trust, Leeds, West Yorkshire, United Kingdom,* [3]*Podiatry Department, Leeds NW Primary Care Trust, Leeds, West Yorkshire, United Kingdom and* [4]*Foot Health Department, Leeds Teaching Hospitals NHS Trust, Leeds, West Yorkshire, United Kingdom*

Background: Recent policy initiatives are shifting the emphasis in musculoskeletal (MSK) care from secondary care settings to primary care. One development has been the inception of 'interface' or 'triage' clinics, usually funded by primary care organisations. The purpose of interface clinics is usually to reduce secondary care waiting times through triage of referrals or provision of short episodes of care. An MSK service was introduced in Leeds in 2000 and included a new foot health team at the interface between a large community podiatry service and a small hospital service. The aims of this paper are to describe the development of the MSK foot service over a five year period and to present a new care pathway. The model, based on the Kaiser Permanente Triangle and developed from evaluation of five years experiences, will be useful to others planning musculoskeletal foot health services.
Methods: The Leeds MSK interface service maintains a comprehensive database of information relating to referral, service activity and discharge. The database was explored and data were extracted for years 2002–2005 for referral numbers and sources; first contacts; follow up contacts; and discharge numbers and destinations.
Results: The service at inception in 2000 employed 2.6 WTE podiatrists responsible for triage and short-term care of all foot-related cases at 11 sites in Leeds. The number of podiatrists rose to 3.6 WTE by 2005, all of whom were practicing in extended scope practitioner roles. Total referrals for the period ranged between 1742 and 2762 p.a. and initial contacts numbered between 1788 and 2248 p.a. Follow-up appointments accounted for a further 1922 to 2693 contacts

each year. 66% of all patients attending the MSK foot team clinics were discharged after local assessment and treatment with the episode of care closed satisfactorily. After triage, only 14% of cases required referral to the orthopaedic (5%) or podiatric (9%) surgical teams, with a remaining 20% referred to a range of support services including physiotherapy and footwear.
Conclusions: The MSK foot service provides a unique role in bridging the foot health needs provided by community podiatry, and by secondary care foot services based in hospital departments. The MSK foot service has reduced demand for surgical intervention and reduced waiting times (79% of patients are seen <12 weeks from referral and none >25weeks). Since 2003, the MSK team has also provided extended scope support to the community podiatry team. Reflecting this, a pathway for city-wide cross boundary referral has been developed to ensure that services map explicitly onto patient needs and to ensure best matching of skill mix to complexity of cases.

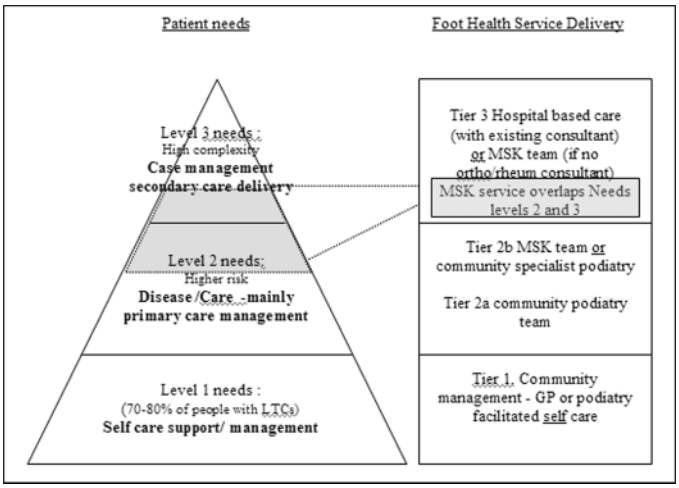

FIG. 1.

321. THE FOOT POSTURE INDEX: RASCH ANALYSIS OF A NOVEL, FOOT SPECIFIC OUTCOME MEASURE

A-M. Keenan, A. C. Redmond, M. Horton, P. G. Conaghan and A. Tennant
Academic Unit of Musculoskeletal Disease, University of Leeds, Leeds, W Yorkshire, United Kingdom

Background: The Foot Posture Index (FPI) is a novel, foot specific outcome measure that has been developed in order to quantify the position of the foot in a clinical setting. The FPI was originally based on clinician assessment of eight characteristics of foot posture (a version known as the FPI-8) and has been used in several studies. As the result of validity and reliability investigations, the original eight item version of the FPI has been reduced to a six item measure, the FPI-6 (Table 1). The aim of this study was to assess the psychometric properties of the FPI-8 and the FPI-6 using Rasch analysis.
Methods: FPI data was collected from 143 people (98 male, 45 female) with a range of foot types. Data was initially entered into SPSS spread sheets (SPSS Version 11) and then entered into the RUMM2020 software package, using a Rasch Unrestricted Model as the basis of analysis. The following properties were explored for each item and the overall summary score:

(i) Fit of the data to the Rasch Model – *i.e. the measure's uni-dimensionality*
(ii) Differential item functioning (DIF) – *the ability of an item to measure the same trait across groups of people*
(iii) Reliability or the person separation index (PSI) – *the extent to which items distinguish levels of functioning*

Results:
(a) FPI-8
The original FPI-8 demonstrated some misfit to the Rasch model, indicating lack of uni-dimensionality ($X^2 = 27.630$, df = 16, $P = 0.034$). Two items were identified as problematic: 'Helbing's Sign', which demonstrated disorder thresholds and the 'Lateral Border of the Foot' which was measuring a different construct ($X^2 = 15.347$, df = 2, $P < 0.000$). All FPI-8 items were DIF free, and the person separation index was good (PSI = 0.88).
(b) FPI-6
The FPI-6, which does not include the two problematic items, demonstrated uni-dimensionality ($X^2 = 11.493$, df = 12, $P = 0.487$). There were no disordered thresholds and all items remained DIF free. All individual items displayed a good fit to the model and the PSI was 0.884, indicating good internal consistency of the measure
Conclusions: The finalized FPI-6 demonstrated good psychometric properties, including good individual item fit and good overall fit to the model, along with a lack of differential item functioning. The FPI-6, which has previously been demonstrated to be a valid and reliable clinical measure, demonstrated good psychometric properties and should be used in preference to the FPI-8.

TABLE 1. Components of FPI-8 and FPI-6

Item	FPI-8	FPI-6
Talar head palpation	X	X
Curves above and below lateral malleoli	X	X
Inversion/eversion of the calcaneus	X	X
Bulge in the region of the TNJ	X	X
Congruence of the medial longitudinal arch	X	X
Abduction/adduction of the forefoot on the rear foot	X	X
Congruence of the lateral border of the foot	X	
Helbing's sign (curve of the Tendo Achilles)	X	

322. THE IMPACT OF EXTENDED SCOPE PRACTITIONER (ESP) PHYSIOTHERAPY ON THE MANAGEMENT OF MUSCULOSKELETAL DISORDERS: AN AUDIT OF A NEWLY INTRODUCED SERVICE

U. Matthias[1], N. Gendi[2], N. K. Sanath Kumar[1], M. Daley[1], A. Payne[1], A. Devereux[1], R. Lam[1] and J. Targett[3]
[1]*Physiotherapy, Thurrock PCT, Basildon, Essex, United Kingdom,* [2]*Rheumatology, Basildon and Thurrock University Hospitals NHS Trust, Basildon, Essex, United Kingdom and* [3]*Orthopaedics, Basildon and Thurrock University Hospitals NHS Trust, Basildon, Essex, United Kingdom*

