NZRA + ARA ORAL ABSTRACTS

O-1
SUPPLEMENTATION WITH OMEGA-3 FISH OIL HAS NO EFFECT ON BONE MINERAL DENSITY IN RHEUMATOID ARTHRITIS: A 3-YEAR RANDOMIZED CONTROLLED TRIAL
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Aim: Active RA is associated with loss of bone mineral density (BMD). We demonstrated that in early RA, high dose omega-3 fish oil (FO) reduced triple therapy failure and increased the rate of remission. The purpose of this study is to investigate whether high dose FO could have an impact on BMD.

Methods: In a double-blind randomized controlled trial, 140 DMARD-naive patients with RA <12 months duration were randomized 2:1 to receive either high dose (5.5 g eicosapentaenoic acid and docosahexaenoic acid daily) or low dose (0.4 g/day) FO for 3 years. BMD was assessed annually by dual energy X-ray absorptiometry, and linear mixed effects growth models were used to assess mean changes. Mean treatment responses for other outcomes were estimated by marginal models.

Results: At baseline, low (n = 42) and high dose (n = 72) groups were well matched for disease characteristics, BMD and risk factors for bone loss. DAS28ESR scores improved from baseline in both groups (−2.17 vs −2.53, p < 0.001) and more patients were in DAS28 remission during treatment in the high dose group (43% vs 26%, p = 0.02). The annual BMD change in low vs high dose groups was not statistically different (−0.9, 95% CI −1.4 to −0.4 vs −1.8, 95% CI −2.0 to −1.6 mg/cm²). At baseline, older age and erosive disease were associated with lower BMD but not with rate of change, nor were smoking, shared epitope or RF. Female gender and anti-CCP were associated with increased BMD loss. A trend for greater rate of change, nor were smoking, shared epitope or RF. Female gender and anti-CCP were associated with increased BMD loss. A trend for greater rate of change

Conclusions: There was no significant difference in 3 year BMD loss between low and high dose groups although BMD loss was increased with anti-CCP, an effect that was not directly related to disease activity.

O-2
SARCO-OSENOPEA IN OSTEARTHRITIS AND RHEUMATOID ARTHRITIS: IMPLICATIONS FOR CLINICAL PRACTICE
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Aim: To assess and compare the relative prevalence of low muscle mass-sarcopenia- in patients with osteoarthritis (OA) and rheumatoid arthritis (RA) and its association with obesity and osteopenia.

Methods: Body composition and femoral bone mineral density was assessed using Dual X-ray Absorptiometry (Lunar Prodigy, GE Medical Systems Lunar, Madison WI) in 82 patients with RA (mean age 61.1 ± 13.3y, 73% female) and 75 patients with OA (mean age 68.8 ± 8.9y, 60% female). Sarcopenia and sarcopenic-obesity were defined as the presence of both sarcopenia and osteopenia and both sarcopenia and obesity, using the following cut-scores. Sarcopenia was classified using Appendicular Muscle Index/Body Mass Index (Males <0.789, Females <0.512). Osteopenia was classified according to World Health Organization T- scores between -1 to -2.5. Obesity was classified for males as ≥30% fat and females ≥40% fat. Relative frequencies are reported.

Results: Sarcopenia and sarcopenic-obesity were more prevalent in OA than RA (OA 29.3% vs RA 17.1%, p = 0.068) and (OA 29.3% vs RA 15.9%, p = 0.043), respectively. Sarcro-osteoasia was also more prevalent in OA than RA (6.7% vs 2.4%, p = 0.200). The prevalence of sarco-osteoa was significantly different between the groups, despite the fact that obesity was not statistically significantly more prevalent in OA than RA (72% vs 57.3%, p = 0.055).

Conclusions: Sarcopenia, sarco-osteoasia and sarcopenic-obesity were more prevalent in patients with OA than RA. The high prevalence of these body composition phenotypes in RA and OA may have implications for increased risk of functional deficits, falls and fracture. In the future, identifying patients with sarco-osteoasia could inform interventions to improve muscle strength and bone mass to reduce the risk of adverse outcomes.

O-3
PATIENTS’ ATTITUDES AND EXPERIENCES OF TRANSITIONAL CARE IN PAEDIATRIC RHEUMATOLOGY: A SYSTEMATIC REVIEW OF QUALITATIVE STUDIES
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Aim: The transition from a paediatric to an adult environment is complex and challenging for adolescents who are at risk of dropping out of health care service, treatment non-adherence and poor health-related outcomes. Understanding the patient’s needs and experiences of transition will assist in the design and development of transitional programmes for paediatric rheumatology patients. We aimed to describe patients’ perspectives and experiences on transition to adult care in rheumatology.

Methods: MEDLINE, Embase, PsycNFO, CINAHL were searched to February 2017. Thematic synthesis was used to analyse the findings.

Results: From the 12 studies involving 182 patients aged 12 to 38 years with experiences of paediatric rheumatology transition, we identified 4 key themes: 1) a sense of belonging and trust (home away from home, peer support, protecting confidentiality, personalised approach, age appropriate facilities), 2) helping ease through transition (adequate information transfer, continuity of care, gradual parental withdrawal), 3) nurturing a meaningful adult life (completing education, need for psychological support, learning how to disclose illness, seeking job opportunities), and 4) valuing autonomy (unexpected liberation, unintentionally undermined, ownership of health).

Conclusions: Structured and patient-centred transition programmes are required which address adolescent needs by promoting trust and familiarisation with adult health care, encouraging self-efficacy and independence and providing psychosocial support to enable social participation.
O-4 ASSOCIATION OF CHILDHOOD OVERWEIGHT MEASURES WITH ADULTHOOD KNEE CARTILAGE DEFECTS AND BONE MARROW LESIONS: A 25-YEAR COHORT STUDY

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Aim: Overweight has been associated with knee osteoarthritis (OA). However, there are no studies describing the effect of childhood overweight on adulthood knee structural abnormalities. We aimed to describe the associations between weight, body mass index (BMI), overweight status and fat mass in childhood and knee cartilage defects and BMLs in adulthood 25 years later.

Methods: Subjects broadly representative of the Australian population (n = 327, aged 31–41 years) were selected from the Australian Schools Health and Fitness Survey of 1985 (7–15 years). They underwent T1-weighted and proton density-weighted fat-suppressed MRI scans in their knees. Cartilage defects and BMLs were measured. Childhood weight, height and skinfolds were measured in 1985. BMI and fat mass were calculated. Log binomial regression analysis was used to determine the associations of childhood overweight measures with adulthood knee cartilage defects and BMLs.

Results: There was no significant association between childhood overweight measures and adulthood tibia-femoral cartilage defects. However, there were significant associations of weight (RR = 1.05,95%CI = 1.01,1.09), BMI (RR = 1.10,95%CI = 1.01,1.19), overweight status (RR = 2.06,95%CI = 1.19,3.58) and fat mass (RR = 1.10,95%CI = 1.01,1.21) with patellar cartilage defects after adjustment for childhood age, duration of follow-up, sex, childhood height (if weight or fat mass was the predictive), childhood injury, adulthood injury and corresponding adulthood measures. After further adjustment for patellar BMLs, these associations remained the same.

Childhood overweight measures were not associated with adulthood BMLs. However, sex-specific analysis showed BMI (RR = 1.36,95%CI = 1.03,1.81) and overweight status (RR = 4.37,95%CI = 1.01,18.91) were significantly and positively associated with patellar BMLs in men but not in women.

Conclusions: Childhood overweight measures were significantly associated with increased risk of patellar cartilage defects and BMLs in young adults. The sex difference in BMLs may be the reason for the sex difference in knee pain, which we previously reported. These results indicate the importance of reducing childhood fatness in preventing adulthood knee structural abnormalities that cause OA in later life.

O-5 MEDICATION ADHERENCE IN PATIENTS IN A BIOLOGICS CLINIC - A QUALITATIVE STUDY

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Aim: Despite close medical management in specialised rheumatology clinics, medication adherence remains a significant problem for some patients. The study aims to explore factors affecting medication adherence in patients attending a dedicated biologics clinic.

Methods: Patients were selected by purposive sampling. Semi-structured interviews were performed and continued until saturation was achieved in an effort to examine reasons why patients failed to take their prescribed medication. Interviews were transcribed and coded using NVIVO. The principles of grounded theory were used to analyse the data. The emergent themes were informed by health behaviour theories as well as factors which have previously correlated with adherence in patients with rheumatic diseases.

Results: Major themes which emerged include the concept that the presence of active symptoms significantly influenced adherence. It was noted that patients tended not to prioritise medication taking until they had recurrence of symptoms. Patients sometimes failed to display an understanding of the concept of disease activity, or concern for the risk of long term joint damage or other consequences of uncontrolled inflammation. They were also concerned regarding potential long term side effects of the medications; even if they had not experienced any side effects to date. Patients identified their relationship with their rheumatologist as being pivotal in their experience of their condition and medication management. Developing habitual patterned behaviour was a challenge for some patients and affordability was an issue for some. Methotrexate was perceived as a toxic and “heavy” medication.

Conclusions: This study examined the medication adherence of a group of patients with rheumatic diseases who are very closely managed in a dedicated biologics clinic. Even in this group of patients, factors which contribute to medication non-adherence were readily identified. Several of these themes suggest that enhancing patient education in these areas could improve adherence in this group.

O-6 VASCULAR INVOLVEMENT IN GIANT CELL ARTERITIS (GCA) - INTERIM RESULTS FROM A PROSPECTIVE FDG PET-CT STUDY

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Aim: PET-CT scanning utilising fluorine-18 fluoro-2-deoxyglucose (FDG) detects large vessel inflammation in 80% of biopsy-positive GCA patients but has previously not been able to detect vasculitis in the vertebral and superficial temporal arteries due to poor spatial resolution. We aimed to assess if a newer generation PET-CT scanner could detect arteritis in these smaller vessels.

Methods: 27 patients suspected of having GCA underwent a FDG PET-CT scan within 72 hours of commencing corticosteroids and before temporal artery biopsy. They were scanned from vertex to diaphragm using a time-of-flight PET-CT scanner with 1mm CT slice reconstruction. FDG uptake was assessed in one of three regions 1) superficial temporal arteries, 2) cervical and upper thoracic (carotid, vertebral and subclavian) arteries and 3) aorta by an experienced blinded nuclear medicine physician.

Results: The mean patient age was 71 years and 63% were female. 69% met 1990 American College of Rheumatology Classification Criteria for GCA. 27% (7/26) of biopsies demonstrated mural inflammation and a further 15% (4/26) had isolated peri-adventitial small vessel vasculitis. One patient had unequivocal large vessel vasculitis on CT and did not undergo biopsy. Symptoms included headache (81%), visual disturbance (44%), proximal stiffness (37%) and jaw claudication (30%). Mean CRP was 48 mg/L and ESR was 45 mm/hr. 37% (10/27) of patients had positive PET scans. Increased tracer uptake was detected most frequently in the cervical and upper thoracic arteries (22%) followed by superficial temporal arteries (19%) and aorta (11%). An alternative diagnosis of cancer or infection was identified in a further three patients.

Conclusions: The novel FDG PET-CT protocol was suggestive of active vasculitis in 37% of suspected GCA patients. 19% had FDG uptake in the superficial temporal arteries, a finding which has not been described in previous studies. This protocol is the subject of ongoing study (clinicaltrials.gov ID: NCT02771483).
O-7 CHONDROCYTES REGULATE JOINT INFLAMMATION THROUGH ENDGENOUS GLUCOCORTICOID SIGNALLING
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Aim: Our previous studies demonstrated that endogenous glucocorticoid signalling in osteoblasts promotes inflammation in murine immune arthritis models. The current study aimed to determine whether disruption of endogenous glucocorticoid signalling in chondrocytes modulates the course and severity of experimental arthritis.

Methods: Antigen-induced arthritis (AIA) and K/BxN serum-transfer induced arthritis (STIA) were used as animal models of inflammatory arthritis. Chondrocyte-targeted glucocorticoid receptor knockout (chGRKO) mice were generated by breeding GR conditional knockouts with tamoxifen-inducible Collagen 2a1 Cre mice (Col2a1-CreERT2). Arthritis was induced in both chGRKO mice and their Cre-negative GRlox/lox littermates (WT).

Results: The inflammatory response was significantly greater in chGRKO mice compared to WT mice in both AIA and STIA models, as assessed by knee joint width and ankle size, respectively. Correspondingly, histological analysis revealed significantly more pronounced inflammation in both arthritis models in chGRKO compared to WT mice, including more severe synovial hyperplasia, aggressive pannus formation, local bone erosion, cartilage degradation (AIA model). Using the STIA model we demonstrated a significant and selective expansion of CXCR2+ neutrophils in splenectomised chGRKO arthritis mice, as well as up-regulation of gene expression of CXCR2 and its ligands in ankle tissue of chGRKO arthritis compared to WT arthritis mice on D7.

Conclusions: Our findings indicate that GR signalling in chondrocytes has an important regulatory role in immune-mediated arthritis.

O-8 TRANS-ANCESTRAL META-ANALYSIS IDENTIFIES 13 NEW LOCI ASSOCIATED WITH SERUM URATE LEVELS
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Aim: Serum uric acid is an important biomarker for gout disease and kidney function. Genome-wide association studies (GWAS) have identified 28 loci in European and east Asian populations. Combined analysis of these summary data across populations offer the opportunity to discover new serum uric acid (SUA) associations through greater sample size and power, and trans-ancestral analyses provide the opportunity for fine-mapping associations with greater resolution. Our aim was to perform a meta-analysis of SUA GWAS data from the European and east Asian populations.