Background: Triage is a tool for evaluating patients need and assigning the most appropriate care for each individual. It may have important cost saving implications as it promotes the most appropriate use of services through care pathways. It has been shown to improve patient satisfaction (Taylor *et al.*, 2002). Extended Scope Practitioners (ESP) are in an ideal position to develop triage services.
The aim of this study was to audit the impact of the newly introduced ESP service in Basildon on the management of patients with musculoskeletal disorders.
Methods: Primary care referral letters to the Orthopaedic and Rheumatology departments at Basildon Hospital were screened by the ESPs. Suitable patients with shoulder problems, low back pain and lower limb problems were recruited for the ESP clinics. Moreover an ESP attached to the Accident and Emergency department (A&E) recruited suitable patients with musculoskeletal problems. The ESPs followed previously agreed protocols in the selection and subsequent management of patients. Outcome was audited in terms of number of patients subsequently referred to various physiotherapy programmes, secondary care consultants and those managed solely by the ESPs and discharged. Patient satisfaction was measured through a questionnaire administered to patients attending A&E. The sample size of this audit was 787 (Shoulder: 190, Back: 258, Lower limb: 197, and A&E: 142).
Results: Only 14% of the shoulder patients seen were subsequently referred to secondary care consultants, 8% did not attend (DNA) and the remaining 78% were managed within the primary care setup (52% referred to physiotherapy programmes and 26% directly discharged from the ESP clinic). Of the back pain patients, 14% went on to see the consultant, 6% DNA and the remaining 80% were managed in primary care (21% referred for physiotherapy programmes and 59% directly discharged. Of the lower limb patients, 18% were referred to secondary care consultants, 5% DNA and the remaining 77% managed within primary care (49% referred to physiotherapy and 28% directly discharged). Of the A&E patients, 31% were referred to consultants, 5 % to G.Ps, 5% to physiotherapy, 7% to a review clinic and 52% directly discharged. Of those patients seen by the ESP in A&E, 85% were very satisfied, 15% satisfied and none were dissatisfied.
Conclusions: The audit indicates that the use of ESPs to triage patients with musculoskeletal conditions is feasible and effective with potential cost savings and improvement in the quality of care. Only a minority of patients referred to secondary care but seen instead by ESPs, needed to be subsequently referred to consultants. This would have a major impact on hospital waiting lists if implemented on a large scale. The audit also indicates that a high degree of patient satisfaction is to be expected. Further studies are required to establish the long term effect of ESP managed Triage clinics.

323. DOES MUSCULOSKELETAL ULTRASOUND CHANGE DIAGNOSIS AND TREATMENT IN A DISTRICT GENERAL HOSPITAL (DGH) RHEUMATOLOGY OUTPATIENT CLINIC?

S. E. Lane, G. P. Clunie and R. A. Watts
Rheumatology, Ipswich Hospital, Ipswich, Suffolk, United Kingdom

Background: Musculoskeletal ultrasound (MSUS) may improve rheumatology practice e.g detecting erosions, synovitis, tenosynovitis and guiding injections. Its use is limited by time, training and resources. Results from a specialist centre suggest MSUS alters diagnosis in 53% patients and subclinical synovitis is common [1, 2]. Early outcomes in a non-specialist department are not known. We recently introduced MSUS in our outpatient clinic and report outcomes of MSUS by a consultant rheumatologist (SEL) over the first 14 months and compare results to a pre-service survey.
Methods: A survey was carried out prior to starting MSUS to assess expected reasons and outcome of referrals. SEL attended 2 MSUS courses (2001 and 2004) and radiologist led MSUS sessions (71 scans, 2004). A portable gray-scale ultrasound machine (10–22 and 8–16 MHz probes) was used in the outpatient

clinic between July 2004–Sept 2005. Records were kept of the date, area(s) scanned, diagnosis and results for each patient. Results were sent to the referring consultant. Case notes were reviewed to ascertain whether the scans had changed diagnosis or treatment.

Results: Survey forms were completed in 1 month by 3 consultant and 1 SpR rheumatologists for 309 patients (108 new, 201 follow-up). 25% were candidates for MSUS: 70% to confirm a diagnosis; 63% to guide treatment; 22% to guide injections. MSUS was expected to change diagnosis in 32% and treatment in 45% of patients referred.

245 patients had MSUS (30 scans were for training/interest only). In total 263 pairs of joints (147 hands, 44 wrists, 15 feet, 13 shoulders, 10 achilles, 9 ankles, 7 elbows, 3 soft tissue) were scanned.

The reason for MSUS in the remaining 215 cases was: 166 to change, confirm or exclude a diagnosis; 12 to monitor inflammatory arthritis; 11 to consider treatment change; 17 for injection; 3 for reassurance; 6 reason not clear.

Following case note review 76 scans were considered helpful in diagnosis (44.2% of those aimed at changing diagnosis/reason unclear): 37 (21.5%) improved confidence/confirmed diagnosis, 17 (9.9%) excluded a diagnosis and 22 (12.8%) changed diagnosis. 35.0% of all scans were helpful in diagnosis.

Treatment decisions were changed in 57 (26.5%) patients after MSUS (21 injection/aspiration, 6 injection not done, 17 increased/started DMARD, 7 DMARD not started/changed, 1 allopurinol started, 2 reassured). Confidence in treatment choice was increased in 30 (14.0%) patients. Overall MSUS helped treatment decisions in 40.5% patients scanned.

Conclusions: Within 14 months MSUS in a DGH rheumatology outpatient clinic aided diagnosis in 35.0% and treatment decisions in 40.5% of patients scanned. Changes in diagnosis were fewer than a specialist centre (53%). Prediction of the usefulness of MSUS in a pre-service survey were relatively accurate (estimated change in diagnosis 32% and treatment 45%). Expectations for MSUS in routine practice in a UK DGH appear realistic and achievable.

References

1. A&R 2001;44:2932–5.
2. A&R 2004;63:382–5.

324. COMPARISON OF MUSCULOSKELETAL ULTRASOUND (MSUS) PERFORMED BY A RHEUMATOLOGIST AND A RADIOLOGIST

G. Raftery[1], G. Hide[2] and D. Kane[1]
[1]*Department of Rheumatology, Freeman Hospital, Newcastle-upon-Tyne, Tyne and Wear, United Kingdom and* [2]*Department of Radiology, Freeman Hospital, Newcastle-upon-Tyne, Tyne and Wear, United Kingdom*

Background: With the future expansion of MSUS performed by rheumatologists, there is considerable debate regarding the role of the rheumatologist ultrasonographer and how this development will impact on MSUS performed by radiologists. We compared the MSUS practices of a rheumatologist and a radiologist who both work within the same NHS Trust.

Methods: A retrospective review of MSUS reports of consecutive scans performed by a consultant rheumatologist with a special interest in MSUS and a consultant radiologist with an interest in musculoskeletal radiology. Reports were analyzed for referring specialities, indications for MSUS, joint regions scanned, MSUS findings and confirmation of clinical diagnosis, frequency with which patients were referred for injection, and how often injection was performed.

Results: 170 patients were referred to a rheumatologist for MSUS examinations of a total of 282 joint regions, 91% of patients were referred by rheumatologists. 111 areas were scanned in 100 patients referred to the radiologist, 49% of patients were referred by orthopaedic surgeons. 84 (49%) of patients scanned by the rheumatologist had MSUS examination of more than one joint region, with up to 5 being requested at a single visit; 90% of those scanned by the radiologist had 1 region scanned per sitting, with up to 3 areas scanned per visit. The hand was the region scanned most frequently by the rheumatologist, in 58 (34%) patients, compared with 6 (6%) patients scanned by the radiologist. The most frequently requested indication for MSUS performed by the rheumatologist was detection of synovitis in 74 (44%) patients; for MSUS performed by the radiologist it was for assessment for major structural changes in 44 (44%) patients. MSUS guided joint injection was requested in 35 of 170 patients scanned by the rheumatologist, injection performed in 25/35 cases (71%). In 34 other examinations the ultrasonographer proceeded with injection based on MSUS findings, giving an overall rate of injection of 59 injections in 170 patients scanned (35%). MSUS guided joint injection was requested in 15 of 100 patients scanned by the radiologist, performed in 12 of 15 (80%). 1 further patient scanned by the radiologist had MSUS guided joint injection where injection was not a requested indication for scanning. The radiologist's overall injection rate was lower, 13 injections performed in 100 patients scanned (13%).

Conclusions: There are differences between MSUS performed by a rheumatologist and a radiologist: individual joint regions are scanned at differing frequencies for varying indications; the rheumatologist scans more joint regions per sitting compared to the radiologist; and the rheumatologist often elects to perform injection independently in patients in whom it was not an indication for scanning, following clinical and MSUS evaluation. We hope this study will help inform how rheumatologists use MSUS and aid greater collaboration between rheumatologists and radiologists in training and clinical practice in the future.