Methods: Summary statistics from European (N = 110,238) and east Asian (N = 21,268) GWAS were obtained. We used ImpG v1.0 to impute the results into 1000 Genomes phase 3 variants, and performed sample-size weighted z-score meta-analysis. Linkage-disequilibrium (LD)-independent variants with PMETA < 5x10-8, not in LD (r2 < 0.1) with previously identified regions, were considered novel serum urate loci. We used functional partitioned LD score regression on all associated loci in the European GWAS to identify SNP-heritability enriched tissue-specific regulatory regions, for use as functional priors in PAINTOR fine mapping analyses to identify putative causal variants.

Results: Nine novel serum urate-associated loci were identified (PMETA < 5x10-8). Three are located in the 11q12.3-13.2 region near the established SLCP21A11/12 loci. Additional novel loci are located near the FGF5, LCN200803, F1A-DDB1, B4GAL-T1, BICC1 and USP2 genes. Tissue-focused functional partitioning of SNP-heritability indicated the strongest enrichments of kidney, GI and liver tissues (P < 10-7), among other significant tissues. Transancestral meta-analysis and functional fine-mapping decreases the numbers of SNPs in causal variant credible sets, and for example pinpoints the rs17632159 SNP as likely causal (posterior P > 0.9) at the TIMEM171/174 locus.

Conclusions: Meta-analysis of existing GWAS increases power and leads to the identification of nine new loci associated with serum uric acid levels. Increased resolution in trans-ancestral GWAS, with functional annotation enrichments, improves fine-mapping of serum urate GWAS loci.

O-9 DIRECT AND INDIRECT EFFECTS OF MONOSODIUM URATE CRYSTALS ON OSTEOCYTE CELL VIABILITY AND EXPRESSION; IS THERE A ROLE FOR OSTEOCYTES IN EOSERVE GOUT?
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Aim: Bone erosion in gout is strongly associated with tophi; lesions comprising of inflammatory cells surrounding collections of monosodium urate (MSU) crystals. Osteocytes are important regulators of bone remodelling. This study investigated the direct effects of MSU crystals and indirect effects of MSU crystal-induced inflammation on osteocyte viability and gene expression.

Methods: For direct assays, MSU crystals (0.01–0.5mg/mL) were added to MLO-Y4 osteocyte-like cells or primary mouse osteocytes cultured in type I collagen gels. For the indirect assays, RAW264.7 macrophage-like cells were cultured with MSU crystals (0.5mg/mL) for 24h, and conditioned media harvested and filtered. The MSU crystal-exposed conditioned media or conditioned media from untreated RAW264.7 cells (control) was added to MLO-Y4 cultures. Cell viability was assessed after 24h and 48h using alamarBlue® assays and changes in MLO-Y4 gene expression were examined by real-time PCR. The relationship between osteocytes, MSU crystals and macrophages was examined using polarizing microscopy and CD68 immunohistochemistry in human joint samples affected by gout.

Results: In direct assays, addition of MSU crystals reduced MLO-Y4 viability, but did not alter osteocyte-related gene expression. In contrast, conditioned media from MSU crystal-exposed RAW264.7 cells did not affect MLO-Y4 viability, but significantly increased MLO-Y4 expression of E11, connexin-43 and RANKL. Upreregulated expression of inflammatory genes IL-1β, IL-6, IL-8, IL-11, TNF-α and cyclooxygenase-2, was also observed in MLO-Y4 cells after addition of conditioned media from MSU crystal-exposed RAW264.7 cells. In the histological analysis, multiple CD68 macrophages and MSU crystals were identified in close proximity to osteocytes within bone.

Conclusions: MSU crystals directly inhibit osteocyte viability, but do not alter osteocyte-related gene expression. However, interactions between MSU crystals and immune cells may indirectly promote osteocyte expression of pro-resorptive and inflammatory mediators, with important consequences for local bone remodelling.
O-10
MITOCHONDRIAL GENETIC VARIATION, COPY NUMBER AND SUSCEPTIBILITY TO GOUT IN THE NEW ZEALAND POLYNESIAN (MĀORI AND PACIFIC) POPULATION
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Aim: Mitochondria play a central role in induction of the gout NLRP3 inflammatory response. Mitochondria possess a 16.5 kb genome which encodes 36 genes. The objective was to test whether mitochondrial genetic variation and copy number contribute to the risk of gout in New Zealanders of Polynesian ancestry.

Methods: 439 mitochondrial genomes from Māori and Pacific men with Polynesian maternal grandmothers (327 cases, 112 controls) were generated using Illumina MiSeq technology. Association of mtDNA copy number with gout was investigated by a relative read depth approach using sequence data from two independent data sets (whole genome sequencing (n = 73) and resequencing of urate loci (n = 385)). Quantitative PCR was undertaken for mtDNA copy number replication in an independent sample set of 632 Polynesian male and female cases and 579 controls.

Results: A lineage-specific heterozygous in hypervariable region 1 associated with gout (c.1370G>A) was identified (OR = 3.86, P = 9x10-5). Relative to autosomal DNA an additional 10 mtDNA copies protected from gout in the whole genome sequence (OR = 0.87, P = 0.004) and resequencing (OR = 0.91, P = 3.3x10-4) sample sets, including when using asymptomatic hyperuricemic controls (OR = 0.81, P = 0.004 and OR = 0.80, P = 0.0002, respectively). In replication, quantitative PCR of mtDNA showed that with each unit decrease in ΔCt (reflecting increase in mtDNA), there was a decrease in gout risk using asymptomatic hyperuricemic controls (OR = 0.76, P = 0.03). However there was no significant association of increased mtDNA copy number with gout risk using all controls (OR = 0.92, P = 0.32).

Conclusions: It is unclear whether the reduced mtDNA copy number in gout is a consequence of the gouty pathology or whether the reduced mtDNA copy number causally contributes to the risk of gout. The latter possibility is supported by the consistent protection towards gout of increased mtDNA copy number using hyperuricemic controls, consistent with a role for mitochondria in monosodium urate crystal formation and/or the immune response.

O-11
ADVANCED IMAGING ASSESSMENT OF TYPHACEOUS GOUT: COMPARISON OF DUAL-ENERGY CT AND MAGNETIC RESONANCE IMAGING WITH ANATOMICAL PATHOLOGY
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Aim: Dual-energy computed tomography (DECT) and magnetic resonance imaging (MRI) are advanced imaging methods used to visualise gout pathology. DECT can identify monosodium urate crystals and also has conventional CT properties, allowing assessment of tophus and bone pathology. MRI is used to assess inflammation, bone erosion and cartilage damage in gout. This study aimed to compare DECT and MRI with anatomical pathology in the assessment of gout.

Methods: Cadaveric joint specimens from two donors; one with crystal-induced tophaceous gout pathology. DECT can identify monosodium urate crystals and also has conventional CT properties, allowing assessment of tophus and bone erosion in gout. MRI also allows excellent visualisation of tophus, but less reliable assessment of bone or cartilage damage. These data provide further validation for the use of DECT in the assessment of gout.

Results: For DECT there was complete agreement with histopathology for urate and tophus (kappa 1.0 for all). MRI also had high concordance with histopathology for tophus (kappa 0.92). For bone erosion, there was higher concordance between CT and the macroscopic and microscopic analyses (kappa 0.96 and 0.79, respectively), than between MRI and the macroscopic and microscopic analyses (kappa 0.79 and 0.56, respectively).

Conclusions: DECT has excellent concordance with anatomical pathology for urate deposition, tophus and bone erosion in gout. MRI also allows excellent visualisation of tophus, but less reliable assessment of bone or cartilage damage. These data provide further validation for the use of DECT in the assessment of gout.

O-12
FRUCTOSE MALABSORPTION IN PEOPLE WITH GOUT AND EFFECT OF ALLOPURINOL: IMPLICATIONS FOR DIET
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Aim: Higher fructose intake has been associated with hyperuricaemia and gout. Some individuals malabsorb fructose in the small intestine. The aims of this study were to determine the rate of fructose malabsorption and the effects of gout and fructose malabsorption on serum urate in people with and without gout.

Methods: One-hundred people with gout (cases) were age and gender matched with one control without gout. After a low fructose diet, fructose malabsorption was measured using a hydrogen or methane breath test with a 35gm fructose load. In a subgroup of 35 cases and 35 controls, serum urate response to the fructose load over 240 minutes was measured.

Results: There was no significant difference in the rate of fructose malabsorption between cases and controls (48% vs. 52%; p = 0.67). Cases had a significantly lower mean (SEM) serum urate iAUC0-240 compared to controls 0.97 (0.56) vs. 4.78 (0.55); p < 0.001. Serum urate Cmax was significantly lower in cases compared to controls (0.38 (0.003) vs. 0.40 (0.003); p < 0.001). All cases were receiving allopurinol. There was no significant difference between iAUC0-240 or Cmax for malabsorbers compared to normal absorbers in respect of case control status. The mean (SEM) increase in SU between baseline and 30 minutes was 0.04 (0.004) mmol/l in the controls compared to 0.009 (0.002) in the cases (p < 0.001).

Conclusions: The rates of fructose malabsorption are similar in people with and without gout. Allopurinol inhibits the increase in serum urate induced by fructose load suggesting that people with gout receiving allopurinol may not need to restrict dietary intake of fructose.
O-14  MALIGNANCY RISK IN AUSTRALIAN RHEUMATOID ARTHRITIS PATIENTS: A POPULATION-BASED PROSPECTIVE COHORT STUDY AN UPDATE FROM THE AUSTRALIAN RHEUMATOLOGY ASSOCIATION DATABASE (ARAD) PROSPECTIVE COHORT STUDY

**Aim:** To update malignancy risk estimation in a cohort of Australian rheumatoid arthritis (RA) patients compared with the Australian general population and compare risk for patients exposed to TNFi therapy with a biologic-naive group.

**Methods:** Demographic data for RA patients enrolled in ARAD before 31 Dec 2012 were matched to national cancer records in May 2016 (linkage complete to 2012). Standardised incidence ratios (SIRs) compared malignancy in TNFi-exposed and biologic-naive participants with the Australian general population using site-, age- and sex-specific rates by calendar year. Rate ratios (RRs), adjusted for age, sex, smoking, methotrexate use and prior malignancy, compared incidence in TNFi-exposed and biologic-naive participants.

**Results:** After 10120 and 2232 person-years there were 107 and 49 malignancies in the TNFi-exposed and biologic-naive groups respectively. Compared with the general population, there was no overall increased risk of malignancy for TNFi-exposed participants but risks for lung cancer (SIR 1.69, 95%CI 1.05 to 2.90) and lymphoid cancers (SIR 1.82, 95%CI 1.12 to 3.18) were elevated. Biologic-naive participants showed increased risk relative to the Australian population for all invasive cancers (SIR 1.52, 95%CI 1.16 to 2.02), lung cancer (SIR 2.69, 95%CI 1.23 to 5.43), and prostate cancer (SIR 2.10, 95%CI 1.18 to 4.11) but not melanoma (SIR 1.51, 95%CI 0.57 to 3.55). There were no differences between the TNFi-exposed and biologic-naive participants in the overall risk (RR 0.71, 95%CI 0.46 to 1.08) or for any of the sites examined.

**Conclusions:** Malignancy risk appeared elevated in the biologic-naive group but TNFi exposure did not increase risk. In contrast to our previous findings an increased risk of malignancy for TNFi-exposed patients but risks for lung cancer compared with the general population suggests that RA or the drugs used to treat it may increase malignancy risk.

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O-15  THE DAS28-P INDEX AS A PREDICTOR OF POOR SUBJECTIVE RESPONSE TO DMARD THERAPY IN EARLY RHEUMATOID ARTHRITIS

**Aim:** Pain often persists in RA patients despite adequate disease-modifying therapy. The DAS28-P index (the proportion of the DAS28 contributed by subjective components) has been proposed as a measure of central pain mechanisms in RA. We examined the utility of DAS28-P as a predictor of poor subjective response to DMARDs in early RA.

**Methods:** Participants were enrolled in a randomised trial of supplemental fish oil in RA of <12 months’ duration and received combined DMARDs according to a treat-to-target protocol. Subjects were partitioned into clusters using a k-means clustering algorithm for joint longitudinal trajectories of subjective (tender joints, patient global) and objective (swollen joints, ESR) components of the DAS28 using the km13d R library. Baseline predictors of group status were defined, and DAS28-P comparisons were performed using beta regression and the R library mgcv.

**Results:** 1220 observations were recorded from baseline to 12 months in 121 subjects (mean age 57, 74% female, 54% CC/P). Three groups of subjects were defined in the cluster analysis. Group 1 (n = 58, 48%) had a good DAS response, Group 2 (n = 32, 26%) had a good objective response but a poor subjective response, and Group 3 (n = 31, 26%) had a poor DAS response. There were no differences between groups in baseline clinical characteristics. The mean DAS28-P differed between groups (p < 0.05), however baseline DAS28-P did not distinguish between Groups 2 and 3 (p = 0.20). The DAS28-P score declined with treatment in Group 1 (p < 0.001), but was stable in Groups 2 and 3.

**Conclusions:** 26% of subjects experienced a poor subjective response to DMARDs despite an improvement in inflammation. This group may benefit from therapy aimed at pain mechanisms rather than more intense DMARD therapy. The baseline DAS28-P does not clearly distinguish between this group and those who have an inadequate inflammatory response to DMARDs.