Disclosure: Dr. Kane is arthritis research campaign clinical senior lecturer in rheumatology.

325. THE CHALLENGES OF INTEGRATING ULTRASONOGRAPHY INTO ROUTINE RHEUMATOLOGY PRACTICE: ASSESSING THE ATTITUDES OF CLINICAL RHEUMATOLOGISTS

A. K. Brown[1], R. J. Wakefield[1], Z. Karim[1], P. J. O'Connor[2], T. E. Roberts[3] and P. Emery[1]
[1]*Academic Unit of Musculoskeletal Disease, University of Leeds, Leeds, United Kingdom,* [2]*Department of Radiology, Leeds General Infirmary, Leeds, United Kingdom and* [3]*Medical Education Unit, University of Leeds, Leeds, United Kingdom*

Background: The practice of musculoskeletal ultrasonography (MSK US) by rheumatologists in the UK is still relatively limited although the number of practitioners appears to be increasing. So, will MSK US be a skill that is eventually performed by all rheumatologists as proposed by a number of authors, or will it remain a tool practised by the minority? As part of this analysis into the attitudes of rheumatologists toward performing MSK US, we sought to investigate any factors that may encourage or limit the ability of rheumatologists to acquire the necessary skills to perform a MSK US assessment. These data would provide important information to inform future educational development.

Methods: A written questionnaire study was conducted amongst Yorkshire rheumatologists. Respondents were asked a number of open questions regarding the perceived role of self-performed MSK US in their rheumatological practice, the skills that they would be willing to learn and the reasons that may encourage or limit their study of this technique. Answers were recorded in a free text format and this qualitative data was analysed to identify common themes.

Results: 37 rheumatologists responded. 90% stated that they would be willing to learn the technique although almost all respondents mentioned some potential limitations that may restrict its widespread use. The most common reasons influencing rheumatologist learning and practice in MSK US included:

(1) Time taken to learn and perform the technique and maintain skill levels;
(2) The relative added value of a particular US skill to clinical practice;
(3) A wish to apply US skills to common conditions and indications;
(4) Relative ease of learning and preference for simple procedures;
(5) Access to an existing imaging service e.g. local radiologist/rheumatologist with necessary expertise and availability of other techniques e.g. MRI;
(6) Availability of training;
(7) Funding for equipment and time spent performing MSK US.

Conclusions: The overwhelming attitude influencing the practice of MSK US within the rheumatology community appears to be based on a trade-off between added clinical value *vs* time to achieve competency and perform an imaging assessment. Most rheumatologists report a limited time to devote to MSK US and therefore a need to prioritise areas of importance for dedicated learning and practice. These opinions endorse the requirement for any rheumatology US curriculum to be highly focused and relevant to the needs of the rheumatologist. Consequently, any educational development process needs to consider these important factors as they are likely to profoundly influence the future dissemination of MSK US practice amongst rheumatologists.

Disclosure: The study was supported by an Educational Research Fellowship awarded to Dr Andrew Brown by the Arthritis Research Campaign.

326. SURVEY OF ISOTOPE BONE SCANS REQUESTED BY THE RHEUMATOLOGY DEPARTMENT

V. A. Quincey, R. G. Hull, A. L. Thomas, K. R. Mackay, F. C. McCrae, J. M. Ledingham and R. Shaban
Rheumatolgy Department, Queen Alexandra Hospital, Portsmouth, Hants, United Kingdom

Background: The Rheumatology Department, Queen Alexandra Hosptial, Portsmouth covers a population of approximately 550 000 and consists of five consultants and one associate specialist. In 2004 approximately 13 250 patients were seen in the department.

Survey question: Are isotope bone scans being appropriately requested by the Rheumatology Department and do the results affect the management of patients?

Methods: The Diagnostic Imaging Department provided a list of all the isotope bone scans attributed to the consultant rheumatologists in the year 2004. Patient letters and isotope bone scan reports for these patients were reviewed. The indication for an isotope bone scan, suspected diagnosis, result, the patient's final diagnosis and subsequent management were recorded.

Results: The total number of isotope bone scans attributed to Rheumatology Department was 96, five of these were not requested by the department. Over 2/3 of the scans were performed on females. The mean age of the patients in years was comparable between males and females, 62.6±13.9 and 62.4±14.4 respectively.

Isotope Bone Scan Indications

Indications	Number of patients
Isolated joint pain	17
Malignancy with suspected metastasis	14
Arthralgia	11
High ESR	11
Suspected inflammatory arthritis	8
Rib/sternal pain	8
Back pain and abnormal blood results	6
Abnormal x-ray	4
High alkaline phophatase	3
Heel pain	2
Suspected loosening prosthesis	2
Pagets	2
Hyperparathyroidism	1
Oncogenic hypophosphataemic osteomalacia	1
PUO/osteopetrosis	1

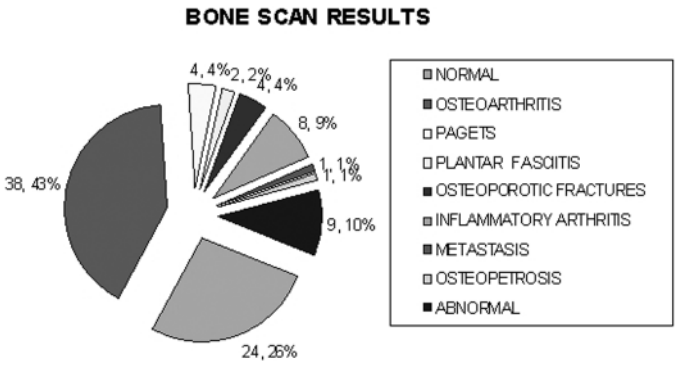

FIG. 1.

The following figure and table show the final diagnosis recorded in the notes by a doctor after review of the isotope bone scan result and the impact on management.

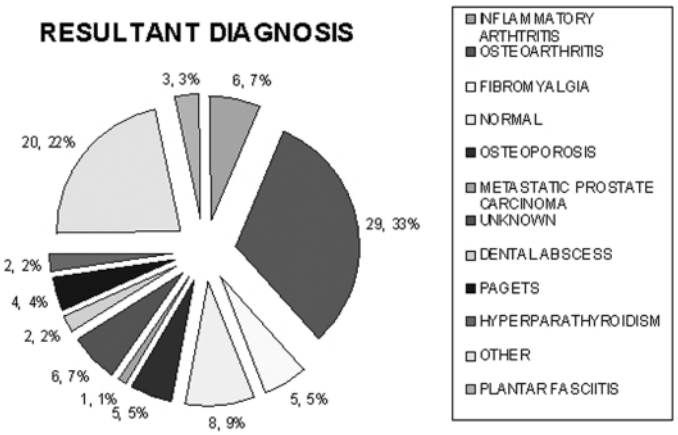

FIG. 1.

Impact on patient management

Impact on management	Number of patients
Discharged	32
Reasure	22
Bisphosphonate	7
Steroids	3
Endocrine referral	3
Orthopeadic referral	3
Intra-articular injection	3 (1 Declined)
Further investigations	2
Lost	2
Monitoring	2
MRI	2
NIL	2
Physiotherapy	2
Epidural	1
Moved away	1
Podiatry referral	1
Start DMARD	1
Urology referral	1
Died	1

Conclusions: A small percentage (0.69%) of patients seen in the rheumatology department had an isotope bone scan performed, suggesting that this modality is not being inappropriately requested. The commonest isotope bone scan result was osteoarthritis coresponding with a resultant diagnosis of osteoarthritis in 33% of patients as the cause of their symptoms. The isotope bone scan result affected the management in all but 6 of the 91 patients.

327. MAXIMISING THE USE OF SCARCE RESOURCES

M. F. Somerville, A. Brooksby and D. G. I. Scott
Rheumatology Research Unit, Norfolk & Norwich University Hospital, Norwich, Norfolk, United Kingdom

Background: Biologic therapies are costly and funding is always an issue. We recently audited our use of Infliximab and have found effective ways of maximising a scarce resource and reducing wastage. We have a dedicated 8 bedded rheumatology day unit which undertakes a variety of procedures including infusions, epidurals and multiple joint injections.