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O-16  INJECTIONS AND MAINTENANCE TREATMENT OF PROLIFERATIVE LUPUS NEPHRITIS: AN UPDATED COCHRANE REVIEW

**Aim:** Pharmacological treatments have improved survival in lupus nephritis. However, intravenous cyclophosphamide as first-line therapy has considerable toxicity and lacks evidence of efficacy to prevent end-stage kidney disease. The comparative efficacy of newer strategies compared with intravenous cyclophosphamide remains unclear.

**Methods:** We updated a random-effects meta-analysis of randomized controlled trials on induction and maintenance therapy for proliferative lupus nephritis. Evidence quality was assessed using GRADE.

**Results:** 59 trials (4465 participants) were eligible, including nine new trials. Compared with intravenous cyclophosphamide, mycophenolate mofetil (MMF) incurred similar risks of complete remission (1.26 (95%CI 0.97, 1.64), mortality (1.34 (0.69, 2.76)), or major infection (1.09 (0.94, 1.26)), while risks of allopurinol (0.29 (0.19, 0.46)) and ovari <
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Smoking and higher disease activity as measured by the ASDAS-CRP IN SOUTH AUSTRALIA (SA): A POPULATION BASED STUDY

Conclusions: MMF is as effective as intravenous cyclophosphamide and are detrimental to QoL. Many people with knee/hip pain seek treatment from GPs and Orthopaedic surgeons, and receive invasive, costly investigations. However, for much of the cohort, knee/hip pain were persistent with underuse of non-pharmacological treatments such as physiotherapy. These factors should be noted by clinicians and policy-makers.

O-17 SMOKING AND SPONDYLOARTHRITIS: QUIT WHILE YOU CAN?

O-19 CONSUMERS’ PERSPECTIVES ON CURRENT AND FUTURE MANAGEMENT OF HIP AND/OR KNEE OSTEOARTHRITIS IN VICTORIA: A CONSULTATION FOR THE VICTORIAN MODEL OF CARE FOR OSTEOARTHRITIS OF THE HIP AND KNEE

Aim: To investigate the effect of smoking on disease activity in patients with axial spondyloarthritis (AxSpA) and determine if continued smoking worsens outcomes over time.

Methods: The Spondyloarthritis Genetics and the Environment (SAGE) study is a longitudinal multicentre study established in 2010 in New Zealand. Annual assessments were performed on a total of 368 patients fulfilling the ASAS criteria for AxSpA. A smoking history was obtained by interview from all participants. Standard outcome measures were recorded at each annual visit including BASDAI, BASFI, ASDAS-CRP, chest expansion and EuroQol. The association between smoking and outcomes was assessed by linear regression analysis (statistical program R).

Results: At baseline (visit 1), complete smoking data were available for 340 participants: 174 never smoked, 115 previous smokers and 51 current smokers.

At baseline, there was a significant association between current cigarette smoking, disease activity and physical function (ASDAS-CRP $\beta = 0.95$, 95% CI $[0.07-1.80]$; $P = 0.018$, BASDAI $\beta = 0.95$ 95% CI $[0.21-1.69]$ $P = 0.012$, BASFI $\beta = 1.19$, 95% CI $[0.40-1.89]$; $P = 0.0032$). Chest expansion was reduced in both current smokers and past smokers but this result did not reach significance.

After 12 months (visit 2), complete smoking data were available for 191 participants: 97 never smoked, 71 previous smokers, and 23 current smokers. At visit 2, there was a significant association between cigarette smoking and higher disease activity as measured by the ASDAS-CRP ($\beta = 0.60$, 95% CI $[0.14-1.06]$ $P = 0.0097$). This remained significant even after adjusting for ASDAS-CRP at baseline ($P < 0.05$).

Conclusions: Smoking is associated with higher disease activity at baseline and after one year in AxSpA. Patients with AxSpA should be encouraged to quit smoking.

O-18 PREVALENCE AND HEALTH CARE USAGE OF KNEE AND HIP PAIN IN SOUTH AUSTRALIA (SA): A POPULATION BASED STUDY

Aim: To assess the prevalence and persistence of knee and hip pain in SA, and to determine treatment

Methods: The North West Adelaide Health Study is a longitudinal, population based cohort study of people aged 18 years and over (n = 4060), initially randomly selected, from the north-west region of Adelaide, SA. Four stages of data collection occurred between 1999 and 2015, and incorporated clinic assessments, self-completed questionnaires and telephone interviews. The study collected basic demographic, anthropometric and biochemical data, together with information on chronic diseases. Quality of life (QoL) was measured using SF-36.

Results: In stages 3 and 4 of the NWAHS, 30-35% of participants reported knee pain/stiffness (n = 803, 452) and 23-26% reported hip pain/stiffness (n = 648, 295). Demographic variables associated with both knee and hip pain included older age, lower educational level, and a carer work status. Risk factors for knee and hip pain included obesity and high waist circumference. QoL was significantly lower in all domains those with knee or hip pain/stiffness compared to those without.

In the last 12 months, 33% of participants with knee pain/stiffness consulted a GP for their knee pain, 10.2% an orthopaedic surgeon, and 12.6% a physiotherapist.

In total, 3.0% of the cohort underwent a knee arthroscopy between 2011 and 2015, and 3.1% underwent a knee MRI.

Regarding treatment for hip pain, 25.6% consulted a GP for hip pain/stiffness in the last 12 months, 9.5% an orthopaedic surgeon and 8.5% a physiotherapist.

Conclusions: Knee and hip pain affect large proportions of the SA population, and are detrimental to QoL. Many people with knee/hip pain seek treatment from GPs and Orthopaedic surgeons, and receive invasive, costly investigations. However, for much of the cohort, knee/hip pain were persistent with underuse of non-pharmacological treatments such as physiotherapy. These factors should be noted by clinicians and policy-makers.
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O-20 WALKING A FINE LINE (CAREFULLY): AN EXPLORATION OF BELIEFS ABOUT KNEE PAIN IN PEOPLE WITH OSTEOARTHROSIS

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Aim: Explore the beliefs of New Zealanders living with knee osteoarthritis (OA) to understand their concepts of the disease and how these beliefs influence their preferred management strategies, activity participation, and quality of life.

Methods: Semi-structured qualitative interviews were conducted with thirteen participants who had been diagnosed with knee OA by a health professional. Participants were purposely recruited through primary care, secondary care and community advertisements. Interviews were audio-recorded and transcribed verbatim. Data were independently analysed by two researchers using Thematic Analysis and verified by a third researcher. Data were collected and analysed concurrently. Recruitment continued until theme saturation was achieved.

Results: Participants explained their OA using a biomechanical model, describing progressive structural deterioration due to joint wear and tear that was associated with ageing. They considered these changes resulted in bone grinding on bone and pain. These beliefs were reinforced by what participants saw, heard, and felt from their joint, and explanations from health professionals, particularly in relation to x-rays. This model heavily influenced beliefs about OA, its management and impact. Participants expected an inevitable progressive decline in joint condition with inevitable increases in pain and decrease in function that would ultimately require joint replacement surgery. This concept, combined with health professionals playing down OA’s importance, limited exploration of other management options. Participants acknowledged benefits of physical activity for other tissues around the knee (such as muscles) and for other aspects of health but thought activity also accelerated joint damage. Consequently, participants reported carefully balancing activity benefits against the risk of further joint damage and were uncertain about these decisions.

Conclusions: The belief that joint use wears out articular cartilage is widely held and can be perpetuated by messages from health professionals. This belief results in a cautious approach to activity and limits participation in meaningful activities.

O-21 QUALITATIVE STUDY OF AUSTRALIAN PATIENT PERSPECTIVES RELATED TO POLYMALGYA RHEUMATICA AND GIANT CELL ARTERITIS

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Aim: To explore patient experiences of Polymyalgia Rheumatica (PMR) and Giant Cell Arteritis (GCA) using an exploratory research approach.

Methods: Patients attending rheumatology clinics at TQEH and RAH, with a diagnosis of PMR or GCA were invited to participate in this qualitative study. Discussion groups facilitated by non-clinician researchers were conducted with thirteen participants who had been diagnosed with knee OA by a health professional. Participants were purposely recruited through primary care, secondary care and community advertisements. Interviews were audio-recorded and transcribed verbatim. Data were independently analysed by two researchers using Thematic Analysis and verified by a third researcher. Data were collected and analysed concurrently. Recruitment continued until theme saturation was achieved.

Results: Participants explained their OA using a biomechanical model, describing progressive structural deterioration due to joint wear and tear that was associated with ageing. They considered these changes resulted in bone grinding on bone and pain. These beliefs were reinforced by what participants saw, heard, and felt from their joint, and explanations from health professionals, particularly in relation to x-rays. This model heavily influenced beliefs about OA, its management and impact. Participants expected an inevitable progressive decline in joint condition with inevitable increases in pain and decrease in function that would ultimately require joint replacement surgery. This concept, combined with health professionals playing down OA’s importance, limited exploration of other management options. Participants acknowledged benefits of physical activity for other tissues around the knee (such as muscles) and for other aspects of health but thought activity also accelerated joint damage. Consequently, participants reported carefully balancing activity benefits against the risk of further joint damage and were uncertain about these decisions.

Conclusions: The belief that joint use wears out articular cartilage is widely held and can be perpetuated by messages from health professionals. This belief results in a cautious approach to activity and limits participation in meaningful activities.

O-22 BRIDGING THE CULTURAL GAP OF PATIENT INFORMATION

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Aim: The patient population in rheumatology in New Zealand is increasing from a multi cultural view point. The number of patients on biological medications who are non-English speaking is growing quite rapidly. Though there is an abundance of patient information sheets for the various biologicals, they are all in English. Nurses and clinicians have to rely on family members or the interpreters to get the vital messages across to the patients, about the use of biologicals. Quite often, this can create confusion, misunderstanding and also, non compliance due to lack of adequate knowledge.

Methods: Seeing this lacuna, I approached one of the pharmaceutical companies who produce a much used biological. I discussed with them the concept of creating information sheets in four common languages used by the patients. This information sheet would contain basic information on the medication, how to use it and the precautions to be kept in mind. A lot of discussion meetings were held between myself and the drug representative. We were mindful that we were promoting optimum use of the medication, and not ‘marketing’ the drug.

Results: After a year of discussion and planning, the patient information sheets are now available in Mandarin, Tongan, Samoan and Hindi. They can be widely used by any health professional working with these groups of patients.

Conclusions: Patients feel empowered and in control of themselves when they have information that they can read and comprehend for themselves. They do not have to rely entirely on another person for information regarding their medication. Better self understanding also leads to improved compliance to treatment.

O-23 IDENTIFICATION OF CLINICIAN AND PATIENT BARRIERS TO THE IMPLEMENTATION OF A PATIENT-CENTERED TREAT TO TARGET STRATEGY FOR RHEUMATOID ARTHRITIS IN AUSTRALIA

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Aim: Investigate clinician and patient awareness, knowledge, perceived need, acceptance and willingness to implement a patient-centered Treat-to-Target (TTT) strategy for Rheumatoid Arthritis (RA) across public and private clinics in Australia.

Methods: Two cross-sectional surveys are being undertaken in parallel: A survey of RA patients and a national survey of Australian rheumatologists. Agreement is measured using a 10-point Likert scale for TTT recommendations and use in daily practice. Questions related to willingness to alter practice, TTT education and patient perceptions are included with free-text comments.

Results: 58 rheumatologists responded. Average level of agreement scores for the TTT recommendations ranged from 7.05 to 9.32. Lowest level of agreement was with recommendation 4; the use of a validated composite measure of disease activity is needed in routine practice (7.05). Low use of a disease activity score in daily practice was also reported (49% very often/often used; 41% do not think TTT is necessary for every patient. For implementation of TTT rheumatologists are willing to schedule more visits (89%), perform joint counts (87%), use patient reported outcomes (PRO) for shared decision-making (83%) and spend time discussing TTT
Both ePRO and pPRO provided consistent results and preferred the electronic tablet.

Conclusions: TTT in RA is an evidence-based intervention and a recommended strategy for the management of RA. Agreement with and uptake in routine clinical practice in Australia is low. Significant clinician and patient barriers exist and an implementation strategy is required.

O-24 COMPARING THE ELECTRONIC PATIENT REPORTED OUTCOME (EPRO) TOOL VERSUS THE PAPER REPORTED OUTCOME (PPRO) TOOL IN RHEUMATOID ARTHRITIS PATIENTS TREATED WITH CERTOLIZUMAB PEGOL

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Aim: Clinical disease activity for patients with rheumatoid arthritis requires frequent monitoring for optimal management. Patient reported outcome (PRO) tools provide information that complements physician’s assessment of changes in disease activity and response to treatment. Electronic data capturing (ePRO) is potentially advantageous over paper based (pPRO) in terms of reducing missing data, reducing ambiguous responses and allowing time-stamped records and analysis.

Methods: Patients were assigned randomly to either ePRO or pPRO at visit one. At visit 2, patients crossed over into the other PRO modality (both pre-treatment) and remained in that arm for subsequent visits at week 6, 12 and 36. Patient assessments include 28 swollen (SJC) and tender joint counts (TJC), Patient assessment of pain (PAAP), Patient assessment of global disease activity (PtGADA) and Bristol Arthritis Fatigue Multidimensional Questionnaire (BRAF-MDQ). HAQ - DI was completed but excluded due to a data collection error.

Results: 52 patients with mean RA duration 11.7 years were enrolled and 47 completed at least the initial crossover arm. Mean age was 55.7 (SD 14.3) years and 67% were female. There was moderate to high correlation between Nurse-Patient-Physician PRO assessments. There was no significant difference in PtGADA, PAAP and BRAF-MDQ between ePRO and pPRO assessments.

Conclusions: Both ePRO and pPRO provided consistent results and demonstrated equivalence in PRO assessment. ePRO was well embraced by patients. It may be a desirable inclusion in routine RA assessments for its added reliability, consistency and increased patient involvement.

NZRA + ARA POSTER PRESENTATIONS

P1 MULTIREGIONAL MUSCULOSKELETAL PAIN, CHRONIC WIDESPREAD PAIN AND FIBROMYALGIA SYNDROME: LIFE-COURSE RISK MARKERS FOR DEVELOPMENT AND PROGRESSION

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Aim: To identify and illustrate risk markers for the development and progression of multiregional musculoskeletal pain (MMP), chronic widespread pain (CWP) and fibromyalgia syndrome (FMS).

Methods: Non-modifiable and modifiable risk markers for MMP were determined by a twin family case-control study in collaboration with the Australian Twin Registry (ATR) and by collaborative epidemiological research on the Western Australian Raine Study pregnancy cohort database at age 22. Risk markers with best evidence for CWP and FMS were identified by extensive literature search. Progression from regional musculoskeletal pain to CWP and FMS and related risk markers is illustrated by two case histories.

Results: Analysis of the twin family study (481 responders, 11.4% with 3+ sites) showed current (one month) MMP influenced by age across adolescence, female gender, twin concordance and familial evidence of genetic effect. The Raine database analyses (N = 1076-1096) showed MMP independently associated with age, female gender, anxiety and depression, poor sleep quality. Literature review identified life-course risk markers for CWP and/or FMS: familial/genetic, female, child adversity, cognitive and psychosocial, trauma, primary pain disorders, hypermobility, rheumatic disorders, sleep problems, iron deficiency, infectious illness, polyneuropathy. Case 1 illustrated the pain extension over 25 years in an adult female fitted the distribution of the MMP data for MMP and CWP+ and FMS+ influenced by long sustained central sensitisation. Case 2, in contrast, illustrated the evolution from childhood to 25 years of regional musculoskeletal pain to FMS, probably influenced by high vulnerability from no fewer than 10 evidenced-based risk markers.

Conclusions: The prospects of prevention or minimizing CWP and FMS would probably be improved by identification and management of the modifiable risk markers over the life course.

Acknowledgements: Raine researchers, Perth; ATR collaborators; Sydney Children’s Hospital Pain Research Unit; Dutch and UNSW students.

P2 FIBROMYALGIA SYMPTOM SCALE (FSS) IS A USEFUL GUIDE TO FIBROMYALGIA DIAGNOSIS

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Aim: The ACR 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria have clarified fibromyalgia diagnosis and research classification. Main components of the criteria are the Widespread Pain Index (WPI) and the Symptom Severity Scale (SSS). These can be added to produce the Fibromyalgia Severity Scale (FSS) which provides a measure of fibromyalgia severity. The FSS has also been used to approximate diagnostic status, with 92-96% of patients with a score ≥ 12 satisfying criteria in international studies. The aim is to investigate the usefulness of the FSS as a surrogate diagnostic tool in an Australian population.

Methods: Consecutive patients seen in the Monash Fibromyalgia Clinic were assessed clinically, including assessment of the ACR 2016 revised diagnostic criteria. FSS and Fibromyalgia Impact Questionnaire (FIQ) scores were calculated. FSS was compared to 2016 diagnostic criteria status.

Results: 424 patients were included (91.5% female, mean age 45.12 years, symptom duration 10.61 years). Of these, 408 (96.2%) had an FSS ≥ 12 satisfying criteria in international studies. FSS and FIQ scores were calculated. FSS was compared to 2016 diagnostic criteria status.

Conclusions: The FSS is a useful continuous scale measure of fibromyalgia symptom burden, and when used with a cut point of 12, can serve as an approximation of diagnostic criteria status in an Australian population.
Aim: Low back pain (LBP) affects up to 85% of all adults and is the leading cause of disability worldwide. It places great demands on primary care and hospital resources, with evidence indicating that traditional outpatient surgical services have become overwhelmed by referrals for neck and LBP. The Back pain Assessment Clinic (BAC) model is a community-based specialist service staffed by rheumatologists and physiotherapists that provides an alternative care pathway for patients referred for hospital specialist review of neck and LBP. The aim is to assess the clinical characteristics and outcomes of patients managed in BAC.

Methods: Audit of BAC database from 1 July 2014 to 31 December 2016.

Results: Of the 1299 referrals redirected to BAC, 767 new patients have been seen. The majority (n = 1231, 94%) of referrals were redirected from outpatient spinal surgical services and most referrals (91%) were general practitioner initiated. Prior to BAC consultation, most patients (96%) had spinal imaging while 59% had trialled allied health interventions. At the initial BAC consultation, the mean (SD) Oswestry/Neck Disability Index (O/NDI) score was 41 (20) (n = 516), and mean (SD) Brief Pain Inventory (BPI) scores for severity was 6 (2.1) (n = 524) and for interference was 6 (2.4) (n = 510). For the 767 new patients seen, 32% underwent medication adjustment, 48% were referred for physiotherapy, 4% to pain services or rheumatology and 2% to neurosurgery or orthopaedics. Of the 376 patients who attended a review appointment, the mean (SD) for O/NDI was 37 (19) (n = 93), BPI severity 5.3 (2.5) (n = 79) and interference 5.2 (2.8) (n = 79). Three patients (0.4%) were found to have ‘red flags’ causes of LBP and were referred for urgent surgical assessment.

Conclusions: Ongoing evaluation of BAC indicates that it is a safe and effective alternative model of care for patients with mechanical neck and LBP.

P4 CO-MORBID GOUT IS ASSOCIATED WITH INCREASED CARDIOVASCULAR RISK FACTORS IN PATIENTS WITH TYPE 2 DIABETES, BUT NOT CARDIOVASCULAR OUTCOMES OR MORTALITY

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Aim: To compare cardiovascular risk factors and long-term outcomes and mortality in patients with type 2 diabetes according to the presence or absence of gout.

Methods: 1,405 patients with type 2 diabetes were prospectively recruited from the outpatient setting at Austin Hospital. Baseline cardiovascular risk factors and comorbidities were identified. Patients were classified as having gout if they gave a history of gout or were taking medication for the treatment of gout. For statistical analysis, patients with diabetes (Group 1) were compared to those with diabetes and gout (Group 2). Cardiovascular (CV) events and long-term CV mortality were assessed over a 10 year period.

Results: There were 1,329 patients with diabetes (Group 1; 95%) and 76 with diabetes and gout (Group 2; 5%). Patients with gout were older (68 ± 11 vs. 64 ± 12 y, p = 0.004), more likely to be male (80% vs. 59%, p < 0.0001), with higher triglyceride levels (2.6 vs 1.9 mmol/L, p = 0.002), lower HDL (1.05 vs. 1.24 mmol/L, p < 0.0001), higher BMI (33 vs. 31, p = 0.026), and were more likely to have nephropathy (55% (n = 35) vs. 26% (n = 311), p < 0.0001) with increased albumin creatinine ratio (3.4 vs 1.8 g/mmol, p = 0.002). Despite the worse cardiovascular risk profile in those with gout and diabetes, cardiovascular events and all-cause mortality were not significantly different between the groups (Group 1, 27% (n = 333) vs. 35% (n = 23) in Group 2, p = 0.201).

Conclusions: Although patients with comorbid gout and type 2 diabetes have a worse cardiovascular risk factor profile compared to those with diabetes alone, this was not associated with increased cardiovascular morbidity or all-cause mortality. These results suggest that elevated uric acid and gout are markers rather than determinants of CV mortality.

P5 FACTORS CONTRIBUTING TO LENGTH OF INPATIENT HOSPITAL STAY FOR PATIENTS WITH ACUTE GOUT ARTHROPATHY AT THE NORTHERN HOSPITAL: AN OBSERVATIONAL STUDY

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Aim: To identify factors potentially contributing to increased length of inpatient hospital stay for acute exacerbations of gout in a teaching hospital in Melbourne, Australia.

Methods: Patients admitted to The Northern Hospital, Melbourne, Australia with a discharge diagnosis of gout as their only acute medical problem between 1st July 2014 and 30th June 2016 were identified using ICD-10 disease coding from institutional compensation reports. Retrospective chart review was performed identifying length of stay and for variables which may potentially affect it.

Results: A total of 121 patients were discharged with an acute gout flare over the 2 years with a mean age of 66 ± 15 years. The vast majority of patients in this cohort were male (86%). The mean length of stay was 2.3 days (95% CI 1.83-2.78 days), with a median of 1 day. The median length of hospital stay was increased by 2 days if patients lived alone (p = 0.042) and 1 extra day if the C-Reactive Protein (CRP) measured at admission was >100 mg/L (p = 0.011). Hospital stay was similarly prolonged by a single day if more than one joint was involved in the flare (p = 0.003).

Conclusions: Gout without antecedent acute medical comorbidity is a common acute medical presentation to hospital with a large corresponding economic burden. Factors affecting length of inpatient stay include social status, marked elevation of CRP and polyarticular involvement. This study identifies factors which warrant further investigation as to how they may be ameliorated in order to improve health resource utilisation.

P6 PREVALENCE AND PREDICTORS OF GOUT AND ALLOPURINOL USE, AND THEIR ASSOCIATION WITH RISK PERCEPTION: RESULTS FROM A SOUTH AUSTRALIAN POPULATION-BASED STUDY

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Aim: Gout has an increasing global prevalence and underutilisation of allopurinol is common because of suboptimal dosing or poor medication adherence. Risk perception is an important determinant in health-related lifestyle factors, which has yet to be evaluated in gout. This study aims to determine the prevalence and predictors of self-reported gout and allopurinol use in South Australia and risk perception in gout respondents.

Methods: Data were obtained from the Spring 2015 South Australia Health Omnibus Survey, a multilevel, systematic, representative population sample involving face-to-face interviews (n = 3005; 57.3% participation rate). Our cross-sectional study included respondents aged 25 years and older (n = 2531) and data on self-reported gout, allopurinol use, socio-demographics, lifestyle factors and comorbidities were analysed with Stata v14 using survey weighting. Structural equation modelling was used to analyse risk perception as a latent response variable derived from 14 questions rating the importance of healthy lifestyle factors.

Results: Self-reported gout prevalence was 6.7% (95% CI: 5.7%-7.8%). Mean age of gout respondents was 64 years and 82% were males. Gout was associated with older age, male gender, low socioeconomic status (SES), increased body mass index (BMI), high alcohol consumption and comorbidities including arthritis (other forms), hypertension and...
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hypercholesterolemia (multivariable regression). Two-thirds of gout respondents reported allopurinol use (36% current; 29% previous). Allopurinol ever-use was associated with male gender, low SES, increased BMI and those with other forms of arthritis and hypercholesterolemia. Gout was associated with lower risk perception scores (βstandardized = −0.04, 95%CI:-0.09,0.01), as was allopurinol ever-use within gout respondents (βstandardized = −0.18, 95%CI:-0.34,−0.01), and these associations were mediated by male gender and low SES.

Conclusions: Gout is common in the South Australian population. Socio-demographic variables (male gender, low SES, increased BMI) and certain comorbidities (other forms of arthritis, hypercholesterolemia) are significant predictors of gout prevalence and allopurinol prescribing practice. These variables also contribute to lower risk perception in these gout respondents.

P7 A NEW METHOD OF DETECTING PYROPHOSPHATE LEVELS IN JOINT FLUID

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Aim: This study aims to determine whether the chemically synthesized sensors for PPI are capable of accurate determination of [PPI] in synovial fluid and to determine whether the levels of PPI correlate to clinical diagnosis of different forms of arthritis.

Methods: Patients over 18 years of age presenting to Westmead Hospital from March to November 2016 for management of arthritis and needing a joint aspiration for treatment or diagnosis were consented to participate. A portion of the sample collected for routine management was sent to University of Sydney, Chemistry department for analysis of PPi levels. Samples of different types of crystal arthritis.

Results: Initial testing of the sensing ensemble in aqueous solution demonstrated that it was able to respond to PPI. The sensing ensemble was also able to detect PPI within the synovial fluid samples. Comparison of the UV-light spectroscopy curves detected a difference in PPI concentrations between samples of different types of crystal arthritis.

Conclusions: The chemically synthesized sensors detect pyrophosphate in synovial fluid, and the sensing ensemble can detect a difference between samples of different types of crystal arthritis.

P8 MISSING FEATURE OF HEALTH APP DEVELOPMENT: PATIENTS

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Aim: Gout is a form of chronic arthritis caused by elevated serum uric acid (SUA). Despite effective urate-lowering therapies, gout management is suboptimal. Mobile applications (apps) are useful in the self-management of chronic conditions. However, few apps are developed in conjunction with end-users, thus limiting their uptake and effectiveness. An app could improve gout management by allowing patients to monitor their SUA, provide real-time feedback, and deliver education. This study aimed at co-developing an app for, and with, patients to self-manage their gout.

Methods: English-language, patient-focused apps that provided both monitoring capabilities and education were assessed for concordance with international gout management guidelines. Using these apps and a locally-developed general health app, focus groups were held with 13 gout patients to determine app features useful for patient self-management. An additional 11 gout patients provided feedback on in-house developed written text and animated video educational materials via interviews and focus groups.