Standard treatment for Rheumatoid Arthritis is 3 mg/kg per infusion and 5 mgs/kg for Ankylosing Spondylitis with 8 weekly infusions. Each vial contains 100 mg Infliximab, costing £451.20. If we assume the average weight of patients is 70 kg then three vials would be opened although only 2 complete vials needed and 10% of the third (210 mg). Applying standard guidelines for RA patient on 8 weekly infusions without vial optimisation costs £8798.40. Annual costs for an AS pt would be £11 731.

Methods: Data was collected daily from the unit following 161 patients treated with Infliximab and continued for a 12 week period. Data recorded on an Excel spreadsheet included patient initials, date, weight, dose in mgs per kg, frequency of infusion and actual number of vials used on each day. Following reconstitution of Infliximab by trained nurses using an aseptic technique, the exact amount is calculated for one patient with any remaining used for another being infused at the same time.

Results: Patient Diagnosis

134 Rheumatoid Arthritis.

20 Ankylosing Spondylitis. (Dose titration was according to response. Only 3 pts required 5 mgs/kg/per infusion and 1 pt 4 mg/kg/per infusion.)

6 pts other conditions (3 mg/kg)

Frequency of Infusions.

105 pts 8 weekly, 30 pts 7 weekly, 20 pts 6 weekly, 3 pts 12 weekly, 1 pt 10 weekly infusions

Weight. 34% under 66 kg<2 vials; 55% under 100 kgs <3 vials. 11%>100 kgs therefore requiring>3 vials.

For each clinic we calculated the total number of vials which would have been used according to the patients weight and dose, and then noted actual vials used with optimisation. Infusing 6 patients simultaneously using vial optimisation, saved 4 vials daily amounting to £1500. Using the 12 weeks data on 161 patients we were able to estimate annual savings.

Annual costs 161 Infliximab patients discarding unused vials: £**1 387 708.00**. Annual costs using vial optimisation techniques: £**1 133 599.00**. Annual wastage reduction: **£254 109.00**.

Based on average weight of 70 kgs treatment costs reduced by £**2639.52 to £6158.8 per patient annually.**

Conclusions: A theoretical saving is actually wastage management as we stretch the budget further to treat an extra 41 RA patients. Infusing several patients simultaneously and using the remainder of each vial, demonstrates economic sense at a time of severe financial constraint. Optimising the use of scarce resources demonstrates a rational response to funding issues.

Disclosure: The unit is receipt of grants and research funding from Wyeth, Schering Plough, Abbott and Roche.

328. UTILISATION OF HEALTH CARE BY PEOPLE WITH HIP PAIN

V. Cavendish[1], J. Sandhu[2], P. Juni[1],
S. Williams[1] and P. Dieppe[1]
[1]*MRC Health Services Research Collaboration and* [2]*Department of Social Medicine, University of Bristol, Bristol, United Kingdom*

Background: Hip pain is a common in the community, where people are able to access a wide variety of interventions to manage their musculoskeletal pain, including complementary and alternative medicines (CAM) as well as a variety of conventional options via General Practitioners or Hospital Doctors. Very little is known about health care utilisation for hip pain; the aim of this study was to investigate this in different socio-demographic groups in the community.

Methods: Data was analysed from baseline information available in the Somerset and Avon Survey of Health (SASH). This is a stratified, random survey of 28 080 individuals aged 35 and over sampled from 40 General Practices in the South West of England. A two-stage process was used to ascertain people with hip pain: first a postal administered self-report screening questionnaire, followed by an invitation to attend a clinic at which an interviewer-administered questionnaire was used. At the interview, participants were asked about their use of health services for their hip pain over the past 12 months. Adjusting for sampling design and severity of pain reported, logistic regression was used to calculate the odds ratios (OR) for the associations between demographic and socio-economic variables (age, gender, ethnicity and Townsend deprivation score) and healthcare utilisation.

Results: 22 732 people responded to the screening questionnaire. 1617 (7.1%) reported current hip pain, 1315 (81.3%) of them attended clinic, where they were questioned about symptom severity and healthcare utilisation, and were examined. Some respondents reporting hip pain used no healthcare to manage it. After controlling for age and severity of pain, significant differences in the type of healthcare being used were found – depending on sex, ethnicity and deprivation. Men were more likely to have seen their GP (OR 1.44 95% CI 1.07–1.95) or a hospital doctor (OR 1.69, 95% CI 1.24–2.3) than women, but were less likely to use an aid or adaptation at home (OR 0.60 95% CI 0.45–0.80). Non-Caucasians were more likely to use aids or adaptations at home than Caucasians (OR 9.41, 95% CI 1.16–76.42). Trends according to deprivation were seen with regard to many aspects of health care utilisation – for example CAM usage was greatest in by less deprived people – but the only statistically significant association was with the use of aids and appliances, which was more common in the most deprived group (OR 2.49, 95% CI 1.54–4.02).
Conclusions: Although some people in the community access little or no healthcare for hip pain, there is wide and varied use of different resources to relieve this symptom. Significant differences in utilisation exist according to age, sex, ethnicity and socio-economic status. There is a need for further research to aid our understanding of treatment preferences in different groups of people, as these probably account for some of the variations seen.

329. COST IMPLICATIONS OF PARATHYROID HORMONE (TERIPARATIDE) THERAPY IN THE TREATMENT OF OSTEOPOROSIS

P. K. Yadav and K. Binymin
Department of Rheumatology, Southport & Formby District General Hospital, Southport, Merseyside, United Kingdom, PR8 6PN

Background: Daily subcutaneous injections of Teriparatide [rhPTH (1–34)] has been shown to increase bone mass and reduce the risk of vertebral and other osteoporotic fractures. NICE Technology Appraisal No. 87 2005 set the guidelines for selecting patient with postmenopausal osteoporosis suitable for treatment with this agent. Teriparatide carries high cost implications (around £5250 for 18 months treatment of a single patient, compared to £250–£450 for different bisphosphonates and SERM's). We set to establish the cost of introducing teriparatide therapy – within the Southport District General Hospital – based on the recent NICE technology appraisal.
Methods: Data from all patients attending the with a DEXA scan unit who have a T scores of 3SD at the lumber spine or worse and who are between 65–80 yrs of age were studied between September 2003 and September 2005. We assessed their eligibility for treatment with teriparatide based the criteria set by NICE as stated below:

- Teriparatide is recommended as a treatment option for the secondary prevention of osteoporotic fragility fractures in women aged 65 yrs and older who have had an unsatisfactory response to bisphosphonates or intolerance to bisphosphonates.
- who have an extremely low BMD (with a T-score of approximately –4 S.D. or below, or
- who have a very low BMD (with a T-score of approximately –3 S.D. or below) plus multiple fractures (that is, more than two) plus one, or more, additional clinical risk factors.
- For the purpose of this guidance, an unsatisfactory response occurs when a woman has another fragility fracture despite adhering fully to treatment for 1 yr and there is also evidence of a decline in BMD below her pre-treatment baseline.
- For the purpose of this guidance, intolerance of bisphosphonates is defined as oesophageal ulceration, erosion or stricture, any of which is sufficiently severe to warrant discontinuation of treatment with a bisphosphonate.

The policy in our hospital is not to perform DEXA scans on patients above 80 yrs of age. So such patients were not included in our study.
Results: Out of total 72 patients 6 (8.33%) were eligible for treatment with Parathyroid hormone. 2 of them had extremely low bone mineral density (T scores<-4) (group one) and 4 had very low bone mineral density (T scores<-3) (group two). All patients from group two had two or more new fractures while on bisphosphonate therapy. When they had the new fracture 2 were already on Didronal PMO and 2 on Fosamax for an average of 32 months. The other two patients (group one) sustained one further fracture while on bisphosphonate treatment for an average of 16 months. The average age in both groups was 77 (group one) yrs and 78 yrs group two). The average duration of osteoporosis was 15 yrs for group one and 12 yrs for group two.

The new fractures in all of them were vertebral.
Conclusions: In a secondary care setting (District General Hospital) with a catchment population of 120 000 for osteoporosis services, 6 patients are expected to be eligible for teriparatide treatment in the 65–80 yrs age group. In this cohort of patients the costs of treatment will escalate by an extra £30 000 compared with an average of £3000 if other bisphosphonate or alternative oral therapy were to be used. The average total cost of treatment with teriparatide will be higher if patients over the age of 80 who did not have scan (based on our hospital policy) are included.

330. QUALITY OF LIFE IN ANKYLOSING SPONDYLITIS (AS): DEVELOPMENT OF THE PATIENT-REPORTED AS QUESTIONNAIRE (PASQ)

K. L. Haywood[1], A. M. Garratt[2], J. C. Packham[3] and R. Fitzpatrick[4]
[1]*RCN Institute, Oxford, United Kingdom,* [2]*Norwegian Centre for Health Services Research, Nasjonalt Kunnskapssenter for Helsetjenesten, Oslo, Norway,* [3]*Staffordshire Rheumatology Centre, University Hospital of North Staffs NHS Trust, Stoke-on-Trent, Staffordshire, United Kingdom and* [4]*Department of Public Health and Primary Care, University of Oxford, Oxford, United Kingdom*

Background: AS assessment requires measurement of the physical, social, psychological and economic impact of disease and healthcare. However, it currently lacks a patient-reported measure that fully reflects patients' perception of disease impact. The ASQoL [1] omits several important areas of patients' lives affected by AS including body image, mobility and employment [2]. Furthermore, the yes/no response scale does not allow patients to state how badly they are affected. [3, 4] and may be poorly accepted by patients [3]. The ASQoL may also lack responsiveness to important changes in health. This research describes the development of a patient-reported measure that includes a range of health and quality of life issues of importance to AS patients.
Methods: Three stages in development of the PASQ are reported.

Item generation: Exploratory interviews ($n=29$) and a postal survey ($n=303$) were conducted with patients to inform the content of the questionnaire.
Pre-testing: Items were pre-tested in a clinic setting, including item re-phrasing, verbal probing and thinking aloud. Items were assessed for completeness, ambiguity and repetition. Patients also commented on content and structure. Interviews were taped and transcribed.
Pilot evaluation: The PASQ was posted to 51 patients, who completed the questionnaire and commented on content and structure. Data quality (missing data, frequency endorsement) was assessed.
Results: Item generation: Patient interviews and the postal survey [2] informed the development of a 57-item questionnaire with a five-point descriptive scale.
Pre-testing: 27 patients were interviewed, mean age 54 (rge 28–76); 81% males; disease duration 19 yrs (rge 3–49). 14 items were removed and minor modifications made. Specific questions such as those relating to sexuality were rephrased with direct patient involvement.
Pilot evaluation: 36 (70.6%) patients responded to the postal survey: mean age 54 (rge 29–79); 80% males; disease duration 18 yrs (rge 0.5–43). 32 (89%) respondents completed all items; 4 completed 98% of items; 4 different items were omitted. Item distribution approximated normality. Respondents only identified minor problems; 2 items were removed and further modifications to phraseology were made.
Conclusions: Patient-reported outcome measures should assess the important aspects of a patients' disease experience. The PASQ was well received by patients – demonstrated by high completion rates, good data quality and positive patient comments about content and structure. It retains items reflecting the all of the top 20 areas most frequently mentioned as important by AS patients [2]. The next stage in development will be a large scale multi-centre evaluation of 700 AS patients. This will allow assessment of acceptability, reliability, validity and responsiveness for the PASQ.

References

1. Doward LC. Ann Rheum Dis 2003;62:20–6.
2. Haywood KL. J Rheum 2003;30:4:762–73.
3. Fitzpatrick R. Health technology assessment 1998;2
4. McHorney CA. Medical care 2000;38:II-43-II-59

331. BSR/ARC CONSULTANT WORKFORCE REGISTER 2003–2005

M. J. Harrison[1], K. D. Morley[2] and D. P. M. Symmons[1]
[1]*ARC Epidemiology Unit, The University of Manchester, Manchester, United Kingdom and* [2]*Clinical Affairs Committee, British Society for Rheumatology, London, United Kingdom*

Background: The UK Rheumatology Consultant Workforce Register was established in 1971, and has been held on behalf of the BSR and Arthritis Research Campaign (**arc**) at the **arc** Epidemiology Unit since 1983. The objective of the register is to monitor and summarise changes in rheumatology provision, in particular regional inequality of consultant rheumatologist provision and trends in working practices. The aim of the present study was to summarise key findings of the 2003 and 2005 reviews.
Methods: In January 2003 and 2005 each consultant on the BSR/**arc** Rheumatology Workforce Register was sent a copy of their previous details to check, and an accompanying questionnaire about their current timetable and work conditions. Reminders were sent to non-responders after 6 and then 10 weeks, and in 2005 a third reminder was sent after a further 4 weeks. Whole time equivalent (WTE) rheumatology consultants were calculated to provide an accurate summary of consultant provision. A WTE was regarded as 10 rheumatology sessions or programmed activities (PAs) per week. Population estimates used to summarise regional and national provision levels were based on the Office for National Statistics population estimates from the 2001 Census. The BSR recommends one WTE per 85 000 population.
Results: The response rates for the reviews were 94% and 89% for the consultant details form, and 86% and 85% for the questionnaires for 2003 and 2005 respectively.

The numbers of WTE consultants increased for all 4 countries between reviews, except Scotland. Levels in England and Wales exceeded 60% of the recommended levels but were below 45% in Scotland and Northern Ireland. Provision improvements were highest in England and Northern Ireland (see table).

Number of WTE and % optimal provision by country

	No. of WTE		% Optimal provision		
	2003	2005	2003	2005	% Increase
England	353	391	60	66	8
Wales	20	21	58	60	4
Scotland	25	25	42	42	0
Northern Ireland	8	9	40	44	17

The median total number of timetabled hours per full-time person reported in 2005 (41) showed an increase from 2003 (35), coinciding with the introduction of the new consultant contract. However the number of hours spent in clinic remained fairly stable (16.6 in 2003 *vs* 17.2 in 2005). The median number of PAs worked by full time consultants was 11 (IQR 10–12), and the ratio of direct to supporting PAs was 3.2:1 (IQR 1.9:1–5.0:1).

Conclusions: Levels of consultant provision have continued to improve across the UK, however regional inequalities persist. The pattern of inequality has changed and there is currently a clear North-South divide between countries within the UK. The introduction of the new consultant contract between 2003 and 2005 has apparently led to an increase in the number of hours worked. This may, in part, be due to the way the new contract is implemented.

332. WEST MIDLANDS REGIONAL AUDIT OF ARMA STANDARDS OF CARE FOR PEOPLE WITH INFLAMMATORY ARTHRITIS

E. A. Justice, R. S. Sandhu, A. C. Jordan, S. Saravana, K. Obrenovic, G. J. Treharne, N. Erb and I. F. Rowe
[1]*Department of Rheumatology, Haywood Hospital, Stoke on Trent, United Kingdom,* [2]*Department of Rheumatology, Worcestershire Royal Hospital, Worcester, United Kingdom and* [3]*Department of Rheumatology, Russells Hall Hospital, Dudley Group of Hospitals NHS TRust, Dudley, United Kingdom*

Background: ARMA published its Standards of Care for people with inflammatory arthritis (IA) in 2004. These cover access to (i) information, support and knowledge; (ii) the right services that enable early diagnosis and treatment, and (iii) ongoing and responsive treatment. Standards include patients with IA being seen by rheumatologists within 12 weeks with a developmental standard of 6 weeks. Our aim was to audit measurable ARMA standards of care for patients with IA regionally on behalf of the West Midlands Rheumatology Services and Training Committee.

Methods: All patients attending follow up clinics in 11 rheumatology units in the West Midlands over a 2 week period were invited to participate. Patients completed the first part of a questionnaire evaluating knowledge of their diagnosis and whether they had received (i) assessment by physiotherapists, occupational therapists, specialist nurses, (ii) access to nurse led helpline, information leaflets, education groups and patient support groups, and (iii) advice on smoking cessation.