Results: Of the six commercially available gout management apps, one was concordant with all patient-centred recommendations for gout management. However, this app required patients to manually complete print-outs. Patients identified useful app features as: a graph to monitor SUA, educational information, medication reminders, recording of gout attacks, and research updates. For educational materials, patients reported that videos captured their attention and delivered simple messages quickly. Patients preferred written material that was concise and individualised. Information on the causes of gout and treatments were favoured.

Conclusions: We have developed a gout self-management app with gout patient consultation. Usability testing is currently underway and a large trial is planned to demonstrate the app’s clinical effectiveness in reaching and maintaining safe concentrations of SUA, and reducing gout attacks. We predict that this iterative process involving patients will increase the likelihood that the app is user-friendly and adopted by end-users, which will ultimately lead to improved gout management.

P9 A MULTICENTRE OPEN-LABEL PHARMACOKINETIC- PHARMACODYNAMIC (PKPD) STUDY OF FEBUXOSTAT IN PATIENTS WITH CHRONIC GOUT

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Aim: To explore relationships between the concentrations of serum urate (SU) and plasma concentrations of febuxostat in patients with chronic gout.

Methods: Patients with chronic gout who are on febuxostat are recruited in trial ANZCTR ACTRN12616000959471. Baseline SU and baseline and treatment serum creatinine are collected. Steady-state treatment concentrations (n = 4) of febuxostat and SU are measured over the once daily dosage interval of febuxostat. Adherence to treatment is assessed by The Morisky Medication-Taking Adherence Scale-4.

Results: Preliminary results from male patients (n = 4) who have had gout for 5 to 17 years are presented. At baseline, all patients had tophi and SU ranged from 0.49 to 0.66 mmol/L. The patients have been treated with febuxostat (80 mg) for 5 to 33 months. Steady-state treatment SU ranged from 0.19-0.29 mmol/L (55-65% reduction in SU from baseline). Tophi resolved in all patients.

In patients with normal renal function (CrCl >90 mL/min), the trough concentrations of febuxostat ranged from 0.02-0.03 μg/mL. One patient with severe renal impairment (CrCl =24 mL/min) had a trough febuxostat concentration of 0.44 μg/mL (15–20 fold greater than those with normal renal function). However, similar reductions in SU were achieved in all four patients. Febuxostat had an initial half-life of elimination of approximately 2 hours which was followed by a terminal half-life of about 9 hours. Consequently, peak to trough plasma concentrations of febuxostat fluctuated by 50- to 70-fold over the 24 hour dosage interval. Despite this wide range of plasma concentrations of febuxostat, SU concentrations fluctuated by less than 10% over the dosage interval. Studies on single doses of febuxostat (80 mg) in healthy subjects have yielded discordant results.

Conclusions: Febuxostat (80 mg) significantly reduced SU concentrations to <0.3 mmol/L and promoted resolution of tophi in patients with chronic gout. Patient recruitment is continuing.
Gout Classification criteria have substantially better performance characteristics than many tested survey definitions, which may affect the validity of results.

This study aims to assess accuracy of the ICD discharge coding of gout against the 2015 ACR Gout Classification

**Methods:** 101 patients with an ICD diagnosis of gout at Fiona Stanley Hospital were reviewed; clinical information extracted and the 2015 Gout Classification Criteria score calculated. Each case was assigned a diagnosis based on the “physician’s opinion” of gout (definite, possible, unlikely or insufficient information).

**Results:** 100 patients with an ICD code of gout were discharged from FSH between October 14 and July 15. 79% of these were males. According to classification criteria, 19% met “sufficient criterion”, 28% met “classification criteria”, 53% did not meet the “classification criteria” or were unable to be scored.

Utilising the “physician’s opinion” of gout, 55% had definite gout, 18% possible gout, 18% were unlikely to have gout, and 14% had insufficient information to make an assessment.

**Conclusions:** The ICD coding of gout recorded for patients discharged from FSH is of questionable accuracy. Case note review is unable to substantiate over half the cases according to classification criteria, and almost one third of patients according to the physician’s opinion.

**P10**

**FINDING OF PAST GOUT IN PATIENTS RECRUITED TO A BIODESIGN STUDY: A COMPARISON WITH THE 2015 GOUT CLASSIFICATION CRITERIA**

**Aim:** To evaluate the incidence of gout in patients with rheumatoid arthritis (RA). The incidence of gout in RA patients is used to assess the validity of the classification criteria.

**Methods:** A survey of patients with RA was conducted at a tertiary hospital in Western Australia. The survey included a question about the incidence of gout, and the response was recorded as a categorical variable: “certain”, “possible”, “improbable”, “excluding”. Each patient was assigned a classification score based on the Gout Classification Criteria (GCC). The GCC score was calculated using the patient's responses to the survey questions.

**Results:** The survey was completed by 101 patients with RA. Of these patients, 79 (78.2%) reported a past history of gout. The incidence of gout was highest in the “certain” category, with a score of 5 (79.7%). The incidence of gout in the “possible” category was 28% (28.6%). The incidence of gout in the “improbable” category was 20% (20.2%). The incidence of gout in the “excluding” category was 12% (12.0%).

**Conclusions:** The incidence of gout in RA patients is high, and the GCC score is a valid tool for assessing the incidence of gout in RA patients.

**P11**

**MODIFYING AGENTS FOR RHEUMATOID ARTHRITIS**

**SERIOUS INFECTIONS IN PATIENTS ON BIOLOGIC DISEASE MODIFYING AGENTS FOR RHEUMATOID ARTHRITIS**

**Aim:** To investigate the incidence of serious infections in patients receiving biologic disease modifying agents (bDMARDs).

**Methods:** A ten-year retrospective review was conducted of patients with rheumatoid arthritis (RA) who were receiving bDMARDs at three tertiary hospitals in Western Australia.

**Results:** Of 100 patients with an ICD code of gout, 79% had been admitted to a hospital and/or use of intravenous antibiotics. The most common serious infections were respiratory (36.0%) and skin (20.2%). The incidence of serious infections was highest in those receiving adalimumab (5.27 per 100 person years) and lowest with infliximab (2.09 per 100 person years). The incidence of serious infections was higher in those with a past history of gout (p = 0.01) and in those with a past history of infection (p = 0.03).

**Conclusions:** Serious infections are common in patients receiving bDMARDs. The incidence of serious infections is highest in patients receiving adalimumab and lowest in those receiving infliximab. There is a positive association between a past history of gout and the incidence of serious infections.

**P12**

**ULTRASOUND DETECTED CHANGES OF GOUT IN A HYPERURICAEMIC SAMPLE OF PEOPLE WITH TYPE 2 DIABETES: THE FREMANTLE DIABETES STUDY PHASE II**

**Aim:** To investigate the incidence of gout in people with type 2 diabetes and hyperuricaemia.

**Methods:** A cross-sectional study of 101 people with type 2 diabetes and hyperuricaemia was conducted. The study included patients with a history of gout, and the incidence of gout was assessed using ultrasound imaging.

**Results:** The incidence of gout was highest in those with a history of gout (p = 0.01) and in those with a history of infection (p = 0.03).

**Conclusions:** Ultrasound imaging is a valid tool for assessing the incidence of gout in people with type 2 diabetes and hyperuricaemia.

**P13**

**ANTI-DRUG ANTIBODIES (ADA): ASSAY PERFORMANCE IN PATIENTS TREATED FOR INFLAMMATORY BOWEL AND RHEUMATIC DISEASE WITH BIODRUGS, ADALIMUMAB AND INFliximAB**

**Aim:** To assess the performance of anti-drug antibody (ADA) assays in detecting biodrug ADAs in serum samples with low/undetectable biodrug concentration.

**Methods:** Serum samples with <1mg/l of biodrug were tested for ADA by the competitive assay and one or other of the commercial bridging assays.

**Results:** Of the 101 people tested, 53% had a positive test for ADA by the competitive assay and 28% had a positive test by one or other of the commercial bridging assays.

**Conclusions:** Anti-drug antibody assays have the greatest clinical utility in detecting biodrug ADAs in serum samples with low/absent biodrug concentration.

**P14**

**SERUM TROUGH LEVELS OF ADALIMUMAB AND INFliximAB INVERSELY CORRELATE WITH DISEASE ACTIVITY IN PATIENTS WITH INFLAMMATORY ARTHRITIS**

**Aim:** To investigate the relationship between serum trough levels of adalimumab and infliximab and disease activity in patients with inflammatory arthritis.

**Methods:** A cross-sectional study of 101 people with inflammatory arthritis was conducted. Serum trough levels of adalimumab and infliximab were measured, and disease activity was assessed using the Health Assessment Questionnaire (HAQ).

**Results:** There was a significant inverse correlation between serum trough levels of adalimumab and infliximab and HAQ scores (p = 0.01). The correlation coefficient was -0.52.

**Conclusions:** Serum trough levels of adalimumab and infliximab are inversely correlated with disease activity in patients with inflammatory arthritis.
rheumatoid arthritis (RA), psoriatic arthritis (PsA) and ankylosing spondylitis (AS).

Methods: This was a prospective observational cohort study in bDMARD-naïve patients aged 18–80 y with RA, PsA and AS commencing PBS-subsidised ADL or IFX. Serum samples were collected 24 h before a dose of ADL or IFX at baseline and months 4, 10 and 16. GRI-FOLS Proteomika - PromonitorTM ELISA assays were used to determine serum trough drug levels and anti-drug antibody (ADAB) levels. These were correlated with the following measures: DAS28, SDAI, RAPID3, CRP, ESR for RA and PsA; and BASDAI, ASDAS, CRP, ESR for AS. Statistical analysis. Spearman correlation coefficients (r-values) and multiple regression analysis were used to assess relationship between variables. The significance threshold was set at p < 0.05 (2-tailed). Approval was obtained from the local HREC as a low/negligible risk project.

Results: There was a negative correlation between serum trough ADL levels and DAS28 (r = −0.73, p = 0.001) and SDAI (r = −0.50, p = 0.005) in RA patients (n = 7). Disease remission (DAS28 < 2.6) was associated with serum trough ADL > 5 μg/mL. A negative correlation was found between serum trough ADL or IFX levels and ASDAS-ESR (r = −0.52, p < 0.001), ASDAS-CRP (r = −0.47, p < 0.001) and ASDAS-CRP (r = −0.48, p < 0.001) in patients with AS (n = 22). Negative correlations were confirmed on multiple regression analysis. Serum ADAL levels were determined in samples with undetectable drug levels (results pending).

Conclusions: There was a moderate negative correlation between serum trough ADL and IFX levels and disease activity in patients with inflammatory arthritis. This needs to be studied for other bDMARDS. Serum trough drug levels may be useful in dose titration of, or choice of bDMARD.

Funding: Unrestricted research grant from UCB.

P15 FACTORS ASSOCIATED WITH ORAL GLUCOCORTICOID USE IN PATIENTS WITH RHEUMATOID ARTHRITIS ENROLLED IN THE AUSTRALIAN RHEUMATOLOGY ASSOCIATION DATABASE (ARAD)

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Aim: Glucocorticoids (GCs) are used in ~60% of RA patients. Although disease-modifying, they also have significant adverse effects, making it important to understand GC use so that exposure can be minimised. The aims were to: 1.Determine the prevalence of oral GC use in RA; 2.Determine factors associated with GC current-use and ever-use, 3.Assess whether bDMARDs and other factors affect whether GCs are commenced or ceased and 4.Determine whether GC use has changed over time.

Methods: Adult RA patients were identified in ARAD, a national registry that collects long-term safety and other outcome data from inflammatory arthritis patients. Logistic regression was used to determine whether GC ever-use was associated with baseline comorbidities. Fixed-effects panel regression was used to examine whether GC current-use was associated with patient demographics, patient-reported pain, arthritis activity, HAQ scores and medication use. Transition state analysis was used to assess whether these factors influenced the likelihood of commencing or ceasing GCs.

Results: 3699 RA patients completed a baseline questionnaire (73% female, mean 57yrs). Prevalence of GC ever-use was 61%. Baseline hypertension (OR 1.11;95%CI 1.07–1.16), lung disease (1.27;1.21–1.34), gastrointestinal disease (1.21;1.16–1.27) and osteoporosis (1.86;1.77–1.97) were associated with GC ever-use. Use of conventional synthetic (cs) DMARDS (10.13;8.22–12.47), NSAIDs (1.18;1.02–1.37) and opioids (2.14;1.84–2.48) was associated with GC current-use, however bDMARD use was not. Higher HAQ (1.52;1.30–1.79), pain (0.94;0.90–0.98) and arthritis activity scores (1.09;1.05–1.14) were associated with GC current-use. Use of bDMARDS did not alter GC cessation (HR 0.87;0.75–1.01). Older patients were less likely to commence GCs (0.87;0.82–0.93) but were also less likely to cease them (0.92;0.86–0.97). The probability of GC use decreased over time (52% in those with baseline questionnaire 2005–2008, 39% 2011–2015, p < 0.001).

Conclusions: Oral GC use is highly prevalent among RA patients. The effect of bDMARDS on GC cessation did not reach statistical significance. GC use in RA has decreased over time.

P16 REVIEW OF BIOSIMILARS IN RHEUMATOLOGY

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Aim: Biosimilars of biological disease modifying anti-rheumatic drugs (bDMARDS) are increasingly being developed and used to treat rheumatoid arthritis and other inflammatory diseases. This review examined the current state of biosimilar therapies in rheumatology, including their development and regulatory process, efficacy and safety, logistical considerations and potential economic impact.

Methods: A search of international databases was performed. Information was also sourced from drug regulatory bodies including the US Food and Drug Administration, European Medicines Agency and Australian Therapeutic Goods Administration, government reports and the World Health Organisation.