The second part of the questionnaire was completed by clinicians and assessed time intervals from first symptoms to consulting rheumatologists and starting DMARDs for all patients diagnosed with IA in the preceding 2 yrs.

Results: 1877 questionnaires were completed: patients mean age 58.5 yrs; 68% female; 72% had IA. 236 (12.6%) had been diagnosed with IA within the last 2 yrs.

The table outlines patient recall (in percentages) of assessment by multidisciplinary team (MDT) members, advice, information and education, for all patients and those diagnosed with IA in the last 2 yrs. Some significant differences between centres were identified.

Patient recall of intervention (%)

	All patients $n=1877$	IA Δ 2 yrs $n=236$
Physiotherapists	46.0	38.6
Occupational therapists	34.2*	38.1
Nurse Specialists	49.3*	57.2
Education Group	6.0*	10.2
Patient support group	5.8*	6.8
Helpline awareness	57.7*	61.2†
Leaflet given	48.4*	61.0
Satisfied with disease advice	83.2*	83.1
Advised to stop smoking	49.4	41.1

*Significant differences between centres: †84.7% if on a DMARD.

Of patients with IA diagnosed in the last 2 yrs, 84.5% were seen with 12 weeks of referral and 53.4% were seen within 6 weeks.

A diagnosis of IA was made on first clinic visit in 66.4% patients and in 83.0% by 6 weeks. 68.6% had been commenced on a DMARD, 88.2% of these within 12 weeks.

Conclusions: This pilot audit of ARMA standards of care demonstrates that, although self-reported patient referrals to members of MDTs and education groups appeared low, there was generally good satisfaction with advice received. Results may be used by individual units to change clinical practice including re-inforcing anti-smoking advice.

84.5% of patients with IA were seen within 12 weeks of referral, thus meeting the current ARMA standard.

Further audits, whilst acknowledging inherent problems with recall bias from patient-filled questionnaires, may strenghthen clinical governance and planning of services.

333. ARMA STANDARDS OF CARE – HOW GOOD IS OUR RHEUMATOLOGY SERVICE?

V. V. Kaushik, H. V. Reddy, H. Cronin and T. D. Kennedy
Department of Rheumatology, Royal Liverpool University Hospital, Liverpool, United Kingdom

Background: Inflammatory arthritis is usually a progressive condition affecting nearly 600 000 people across the UK. The total annual cost of treating RA alone is estimated to be around £1.3 billion. Work related disability secondary to arthritis accounts to nearly £833 million in lost production. There is strong evidence that early intervention improves the long term outlook for people with inflammatory arthritis. With this in mind the ARMA (Athritis and musculoskeletal alliance) standards of care has been developed to deliver a evidence based, patient centred multidisciplinary care for patients with inflammatory arthritis. There are 18 standards laid out and we have audited our present service against these advised standards.

Methods: An audit tool based on the ARMA standards of care was developed. The questions were reviewed by the ARMA audit working group and this paper reports the pilot study. The questionnaire was circulated within our Trust to all the members of the multi disciplinary team for their input. We then acquired the answers to the questions by contacting the departmental heads of multidisciplinary services and the primary care trusts.

Results: Our rheumatology service caters to a population of 300 000. We have the following whole time equivalent personnel supporting this service – Rheumatologists (2.7), rheumatology nurse specialist (3.3), Orthopaedic surgeons (19), orthopaedic nurse specialists (6), Physiotherapists (61.8), Occupational therapist (8.3). We have one GpwSI in orthopaedics. Although all the advised standards of care were looked into, due to manuscript constraints we would elaborate on a few in Table 1.

Conclusions: These standards of care aim to promote a high quality service for people with musculoskeletal problems incorporating the key targets of the new NHS plan – patient empowerment, elimination of postcode bias and a seamless integration of all persons involved in care delivery i.e. breaking down of barriers within departments. The audit of our present level of service is promising as far as secondary care is concerned but it does reveal scope for improvement with respect to patient and primary care involvement. However plans are in place to address these issues to deliver a more patient centred service.

TABLE 1

Standard of care	Advised level of care	Present service provision
Standard 4	Waiting time from GP referral to be seen by a specialist in Rheumatology should be within 12 weeks	13 weeks
Standard 13	All patients should have direct access to specialist advice in case of a sudden flare up	Nurse led helpline with most patients assessed within 48 h of initial contact
Standard 16	People referred to Orthopaedics to be seen within 13 weeks	4–14 weeks based on speciality.
Standard 3	People with inflammatory arthritis should have access to information on their condition and treatment	Available in secondary care. Sparse in primary care due to present lack of funding
Standard 9	Involvement of people with inflammatory arthritis in service development	No structured plans in place yet

334. TOWARDS AN ELECTRONIC PATIENT RECORD – THE SOUTHAMPTON HICSS RHEUMATOLOGY APPLICATION

R. Armstrong[1] and A. Hales[2]
[1]*Rheumatology Unit and* [2]*Corporate Information Services, Southampton General Hospital, Southampton, Hampshire, United Kingdom*

Background: Until recently, a total reliance on paper records hindered easy access to clinical information as well as data about our workload and case mix. We have an excellent medical records service but much essential information is locked in the notes. A partnership between Southampton University Hospitals NHS Trust and a software company (Scorpio Information Systems) provided the opportunity to modernise our handling of information.
Methods: Since 2000 our Trust's IT staff and a software company have been developing applications to assist healthcare delivery on a modular, specialty basis (HICSS = Hospital Integrated Clinical Support System). We drew up a specification for such an application whose main aims were to provide a diagnostic database, improve the flow of information through generation of clinical correspondence and also to facilitate DMARD monitoring. A prototype application was modified in response to input from all users and for the last 2 yrs we have been using the application routinely. This browser-based application is available from anywhere within the Trust and also in Community locations. Because the system is fully compliant with standards set down for future NHS IT systems we have confidence that it can be integrated with other applications which may be made available by the LSP (Local Service Provider) in the NHS Connecting for Health programme.
Results: We now have easy, rapid access to information about all of our patients. This has brought about many improvements. For instance we can quickly identify and monitor the 1300+ inflammatory arthritis patients who are receiving DMARDs. By exploiting live links to other systems such as PAS and pathology and by using sophisticated queries on information downloaded from these systems we are able, on demand, to quickly run a check on both patient adherence to monitoring schedules and also identify abnormal results. This arrangement is superior to commercial stand-alone database systems. Hospital notes are much less frequently required to respond to the many telephone queries from GPs, patients and others – information is instantly available online, making secretarial and clerical work easier. Correspondence templates accommodate the specific needs of Specialist Nurses and Junior Staff.
Conclusions: The creation of an application which is integrated with other hospital systems has facilitated many routine tasks which in turn has delivered benefits in terms of quality of care and patient safety. We can now rapidly identify patients for research and audit, list those receiving specific drugs and automatically incorporate latest pathology results in clinic correspondence, to name but a few. Interoperability with other hospital HICSS applications provides easy access to other clinical information. The recent introduction of a Trust-wide electronic document generating system (eDocs) and an electronic test-ordering system (eQuest) brings us closer to the objective of a fully electronic patient record.
Disclosure: Alan Hales is Managing Director of Scorpio Information Systems Ltd, 16–20 South Street Hythe, Hampshire. Scorpio Information Systems Ltd designs, develops and sells clinical software to the NHS.