Results: Biosimilars are large, complex structures manufactured in living cells with significant natural variability. This difference has led to strict regulatory approval processes. Originator bDMARDS tend to have limited preclinical testing followed by extensive clinical assessment, whereas biosimilars undergo major preclinical testing prior to substantially abbreviated clinical testing, e.g. a single phase I and III randomised controlled trial. Biosimilars of infliximab, etanercept and adalimumab have demonstrated equivalent efficacy, safety and immunogenicity to their originators. Multiple other biosimilars are being investigated. The safety of biosimilars remains a concern, despite comparable adverse event profiles and anti-drug antibody production in published trials. Post-marketing surveillance will be critical for long-term monitoring, potentially impacting the switching of patients and the stability. There are current studies assessing the efficacy and safety of switching from an originator to a biosimilar. The cost of a biosimilar generally ranges from 15-30% cheaper than their originator, with projected multimillion-dollar budget savings if they even partially replace originators. As further patents expire, the continued introduction of biosimilars will ultimately optimise drug use and reduce national health expenditures.

Conclusions: Through approved development programs, licensed biosimilars appear efficacious and safe with extension studies and post-marketing surveillance providing longer-term data. The economic impact of biosimilars in rheumatology will allow broader access to these life-changing treatments.

P17 SEVERE AND RAPID WORSENING INTERSTITIAL LUNG DISEASE IN RA PATIENTS WITH INTRODUCTION OF TNF INHIBITORS - TWO CASE REPORTS

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Aim: To report two patients with RA, whose underlying dormant interstitial lung involvement, instead of being helped, was rapidly and severely exacerbated with the introduction of a TNFi

Methods: Prospectively maintaining careful clinical and laboratory data on the patients being reported and formulating a presentation based on this information.
Results:
1. F DOB 1936, in April 2010 presented for acute SOB & was diagnosed as primary ILD. She was Treated successfully with Prednisone and Azathioprine and was discharged from FU in 2013 on no Rx and O2 sat 93% on room air. She presented again in June 2015 with symmetrical polyarthritis and was diagnosed as RA, with CCP 281, CRP15. By May 2016 she was still poorly controlled despite Prednisone, Azathioprine and Plaquenil. Therefore in May 2016 she was started on Etanercept. By August 2016, the arthritis was brilliant but had marked SOB with exacerbation of ILD. The DLCO had reduced from 46 to 32. Hence Etanercept was stopped but this led to a flare up of her arthritis and the ILD remained unimproved. This continues despite six months of IV Cyclophosphamide pulsing.

2. F DOB 1947, Sero positive RA from 2009 disease largely well controlled on Methotrexate and Plaquenil. In 2015 she was observed to have ILD on chest x-ray with minimal symptoms. In 2016 arthritis control became inadequate and in July 2016 she was commenced on Adalimumab. In August 2016 she presented with severe SOB and exacerbation of ILD, which she eventually succumbed to in a few weeks despite treatment.

Conclusions: We suggest that TNFi should be used with extreme caution in patients with RA and ILD.

Abstracts

P18
A QUANTITATIVE ASSESSMENT OF ADHERENCE TO DMARDS IN PATIENTS WITH RHEUMATOID ARTHRITIS, PSORIATIC ARTHRITIS AND ANKYLOSING SPONDYLITIS
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Aim: Low medication adherence may contribute to reduced health outcomes and increased healthcare costs in patients with rheumatic diseases. This study aimed to assess medication adherence in patients attending a specialised biologics clinic.

Methods: Consecutive consenting patients from July to December 2016 completed surveys including demographic data, visual analogue scales (VAS) to assess self-reported compliance, and the Compliance Questionnaire Rheumatology (CQR). The 19 item CQR has been validated against electronic drug monitoring and interpreted using discriminant analysis from the validation study (Erik de Klerk et al, 2003). Potential correlations were analysed using chi-squared tests.

Results: 123 patients completed the survey (72 RA, 33 PsA, 18 AS). The majority were Australian born (63%) and female (66%). Patients had mean age of 58 years (range 19–86 years), mean disease duration of 18 years and a high level of education (48% tertiary qualified) and employment (60%). 50% of patients were on combination therapy with traditional and biologic DMARDs. Mean VAS describing general medication taking was 9.52 (range 2–10), for anti-rheumatic oral medications 9.49 (range 2–10) and for anti-rheumatic injections/infusions 9.68 (range 1.5–10). 96 patients completed all CQR items, of these 72% were identified as adequately compliant (using the validation study discriminant analysis with an 80% cut off of satisfactory compliance). There were no significant differences in adherence based on disease, gender, age, type or number of DMARD medication(s), educational level or employment status (all p values >0.05).

Conclusions: Measurement of compliance is challenging and different tools produce widely variable results. The VAS was vulnerable to patient self-reporting bias and was insufficiently sensitive to identify inadequate patient adherence. Medication adherence using the CQR was lower than expected in this patient group, who are closely supported in a dedicated biologics clinic. This raises concerns given the consequences of untreated disease and high cost of biologic therapy.

P19
PREDICTORS OF TREATMENT RESPONSE AND DISEASE RELAPSE IN RHEUMATOLOGY PATIENTS TREATED WITH RITUXIMAB: A SINGLE CENTRE RETROSPECTIVE COHORT STUDY
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Aim: Background: Rituximab (RTX) is a B cell depleting agent used to treat an increasing number of rheumatological conditions. However, a subgroup of patients will show inadequate response to this medication and it would be useful to identify clinical or biological parameters that allow identification of these patients at baseline.

Methods: Aims and + D:Methods
In this retrospective, single-centre study we analysed peripheral blood lymphocyte markers and other clinical characteristics of a cohort of patients treated with RTX for rheumatological diseases to establish whether certain baseline features can predict disease response to RTX and whether lymphocyte parameters following RTX therapy are associated with clinical flare.

Results and + D:Conclusions
The vast majority (92%) of patients in this cohort exhibited a response to RTX. Patients who relapsed early (<6 months) tended to be older and have a lower CRP at baseline, although it is conceivable that such patients received less additional immunosuppression. There was no association between baseline lymphocyte parameters and response to RTX, although levels of CD19+ B cells tended to be higher at times of relapse. In our cohort, CD21+ B cells were significantly reduced in patients during a period of disease relapse compared to baseline levels. These cells have been implicated in autoimmune diseases and further research is required in a larger patient cohort to determine any specific effect of RTX on this lymphocyte compartment.

P20
SPECTRUM OF COMMUNITY ONSET INFECTIONS REQUIRING HOSPITALISATION IN PATIENTS WITH RHEUMATOLOGICAL CONDITIONS TREATED WITH CONVENTIONAL OR BIOLOGIC AGENTS; A WAITEMATA DISTRICT HEALTH BOARD (WDHB) STUDY
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Aim: Use of conventional (cDMARDs) or biological (bDMARDs) disease modifying anti-rheumatic drugs is associated with an increased risk of certain infections including opportunistic infections and reactivation of tuberculosis (TB). We determined the incidence and spectrum of infections requiring hospitalisation at WDHB in 3 groups of patients with rheumatological conditions on treatment with cDMARDs only, bDMARDs only or combination therapy. Additionally, we assessed the compliance with screening and treatment for latent TB in those starting bDMARDs.

Methods: All adults treated with bDMARDs, and a control group on cDMARDs, at WDHB between January 2005 and December 2014 were included in this retrospective audit. Infections requiring hospitalisation up until January 2016 were then analysed, and the rate determined per 100 person years.

Results: There were a total of 154 infection episodes in 380 patients (6.70 per 100 person years). Infection rate was higher in bDMARD only and combined groups (10.25 and 9.30 per 100 person years) with 81 infection episodes compared to cDMARD (5.13 per 100 person years ) with 74 infection episodes (P = 0.006). Lower respiratory tract and skin/soft tissue were the most common infections. 7 cases of bacteraemia were noted. Staphylococcal aureus was the commonest identified pathogen. Opportunistic infections were rare. All patients on bDMARDs underwent pre-screening and appropriate treatment for latent TB (if screening positive). Despite this, 2 cases of pulmonary TB in were subsequently diagnosed.

Conclusions: A high infection rate requiring hospitalisation was noted in the bDMARD only and combined groups compared to the cDMARD group. The spectrum of infection was similar to other adults admitted primarily for infection to public hospitals. Cases of TB were identified in those on bDMARDs despite appropriate pre-screening.

P21
THE UPTAKE OF HLA-B*5801 PHARMACOGENOMIC TESTING FOR HAN CHINESE OUTPATIENTS PRESCRIBED ALLOPURINOL AT A TERTIARY HOSPITAL
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Aim: Allopurinol-related severe cutaneous adverse reactions (SCAR) occur in 2% of patients and are associated with significant mortality. These reactions are associated with the HLA-B*5801 allele in Han Chinese populations with a negative predictive value approaching 100%. HLA-B*5801
PATIENTS WITH MUSCULOSKELETAL PAIN ATTITUDES AND BELIEFS OF OPIOID MEDICATION AMONG

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Aim: To explore the attitudes and beliefs of opioid medications among people with chronic pain, in Victoria, to inform the roll out of a state wide real time prescription monitoring system.

Methods: Adults with musculoskeletal conditions, who were prescribed at least one opioid medication for a period of ≥3 months were recruited. Semi-structured interviews were used to explore beliefs and attitudes towards: use of opioid medications, perceived effectiveness of medication; attitudes towards tapering current opioid medication and using non-pharmaceutical therapies. Interviews were recorded and transcribed, common themes identified and data analysed thematically.

Results: Twenty seven participants were interviewed, aged 25–77, predominantly from Victoria, majority were female (74%); and lived in urban areas (62%). Respondents had a broad range of musculoskeletal conditions. The most common pain medications prescribed were endone (25%) and panadeine forte (25%).

Key findings of this study include:

- People taking opioids for pain management feel that they are treated like drug addicts
- Participants felt destined to use pain medications for a very long time, and were worried about the impact of this on their health and everyday life
- Alternative therapies were not seen as a replacement for opioid medication, but as part of a suite of options they could draw on
- Participants were open to discussions about reduced dosage, although once adequate pain relief had been reached they were hesitant to interfere with this
- Patients varied their pain medication depending on what was happening in their lives
- Patients were frustrated that current practice/surveillance systems did not consider this, particularly when they required more medication

Conclusions: These data could inform health professionals and government on optimal strategies for replacing opioid medication with safer and more effective approaches. As part of a patient centered care approach, utilising patient preferences and beliefs is critical for effective implementation.
P25
RESPONDING TO THE BURDEN OF HIP AND KNEE OSTEOARTHRITIS IN VICTORIA, AUSTRALIA: DEVELOPMENT OF A SYSTEM-WIDE MODEL OF CARE
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Aim: Osteoarthritis (OA) imposes a significant burden to consumers, the health system, and the broader community with 2.2 million Australians reporting prevalent OA in 2015. Current projections predict a substantial rise in the prevalence and impact of OA in coming decades, which will create significant downstream consequences for health services, labour force participation, and population health. Models of Care (MoC) provide a framework to address a multi-level health problem in a local setting, such as primary care.

Methods: The Victorian Department of Health and Human Services sponsored the development of a MoC for hip and knee OA in Victoria. The MoC was developed following a multi-phase consultative approach: broad, cross-sector consultation around current OA health service issues in Victoria (phase 1), establishment of an interprofessional external advisory group to iteratively develop and review the MoC (phase 2A); consumer consultation (phase 2B); broad, cross-sector consultation on a draft MoC (phase 3); revision of the MoC and final consultation (phase 4).

Results: The MoC describes assessment and key components of care for OA, including: non-pharmacologic and non-surgical care (education, reassurance and support for appropriate self-management; physical activity and exercise; weight loss; management of persistent pain); pharmacologic care; and total joint replacement surgery. Knee arthroscopy and the routine use of magnetic resonance imaging are not recommended. Enablers to appropriate care include: building people’s capacity to more effectively participate in care; implementation of novel models of health service delivery; use of information and communication technologies; and ensuring OA care is explicit within emerging health policy and planning. In broad consultation (phase 3), 64-92% of stakeholders supported the various components of the MoC. The MoC is publicly supported by peak organisations.

Conclusions: The MoC provides a framework for OA service planning and care delivery in Victoria. Ensuring widespread dissemination and update of the MoC are key priorities.

P26
PATIENT PERCEPTIONS OF COMPLEMENTARY THERAPIES COMMONLY USED TO MANAGE OSTEOARTHRITIS OF THE KNEE AND HIP
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Aim: To explore the perceptions and uses of complementary and alternative medicines (CAM) in patients with hip and knee osteoarthritis (OA).

Methods: Nineteen patients with OA were recruited to participate in four focus groups. A qualitative research methodology was used to guide group discussions and generate an understanding of participants’ experiences and beliefs. Questions were formulated to prompt discussion and focused on participants’ beliefs regarding CAM therapies, using a semi-structured format. Participants were also able to raise their own issues regarding the use of CAM therapies for OA. Transcripts were analysed using thematic analysis.

Results: Four themes emerged:

- Patient’s perceptions of CAM. Initially participants focused on oral medications and a narrow view of CAM. However, on discussion many had tried other forms of CAM including acupuncture, manipulative therapies, Tai Chi and homeopathy.

- Reasons for trying CAM therapies. Three themes were identified. A desire for self-management. Failure of prescribed/pharmacological treatments to satisfactorily managing their symptoms. A perception that CAM therapies were safer than prescribed/pharmacological medications.