335. HOSPITAL PATIENT ADMINSTRATION SYSTEMS (PAS) SHOULD NOT BE RELIED UPON TO ESTIMATE LOCAL FRAGILITY FRACTURE RATES

K. Lanary[1] and S. Clarke[2]
[1]*Department of Medicine, University of Bristol, Bristol, United Kingdom and* [2]*Department of Rheumatology, Weston Area Health Trust, Weston Super Mare, Somerset, United Kingdom*

Background: Local implementation of Nationally agreed Clinical Guidelines is the responsibility of PCTs and Hospital Trusts. Clinicians are often asked to justify prioritisation of service development using Trust data through PAS. Important clinical outcomes may often, therefore rely upon hospital statistics. Recent NICE guidelines recommend DXA scanning in fragility fracture patients. As part of a bid to determine the true number of patients presenting to our district general hospital with such fractures we aimed to determine whether standard PAS audit data was comparable to data derived from hand searching of medical records from the Accident and Emergency Department and Orthopaedic Theatres.
Methods: PAS was searched for all patients over the age of 45 yrs attending the Trust (catchment population 180 000) between March 2002 and April 2004 and recorded as having sustained a fracture of the wrist, vertebra or neck of femur. In addition, Accident and Emergency (A&E) and Orthopaedic Theatre (OT) records were manually checked using identical criteria. Available case records were assessed to determine if the incident fracture was low impact. A comparison was made between the 3 data sources. Records were also checked to determine the proportion of patients that were referred for a DXA scan and the proportion of patients that had been prescribed anti-porotic therapy.
Results: PAS records documented 73, 4 and 17 patients with hip, wrist and vertebral fractures, respectively. For A&E and OT the values were 16 171 and 20 and 96, 70 and 0 respectively. 337/467 records were available for review (28 records overlapped) and 86 (26%) were considered to be low impact. The PAS data failed to record 40% of the total identified patients that sustained a low impact fracture and 25% of patients with a low impact hip fracture. OT recorded 22% of hip fracture patients and A&E 3%. 3/86 (3%) of low impact fracture patients had been referred for a DXA scan and 7/86 (8%) had been prescribed anti-porotic medication.
Conclusions: Reliance on PAS data to determine the incidence of low impact skelaetal fractures, at least in this hospital, would result in an underestimation of the true figure by at least 25%. The precision of our data (though not the primary conclusion) is adversely affected by the high proportion of records that were unavailable for review. These findings have important implications for those making service development decisions based on such data. New IT systems may improve the accuracy of clinical data, but will still be reliant upon the quality of input. Searching OT records is the most accurate method of assessing local hip fracture incidence and A&E records best reflect wrist fracture attendances. The proportion of patients whose osteoporotic care concurs with NICE secondary prevention guidelines is very low.

336. PATIENTS WITH ANKYLOSING SPONDYLITIS AND PSORIATIC ARTHRITIS WITH A BASFI SCORE OF 4 OR HIGHER ARE LIKELY TO RECEIVE FINANCIAL BENEFITS

R. Bhogal and L. J. Kay
Department of Rheumatology, Freeman Hospital, Newcastle upon Tyne, Tyne and Wear, United Kingdom

Background: The level of disability in patients with Ankylosing Spondylitis and Psoriatic Arthritis has until recently been under-recognised. The conditions affect people to a variable level, but many patients are of working age, resulting in high levels of unemployment and a need for state financial support. The BASFI is a validated tool comprising 10 questions to assess the ability of patients to perform everyday activities. We aimed to investigate how many AS and PsA patients in our service were currently in receipt of benefits, whether their BASFI scores were related to their receipt of these benefits, and whether advice and help were used in such applications.
Methods: A questionnaire was designed and piloted, including items on diagnosis, receipt of benefits, help used to complete a claim and the BASFI. Patients were surveyed in rheumatology outpatient and monitoring clinics over a 2 week period. Data were analysed using EPI INFO and trust audit approval was given.
Results: 52 patients completed questionnaires. 20 patients had AS (4 female) and 32 had PsA (18 female). 79% were aged under 65 yrs. 58% of patients were in receipt of DLA or attendance allowance, 65% of patients with AS and 54% of patients with PsA. BASFI scores covered the whole range from 0 to 10. Mean BASFI score for those in receipt of benefits was significantly higher than those without (7.6, S.D. 1.52 *vs* 4.1, S.D. 2.4, $P<0.001$). 76% of those with a BASFI score of 2 or above received DLA or AA. No differences were found in benefit rate between PsA and AS for similar BASFI scores, although numbers are small. The lowest BASFI score for an AS patient receiving benefits was 5.6, and 4.3 for PsA. 22 did not receive benefits. 7 felt there was no need, 5 were unaware of benefits available, 1 was not sure how to apply, 2 had claims in progress, 2 were employed and 4 gave no reasons. 13 had help from family or agencies and were all successful. 17 had a Blue Badge and 11 were unaware of the scheme or how to apply. The majority of patients not receiving benefits were men under 65 yrs who felt they had no need for them. Only one patient had applied for benefit and been declined, and he had had no help completing his forms.
Conclusions: This audit demonstrates that a significant proportion of patients with AS and PsA attending our department are in receipt of state benefits. Such applications have a very high success rate but there is still a number of patients not aware of benefits to which they might be entitled. We have shown a relationship with BASFI score and receipt of benefits, suggesting that a BASFI score of 4 or higher reflects a perceived need for and high likelihood of success in claiming benefits. Help in completing application forms may be useful. Further work is needed to determine whether those who have lower scores may also be entitled to benefits.
Disclosure: This work took place in a special study module at the University of Newcastle.

337. EXPERIENCE OF SIX YEARS OF A REGIONAL PEER REVIEW SCHEME IN RHEUMATOLOGY

H. Piper[1], A. B. Hassell[2], I. F. Rowe[3] and J. Delamere[4]
[1]*Department of Rheumatology, University Hospitals of Coventry and Warwickshire NHS Trust, Walsgrave Hospital, Coventry,* [2]*Department of Rheumatology, Staffordshire Rheumatology Centre, Haywood Hospital, Stoke-on-Trent,* [3]*Department of Rheumatology, Worcestershire Royal Hospital NHS Trust, Highfield Unit, Worcester and* [4]*Department of Rheumatology, Russells Hall Hospital, Dudley, West Midlands, United Kingdom*

Background: Following discussions on peer review by the British Society for Rheumatology, the West Midlands Rheumatology Service and Training Committee took a regional initiative and set up a peer review scheme for the West Midlands in 1998. We report our experience of six years during which all 14 units have been visited.
Methods: A rotating programme of peer review visits was organised. Each unit prepared a previsit proforma and was informed of the criteria against which they would be inspected. The visiting team was composed of two rheumatology consultants and two allied health professionals. A report was subsequently prepared detailing areas of excellence, findings from the visit and recommendations. Following this first cycle of peer review questionnaires were sent to all consultants and senior allied health professionals in each visited unit and to all members of each visiting team to evaluate the process. In addition,

all consultants in visited units were asked to indicate which of the recommendations given to their unit had been acted on and change implemented.
Results: 59 out of 79 people replied to the questionnaire. There was clear consensus amongst staff from both visited units and visiting teams on many issues; that the balance of health professionals in the visiting team was appropriate, people were comfortable in being reviewed by people they knew well, the report was an accurate assessment, the recommendations were agreed with and peer review is both worthwhile and a constructive component of continuing professional development. The visitors felt they were able to accurately assess a department but also found the visit beneficial to them personally independent of the advice they could offer the visited unit. Opinion was only divided on whether the reports were viewed seriously by Trusts, whether peer review should be regional or national and how to accurately assess the quality, as well as quantity, of care provided.

Most recommendations from the reports were considered necessary. The most frequent recommendations were for an increase in consultants and therapy staff. Appointing further consultants has been successful but an increase in therapy staffing has not been implemented.

Perceieved negative outcomes of this scheme included realizing that change does not automatically follow, especially when management felt unable to deliver on many points due to financial pressures.

Staff would support further cycles of peer review visits.
Conclusions: This has been a successful initiative and a positive learning experience for all staff involved. The benefits of this peer review include helping to highlight and address shortfalls in services and where necessary obtain more staff and secure facilities.

Issues to discuss for future visits include should peer review be regional or national? How can we assess quality as well as quantity? How can we maximise the influence of the final report?

We commend this scheme to other regions and would welcome discussion at a national level.