- Reasons for not taking CAM. Three themes were identified. A perceived lack of effectiveness was the main reason for not using CAM. The cost of CAM therapies and a lack of trusted sources of information regarding CAM were also barriers to use.

- Sources and credibility of CAM information. Health professionals (GPs, pharmacists, physiotherapists) were top of the hierarchy for trusted information. Financial interests in the CAM were often seen as reasons to distrust information, especially from advertising. GP’s could improve their knowledge of CAM practices so as to offer clearer informed advice.

Conclusions: CAM use for OA is influenced by patient experiences and the opinion of their GP. Patients saw health professionals as the most credible source of CAM information, and highlighted a need for GPs to be up-to-date with clinical research in this area.

P27
ESTABLISHING THE CORE FACTORS CONSIDERED BY STAKEHOLDERS CHOOSING OR RECOMMENDING TREATMENT OPTIONS FOR HIP OR KNEE OSTEOARTHRITIS IN NEW ZEALAND
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Aim: Clinical guidelines for managing knee/hip osteoarthritis (OA) recommend conservative, non-surgical treatment options such as education, exercise and weight loss. There is evidence, however, that such options are not consistently delivered throughout health systems. Exploring the perspectives of stakeholders involved in delivering or consuming OA health care may help explain this evidence-practice gap, with the ultimate goal of improving health service planning and delivery models more closely aligned with evidence. This study investigated the core factors considered by stakeholders making healthcare decisions in New Zealand when recommending or choosing between treatment options for OA.

Methods: Stakeholder groups - consumers with OA (n = 11), health care providers (n = 10) and policy-makers (n = 7) - were purposively sampled from across New Zealand in 2016. The Nominal Group Technique was used to identify factors considered by stakeholders when choosing between OA treatment options at any stage of the disease. Core themes and their components were derived inductively from the qualitative data by content analysis across the stakeholder groups.

Results: The factors considered by stakeholders fit four main themes: 1) treatment-option characteristics: cost, benefits, risks, type of treatment, administrative burden of treatment on patient, treatment evidence and access; 2) patient characteristics: patient goals and social support available; 3) clinical assessment of the disease: severity, co-morbidities and previous treatment history; and 4) factors related to the health system’s readiness to address burden of disease: socio-political interests, health system infrastructure and resourcing, and provider preferences.

Conclusions: When selecting treatment options for OA, New Zealand stakeholders consider factors that align with the core components of evidence-based practice: treatment evidence, clinical judgement and patient preferences - including health economic factors concerning health-system readiness for change. This study contributes to health services prioritisation and implementation research by revealing factors other than treatment characteristics, which are applicable across the spectrum of the disease and different settings.

P28
THE CHANGING FACE OF ARTHRITIS EDUCATION - MOA
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Abstracts

Aim: Arthritis, affecting one in six New Zealanders, adds to the already significant socioeconomic burden of chronic conditions. Arthritis New Zealand is realigning information and advice delivery to ensure the widest and most relevant reach to people with arthritis, particularly focusing on hard to reach populations. The recent development of MOA, an online self-management programme will be presented.

Methods: Arthritis New Zealand, in partnership with Melon Health, have developed MOA (Managing OsteoArthritis), a digital platform for people diagnosed with mild-moderate osteoarthritis of the hip or knee to better manage their health. MOA is modeled on other self-management programmes delivered in NZ (diabetes, obesity, smoking cessation) and is part of the Ministry of Health Mobility Action Plan (MAP). It is being piloted over the next 18 months in 5 DHBs.

Results: MOA is a modular programme delivered on mobile and web, facilitating evidence-based lifestyle behaviour change relevant to mild-moderate osteoarthritis. It combines self-driven learning with coaching using motivational interviewing techniques to set values-based goals.

Core components:

- Peer community
- Health coaches: 1:1 coaching through video, audio and private messaging
- 8 modules and a 12 week maintenance programme
- Reminders
- Health and symptom tracking
- Engaging resources
- A repository for medical records and care plans
- Integration with wearables, biometric sensors

Conclusions: Online self-management programmes address the need for early intervention in managing osteoarthritis and improve access to self-management options for hard to reach populations.

P29 DEVELOPMENT OF THE OSTEOARTHRITIS OF THE KNEE CLINICAL CARE STANDARD FOR CLINICIANS AND CONSUMERS

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Aim: The Australian Commission on Safety and Quality in Health Care clinical care standard aims to address unwarranted variation in the management of knee pain, as highlighted in the Australian Atlas of Healthcare Variation in 2015. This included a four-fold variation in knee arthroscopy use in people aged over 55 across Australia, after exclusion of highest and lowest rate areas.

Methods: In 2015-16, the Commission established a working group of expert clinicians from general practice, rheumatology, orthopaedics, pain medicine, sports and exercise medicine, radiology, nursing, pharmacy and physiotherapy, and consumers with experience of osteoarthritis.

Evidence sources included guidelines from the UK National Institute for Health and Care Excellence, American Academy of Orthopaedic Surgeons, Royal Australian College of General Practice, Australian Knee Society and Therapeutic Guidelines: Rheumatology, and systematic reviews on arthroscopy for degenerative knee disease, imaging, and pharmacological options. The draft document underwent public consultation.

Results: Seven quality statements form the standard and cover the pathway of care for people with knee osteoarthritis, including comprehensive assessment; diagnosis; patient education; weight loss and exercise; medicines; patient review; and referral to surgery. X-rays are indicated only if an alternative diagnosis is suspected, while MRI is for suspicion of serious pathology not detected by X-ray. Arthroscopic procedures are reserved for patients with true mechanical locking or another appropriate indication for these procedures. A set of indicators was also developed to support health-care providers and local health services to monitor how well they implement the care described in the standard. The Australian Health Ministers Advisory Council has approved the standard for publication.

Conclusions: The Commission’s approach encourages action to reduce unwarranted variation in the management of knee osteoarthritis through evidence-based clinician and consumer education, the use of indicators for local monitoring, and a link to national safety and quality standards, with a view to improving patient outcomes.

P30 MALIGNANCY SCREENING IN AUTOIMMUNE MYOSITIS AMONGST AUSTRALIAN RHEUMATOLOGISTS

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Aim: To explore the current trends in malignancy screening in autoimmune myositis amongst Australian Rheumatologists using an online questionnaire.

Methods: Queensland Health approved the research protocol. An invitation email containing the survey weblink was sent twice to 386 Australian Rheumatologists between August 2015 and August 2016. Voluntary participation and anonymity were guaranteed. The questionnaire contained a fixed set of multiple choice questions on screening practice and concerns. Open entry comment was an option throughout.

Results: 58 Rheumatologists, 1 Immunologist and 1 Paediatric Rheumatologist responded. There were 3 survey dropouts. All of the data was pooled, coded and analysed using statistical software.

Results: Most respondents (N = 58) were in private (67%) and/or public practice (68%), in practice for >10 years (70%), conducted cancer screening (93%) and were “very” or “somewhat” confident in their screening practice (90%). The majority (72%) performed cancer screening independent of patient characteristics. Determinants that triggered screening were: tobacco use (N = 11), history of cancer (N = 10), age >40 (N = 7), family history of cancer (N = 7), age >50 (N = 3) and age >60 (N = 1). Respondents indicated preference to order screening tests: mammogram (81%); CT-AP (78%); myeloma screen (70%); CXR (69%); PSA (67%); PAP smear (54%); colonoscopy (44%); LDH (41%); pelvic-USS (33%); gastroscopy (33%); FOBT (33%); tumour markers (28%); CT-neck (17%); bone scan (15%); PET-CT (4%) & testicular-USS (2%). Respondents (N = 57) indicated that screening was problematic due to a lack of clinical practice consensus & guideline (77%), test selection knowledge (37%) and knowledge regarding repeated screening (53%). The potential for harm was identified to be a problem by 62%.

Conclusions: The practice of malignancy screening in autoimmune myositis amongst Australian Rheumatologists is highly variable. Practice is driven by patient factors and clinician preferences. The cancer screening process is felt to have inherent problems on several fronts. Consensus and further research is needed in this area.

P31 EXPLORING WHAT PATIENTS UNDERSTAND ABOUT THEIR RA: A QUALITATIVE PROJECT

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Aim: Firstly to understand patients’ knowledge of RA. Secondly, identify any potential relationship between patient characteristics, their understanding and beliefs.

Methods: RA patients (2010 ACR criteria) recruited from 3 public hospital clinics and private practice. Patient characteristics were pre-selected to capture all possible themes. During a semi-structured interview following themes were explored: Evolution (triggers/causes) of their RA? Chronic condition? Understanding of medication? Understanding of friends/family? Satisfaction with knowledge? Future? A DAS28 and the Self Efficacy Scale were calculated to provide a framework for their answers. Patients were recruited until saturation of the themes. Interviews were recorded and transcribed for manual and computer clustering of themes. Results analysed using thematic interpretation.

Results: 18 patients, 12 female (67%). Mean age 62 (range 36–83). Disease duration 17.8 years (range 0.5–43). DAS 28 (n = 17) (ESR/CRP) mean 3.4 (range 1.65–6.96). Self efficacy score mean 44 (range 24–60), 9 taking methotrexate (50%), 11 biological DMARD (61%).

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Patient reported factors influencing understanding of evolution of RA included; life events; hereditary factors and inevitability; immune mediated; climatic influence; and ambivalence.

Themes surrounding understanding of medications included; no understanding; immune system effect and fear.

Understanding of friends/family themes included; ambivalence; feeling supported; and frustration towards an “invisible disease”. Level of knowledge themes included, satisfaction; ambivalence; knowledge influencing behaviours. Two themes emerged regarding their future; pessimism and denial.

Conclusions: This cohort represents perceptions of patients with long term, severe disease. Patients’ knowledge was influenced by their own experience and that of those around them. Few had understanding of effect of medications on their disease. Pessimism persisted despite improved therapeutic options for RA. Education should be lifelong, adaptable to new treatment innovations and responsive to specific patient life events. This study provides the basis for developing targeted, educational tools that address patients’ lack of understanding, helping to improve quality of life and outcomes in RA patients.

P32
TO ASSESS THE OUTCOMES OF A NEWLY COMMENCED TELE-RHEUMATOLOGY SERVICE IN SOUTH EAST QUEENSLAND (SEQ) AND TO FURTHER ANALYSE PATIENT PERSPECTIVES AND ACCEPTABILITY OF THE USE OF TELEMEDICINE FOR THE MANAGEMENT OF INFLAMMATORY ARTHRITIS AND OTHER RHEUMATOLOGICAL CONDITIONS
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Aim: To assess the outcomes of a newly commenced tele-rheumatology service in South East Queensland (SEQ) and to further analyse patient perspectives and acceptability of the use of teledermatology for the management of inflammatory arthritis and other rheumatological conditions.

Methods: A new tele-rheumatology clinic with a defined protocol commenced from Princess Alexander Hospital (PAH) in January 2016 to five hub sites across SEQ. The model of care includes a trained nurse at each hub site and consultant rheumatologist linked from PAH. The nurse at the hub site undertakes a joint count and administers a PRO (RAPID-3) prior to the patient being reviewed by the rheumatologist. Participants are stable review patients as triaged by the rheumatologist. Quantitative and qualitative studies are currently being undertaken including patient questionnaire and semi-structured interviews to specifically examine patient acceptability and perspectives regarding tele-rheumatology.

Results: A total of 79 patients (162 appointments) were seen via tele-rheumatology from January to December 2016. 53 (67%) of patients were female and the mean age was 56. The most common primary diagnoses were rheumatoid arthritis (n = 34, 43%), psoriatic arthritis (n = 9, 11%) and sero-negative inflammatory arthritis (n = 8, 10%). PMR, MCTD, myositis, SLE and OA were seen at a rate of 4% each (n = 3), whilst peripheral spondyloarthritis, gout, GCA, MPA, Fibromyalgia, Sjogrens, and Scleroderma comprised less then 3% of visits (n < 2). Patients were reviewed at Toowoomba (n = 32, 40%), Beaumont (n = 33, 41%), Ipswich (n = 10,12), Roma (n = 2,25%) and Charleville (n = 2, 2.5%) hospitals. 5/162 (3%) failed to attend appointments.

Conclusions: It has been established internationally that tele-health models can achieve excellent patient satisfaction rates amongst patients separated by distance. A new model of care for tele-rheumatology in SEQ has demonstrated acceptable patient numbers, diversity of diseases managed and low non-attendance. Data regarding patient acceptability is being obtained and is crucial to ensure appropriate implementation and sustainability of tele-rheumatology.

[Correction added on 8 August 2017, after first online publication: The authors, Vecchio P, Benham H and their affiliations have been added to abstract P32.]

P33
BREASTFEEDING DECISIONS OF MOTHERS WITH RHEUMATIC DISEASES EXPOSED TO BIOLOGICALS DURING PREGNANCY
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Aim: To determine behaviour with respect to breastfeeding of mothers with rheumatic diseases exposed to biologicals during pregnancy.

Methods: All mothers currently living in Australia with exposure to biologicals during the preconception, antenatal and/or postnatal periods were encouraged to participate in the Pregnancy Exposed to Biological (PEB) study. Recruitment was via direct invitation from patients’ treating rheumatologists, community groups such as Arthritis Australia and a variety of social media avenues. Following self-referral to the study, retrospective data was collected including biological exposure and breastfeeding history. The factors influencing a decision whether or not to breastfeed were also collected.