338. RHEUMATOLOGY PEER REVIEW IN THE NORTHWEST AND MERSEY REGIONS: IS THE SCHEME PROVING USEFUL?

P. A. Sanders
Rheumatology Department, South Manchester University Hospitals NHS Trust, Manchester, United Kingdom

Background: The hospital rheumatology departments in the NorthWest and Mersey regions of England have participated in a voluntary peer review scheme since 2001. The aim of this study is to assess its take-up and usefulness during its first four years (2001–2004). The scheme is currently completing its second cycle of visits. The host unit is offered the chance on each occasion to be assessed by two teams of visitors allocated by the steering committee, which also supplies guidance and paperwork including a pre-visit questionnaire. A suggested 3 months 'time window' is also provided and the host team is left to organise its own visit. The visits are intended to be constructive, supportive and multidisciplinary with the host team having the option to send a copy of the report to its managers.
Methods: Postal questionnaires were sent to consultant rheumatologists in each department in 2003 and 2005. These aimed both to check whether visits had occurred and to request general feedback on the scheme. Copies of reports from the majority of the visits were also received by the steering committee and included in this analysis.
Results: Overall participation in the scheme has been 17/42 scheduled visits (40%) including 8/16 (50%) so far in the second cycle. Two units have now had a second visit. 22/26 units (85%) have participated at least once either as host or visitor. Visiting teams have included consultants in 14/14 visits, specialist nurses in 11, physiotherapists in 9 and occupational therapists in 7. Worthwhile change has been achieved in 40% of visits and a selection of comments from visitors has indicated that there is value in observing practice in a different unit. Some consultants have felt that the scheme does not produce a useful outcome and others have not managed to schedule their visit or felt they had insufficient time, but in general there has been an impression that the scheme is useful and should continue. It has also provided some comparative information about facilities and funding issues in different units. Most units attracted favourable comments with respect to outpatient waiting lists (8/12 reports) and clinical audit participation (9/11 reports), however areas of underprovision included DEXA scanning (10/13), outpatient clinic list size (too large in 6/9) and waiting times for MR and CT scanning (in 6/10). OT provision was suboptimal in 6/10, podiatry in 5/8, and office space and clerical support deficient in 7/8 and 6/6 respectively. Staffing levels with respect to junior doctors, specialist nurses and medical secretaries were variable.
Conclusions: The peer review scheme has been well received and most units have now participated. Feedback is generally favourable: most units have been able to use it as a focus for departmental development, but responses from hospital management have been less encouraging. The results justify continuation of the scheme, perhaps with some slight modifications to ensure that only those units planning to participate are included in the next programme.

339. IS BEST PRACTICE FOLLOWED WHEN THE DIAGNOSIS OF POLYMYALGIA RHEUMATICA IS MADE?

A. Moorthy, A. Samanta and J. Kendall
Department of Rheumatology, University Hospitals of Leicester NHS Trust, Leicester, East Midlands, United Kingdom

Background: Polymyalgia Rheumatica (PMR) is a common musculoskeletal disorder that os primarily diagnosed in primary care. The incidence of this condition (over the age of 50 yrs) has been reported as between 12.7 and 68.3 per 100 000 [1]. As PMR can mimic a number of other inflammatory conditions, and as the management involves long term use of steroids, it is crucial that the diagnosis be made correctly. There are few standard diagnostic criteria sets that are used. (Bird's, Hunder, Healy & Jones/Hazelman) [2].
Methods: A survey of Leicestershire general practices, was performed with regard to the diagnostic criteria used in making the diagnosis of PMR. Data collected to capture patient demographic details, the criteria used for diagnosis of PMR. Data was collected over a period of 1 yr, from 30 practices, across the county allowing for a wide sample from the each primary care trust.
Results: Of 365 documents 'diagnosed' cases of PMR only 83 (22.7%) completely fulfilled any one of the 4 diagnostic criteria sets. In all 83 cases this was the Bird's diagnostic criteria (which requires the presence of at least three out of six components).

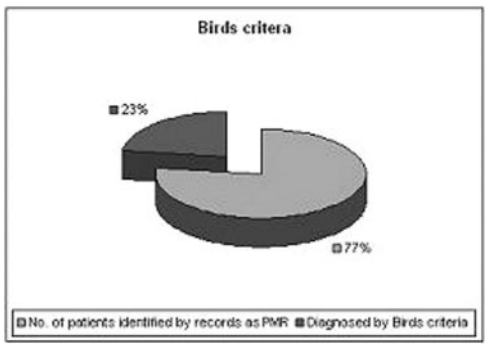

FIG. 1.

On an observational analysis the most commonly used component of the pooled criteria were as shown below.

1. Age more than 65 yrs 306/365 (83.83%).
2. Shoulder and pelvic girdle pain 231/365 (63.28%).
3. Morning stiffness >1 h 90/365 (24.67%).

Conclusions: The study shows that only 22.7% of the patients diagnoses with PMR fulfilled any single diagnostic criteria set. In 73.7% of the patients the diagnosis of PMR was based on 'loose' criteria. Best practice should involve the use of established diagnostic criteria, as the management of PMR involves long term use of steroids.

This could be facilitated through clinical governance and educational initiatives.

References

1. Chuang T, Hunder GG, Ilstrup DM, Kurland LT. Polymyalgia rheumatica—a 10 year epidemiological and clinical study. Ann Intern Med 1982;97:672–8.
2. Bird HA, Esselinckx W, Dixon AS, Mowatt A, Wood PH. An evaluation of criteria for polymyalgia rheumatica. Ann Rheum Dis 1979;38:434–5.

340. BARRIERS TO RECRUITMENT IN CLINICAL RESEARCH

K. S. Mills[1], M. Somerville[1], A. A. M. Nicol[2] and D. G. I. Scott[1]
[1]*Rheumatology Out-Patients, Norfolk and Norwich University Hospital and*
[2]*School of Medicine, Health Policy and Practice, University Of East Anglia, Norwich, Norfolk, United Kingdom*

Background: Etanercept(Et), Infliximab(Ix) and Adalimumab(Ada) are all licensed for the treatment of severe Rheumatoid Arthritis and where medically appropriate, we give our patients a choice of biologic therapy. Historically, most patients were started on Ix due to the unavailability of Et. We are currently involved in an observational study offering patients the opportunity of switching from Ix to one of the self-injectable biologics (Et,Ada) and giving new patients a choice of their first biologic. One aspect of the study is to analyse the decision making process involved in making such a choice. This abstract gives an overview of the recruitment phase of the study highlighting recruitment challenges as well as the problems inherent in offering choice.
Methods: The observational study comprises 2 cohorts;

~New patients commencing biologic treatment,
~Patients currently on Ix given the option to 'switch',

Patients are given both verbal and written information about the study. Those consenting, in addition to routine clinical monitoring, are interviewed and complete psychological and ecomomic questionnaires at screening, baseline, 3, 6 and 12 months. We envisaged recruitment of approximately 80 patients in each cohort over twelve months. However, recruitment has been slow especially in the switch cohort.

Results: Recruitment into the new patient cohort has been steady with few declining to consent. The Switch cohort has proved more of a challenge with a much larger decline rate. An interim analysis of the study revealed the following reasons for decline:

~ Fear that a 'switch' in treatment may prove less efficacious and pre-treatment symptoms may return.

~ Feeling 'overloaded with paperwork', as they already fill in questionnaires both as part of routine clinical assessments and for the BSR biologics register.

~ Feeling the health economic questionnaire was a subtle form of 'Means Testing' which may result in them being asked to contribute to the cost of their treatment.

Those preferring to remain on Ix, depite the offer of a switch were still invited to take part in the study by discussing their decision. This also produced a high decline rate, due in part it would seem to the title 'switch study'. This appears to provoke a fear, despite assurances to the contrary, that consenting to the study means they may be coerced into 'switching' treatment at a later date.

Conclusions: Following review of the reasons for non consent, we established a strategy in an attempt to improve recruitment. We concluded that the title 'switch' was a barrier to recruitment. Now we describe it as an 'observational study on the decision making process' which appears more acceptable. Extensive use of questionnaires was also found to be off-putting, however, promoting support from the Researcher in their completion has improved this. Collection of economic data can prove contentious, but ensuring adequate patient counselling prior to data collection has assisted in successful enrolment of patients in this type of study.