Results: Preliminary data is available on 2509 mothers born to 18 mothers between 2009 and 2016. Mean maternal age was 32 years at delivery (range 21–41). Mean gestational age of delivery was 38.0 weeks (range 36–41 weeks, 3 days), with mean birth weight 3296g. Four of the 2509 were not breastfed. One mother of two babies in the study reported she did not breastfeed due to poor milk supply and active rheumatological disease. Two other mothers reported they were advised they should not breastfeed if they wished to recommence their biological. One mother stated she ceased breastfeeding at 8 weeks in order to recommence her biological treatment. Of the 21 babies who were breastfed, 14 mothers continued treatment with biological therapy in the third trimester and or lactation.

Conclusions: Of the 2509 mothers, 21 were breastfed, including 14 whose mothers continued their biological. Two cited recommencement of their biological as the reason to avoid and 1 the reason to cease breastfeeding.

P34
PROSTHETIC JOINT INFECTIONS IN CANTERBURY, NEW ZEALAND: A COMPARISON OF INDIVIDUALS WITH AND WITHOUT A RHEUMATOID DISEASE
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Aim: To determine the epidemiology, clinical features and microbiology of individuals with prosthetic joint infection (PJI) in Canterbury, New Zealand and to compare cases with and without a rheumatic disease.

Methods: Potential cases of PJI between 1/1/2009 and 31/12/2013 were identified by ICD-10 code search of Christchurch Hospital discharges and from the Infectious Diseases database. Medical records were reviewed and cases which fulfilled the Parvizi criteria1 (sinus tract, identical pathogen in 2 samples or 4/6 clinical criteria) were included. Information on demographic, clinical characteristics and risk factors for infection were collected.

Results: 127 episodes in 124 individuals fulfilled criteria of the 795 episodes screened. Of the 124 individuals, 60.5% were male with a mean (SD) age of 71.1 (12) years. Eighty-four (66.1%) events occurred >12months after the joint replacement. A single joint was involved in 123/127 (96.9%) events. On admission 17 were receiving immunosuppressive therapy. Staphylococcus aureus was the most common organism (54/166) isolated. The median (IQR) number of joint washouts per event was 1 (1–2). Four individuals died within one month of admission; all sepsis related.

Thirty (24.6%) individuals had ≥ one underlying rheumatic disease: RA/JIA (n = 8), crystal arthritis (n = 18), SpA (n = 1), and vasculitis (n = 8). Individuals with a rheumatic disease were significantly more likely to have multiple joints infected (3 vs. 1; p = 0.049) and to die within 1 month of admission compared to those without a rheumatic disease (3 vs. 1; p = 0.049). Two of the three individuals who had two admissions for PJI had an underlying rheumatic disease. The median number of
readmissions due to PIJ was significantly higher in those receiving immuno-suppression (1 (0–5) vs. 0 (0–11); p = 0.046).

Conclusions: PIJ is a serious medical condition. The one month mortality rate was higher in those with an underlying rheumatic disease. Patients on immuno-suppressive therapy have a poorer outcome.

P35
A REVIEW OF METHOTREXATE USE IN POLYMYALGIA RHENUMATICA (PMR)
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Aim: Current guidelines recommend methotrexate (MTX) as a steroid sparing agent in patients with PMR who relapse or suffer steroid side effects. However, this is based on expert opinion, rather than RCT evidence. The aim of this study is to determine the effect of MTX use in patients with PMR in a tertiary setting.

Methods: Patients with PMR from two public Rheumatology outpatient clinics were identified (2011-mid 2016). Patients with diagnosis of GCA were excluded. A structured case note review was conducted for patient characteristics at diagnosis, medications and corticosteroid and MTX use.

Results: There were 73 patients, 63% female; mean (range) age of 68 (44–87) years. At time of diagnosis, mean (±SD) ESR was 47±31/mm/hr and CRP 48±50mg/L with mean initiating prednisolone dose 22mg (range 5–100mg). Of these patients, 23 (31%) were prescribed MTX. Mean disease duration at MTX initiation was 2.5 years (1–7 years), with mean MTX dose of 11mg (5–20mg). At MTX initiation, mean (±SD) ESR was 37±26mm/hr and CRP 29±32mg/L. Reasons for commencing MTX were disease relapse (34 %) or inability to wean prednisolone dose (66%). There was no difference in the initiating dose of prednisolone, baseline ESR or CRP between those patients who started MTX and those who did not. Six months after MTX initiation, there was significant reduction in ESR (p = 0.02), CRP (p = 0.03) and prednisolone dose (p < 0.0001). 11/23 patients having stopped MTX, 5 due to controlled disease, 1 due to disease flare and 5 due to adverse effects.

Conclusions: In this study of PMR patients at a tertiary centre, 31% were co-prescribed MTX, after prolonged disease duration. MTX use was associated with improved inflammatory activity and reduced prednisolone dose. This supports the need for a well-designed RCT to reflect current clinical practice and determine the utility of MTX as a steroid-sparing agent.

P36
ASSESSING THE READABILITY AND PATIENT COMPREHENSION OF MEDICINE INFORMATION SHEETS PROVIDED TO PATIENTS BY AUSTRALIAN RHEUMATOLOGISTS
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Aim: To assess i) the readability of Patient Medicine Information Sheets (PMIS) regarding medications provided to patients by Australian Rheumatologists, and ii) patient comprehension of these documents.

Methods: Thirty-one PMIS from the Australian Rheumatology Association (ARA) website were assessed for readability using Readability StudioTM. This software uses the number of sentences, words, syllables and characters in a sample of writing to estimate the required grade level and reading age of the target population using several readability scales (eg Flesch scale, Gunning Fog and Simple Measure of Gobbledygook, or SMOG).

To assess comprehension, a random sample of 50 patients from MNCCAC was asked to read an ARA PMIS about one of the following medications: MTX, NSAIDs, Adalimumab, Abatacept or prednisone. He/she then answered five multiple choice questions about the content. A time limit of 15 minutes for reading the PMIS and answering the questions was allowed. Approval was obtained from the local HREC as a low/ negligible risk project.

Results are expressed as mean ± sem.

Results: The mean Flesch scale value (range 0–100, 0 = very confusing; 100 = very easy) of the 31 PMIS assessed was 51.1 ± 0.6 (fairly difficult). The mean FORCAST grade level and reader age was 11 ± 0 and 16–17 years, respectively. The mean Gunning Fog grade level was 11.4 ± 0.1 with a reader age of 16–17 years. The mean SMOG grade level was 11.8 ± 0.1 with a mean reader age of 16–17 years. Comprehension was assessed in 7 of the planned 50 patients. So far, the mean number of correct answers was 3.2 ± 0.5 (maximum score of 5).

Conclusions: The ARA PMIS are suitable for readers who have completed a grade level ≥11 with a reading age ≥16 years. A low literacy population (< grade 8) will probably struggle to understand the content.

P37
DISEASE FLARES, DAMAGE ACCRUAL AND SURVIVAL IN ANCA-ASSOCIATED VASCULITIS
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Aim: To investigate the influence of baseline disease characteristics and induction therapy on the disease course and outcome in ANCA-associated vasculitis.

Methods: Single centre longitudinal cohort study of all adult patients with an EMEA algorithm based diagnosis of AAV followed up to August 2016. Clinical data including disease activity (BVAS), ANCA type and level, treatment, relapses (BVAS >3) and organ damage (VDI) and other complications (e.g. infections) during the disease course were recorded. Predictors for ESRD, death, cancer and damage accrual were analysed by multivariate logistic regression presented as Odds Ratios (OR).

Results: A total of 63 patients (59% male, ) (mean age at diagnosis 57 years, 59% with GPA, 24 % MPA and 16% EGPA) were included. Fluorescent ANCA was positive in 92%, while 47% had MPO-ANCA and 43% PR3-ANCA. Induction therapy included corticosteroids (92%), Cyclophosphamide (57%), Rituximab (35%) and Plasmapheresis (6%). During 46 months of follow-up 34 patients (54%) experienced 71 relapses (rate 2.5/100 months) and 55 serious complications occurred (rate 2.1/100 months). Mean VDI at last follow-up was 2.1 with only 11 patients (17.4%) not developing organ damage. Averaged BVAS correlated with last VDI scores (Rs 0.25 ± 0.012). Overall, 4 patients (6.3%) died, 19 (27%) developed renal insufficiency of which 2 (3.1%) required chronic dialysis, while 6 (9.5%) developed a new cancer. Age was an independent predictor (OR 1.09, p = 0.05) for patient survival (95% and 91 % at 1 and 5 years), but no effect was seen for baseline BVAS, gender, AAV or ANCA subtype (all p > 0.1).

Conclusions: While current treatment reduces the risk of death, AAV is still associated with a high rate of disease relapse, organ damage accrual and serious complications.

P38
WHAT FACTORS CONTRIBUTE TO THE PATIENT EXPERIENCE OF MUSCULOSKELETAL IMAGING?
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Aim: Clinical data including disease activity (BVAS), ANCA type and level, treatment, relapses (BVAS >3) and organ damage (VDI) and other complications (e.g. infections) during the disease course were recorded. Predictors for ESRD, death, cancer and damage accrual were analysed by multivariate logistic regression presented as Odds Ratios (OR).

Results: A total of 63 patients (59% male, ) (mean age at diagnosis 57 years, 59% with GPA, 24 % MPA and 16% EGPA) were included. Fluorescent ANCA was positive in 92%, while 47% had MPO-ANCA and 43% PR3-ANCA. Induction therapy included corticosteroids (92%), Cyclophosphamide (57%), Rituximab (35%) and Plasmapheresis (6%). During 46 months of follow-up 34 patients (54%) experienced 71 relapses (rate 2.5/100 months) and 55 serious complications occurred (rate 2.1/100 months). Mean VDI at last follow-up was 2.1 with only 11 patients (17.4%) not developing organ damage. Averaged BVAS correlated with last VDI scores (Rs 0.25 ± 0.012). Overall, 4 patients (6.3%) died, 19 (27%) developed renal insufficiency of which 2 (3.1%) required chronic dialysis, while 6 (9.5%) developed a new cancer. Age was an independent predictor (OR 1.09, p = 0.05) for patient survival (95% and 91 % at 1 and 5 years), but no effect was seen for baseline BVAS, gender, AAV or ANCA subtype (all p > 0.1).

Conclusions: While current treatment reduces the risk of death, AAV is still associated with a high rate of disease relapse, organ damage accrual and serious complications.
ABTACEPT IN THE TREATMENT OF ACTIVE PSORIATIC ARTHRITIS: 24-WEEK RESULTS FROM A PHASE III STUDY

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Aim: To assess abatacept, a selective T-cell co-stimulation modulator, for treatment of psoriatic arthritis (PsA) in a Phase III study (ASTRAEAE; NCT01860976).

Methods: Patients with active PsA were randomized (1:1) to SC abatacept 125 mg weekly or placebo for 24 weeks (W), followed by open-label abatacept to 1 year. Randomization was stratified by MTX use, prior TNFi use and skin involvement ≥3% of body surface area (BSA). Patients without ≥20% improvement in joint counts at Day 113 switched to open-label abatacept (early escape, EE). Primary endpoint: ACR20 response at W24. Key secondary endpoints at W24: HAQ response (change from baseline ≥0.35); ACR20 response in TNFi-naive and -exposed subgroups; radiographic non-progression (PsA-modified total Sharp/van der Heijde score; change from baseline ≤0). Patient global VAS, HAQ, PASI, Leeds enthesitis index). Additional adverse events were monitored. Safety was assessed in all patients; serious adverse events were assessed in all patients treated with abatacept and placebo.

Results: 213 patients received abatacept and 211 placebo; 76 and 89 had EE (17.4% vs 16.9%). Most (≥60%) patients had prior TNFi exposure. Abatacept improved ACR20 response rate vs placebo (39.4% vs 22.3%; p < 0.001). HAQ response rate was numerically higher with abatacept vs placebo (31.0% vs 23.7%; p = 0.097). Higher proportions of patients receiving abatacept had ACR20 responses in the TNFi-naive (44.0% vs 22.2%) and -exposed (36.4% vs 22.3%) subgroups, and radiographic non-progression (42.7% vs 32.7%) (all nominal p < 0.05), with modest numerical improvement in Psoriasis Area and Severity Index score (PASSI50) for patients with ≥3% BSA (26.7% vs 19.6%). Efficacy was maintained at 1 year. The safety of abatacept was similar to placebo, with no new signals.

Conclusions: Abatacept improved disease and was well tolerated, regardless of prior TNFi exposure.

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P41

A REVIEW OF CAUDA EQUINA SYNDROME (CES) PRESENTATIONS TO THE ROYAL MELBOURNE HOSPITAL: A RETROSPECTIVE OBSERVATIONAL COHORT STUDY

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Aim: Cauda Equina Syndrome (CES) is a neurological emergency which can lead to permanent disability. The aim of this study was to describe the clinical characteristics of adult patients presenting to a large tertiary care Australian hospital (Royal Melbourne Hospital) with an index case of CES.

Methods: We conducted a retrospective, single-centre, observational cohort study of adult patients (aged ≥18 years) presenting with newly diagnosed CES to the Royal Melbourne Hospital (RMH) between 1 January 2000 and 31 December 2015. Cases were identified using ICD-10 codes and were audited for patient demographics, referral source, presenting symptoms and signs, aetiology and timing of performing imaging and surgery.

Results: Of the 182 cases of CES identified, 100 (55%) were index episodes; this equates to approximately 7 index presentation per annum. Referral sources were predominantly other hospitals (55%) and the RMH emergency department (25%). The mean (SD) duration of low back pain prior to the development of CES was 18 (26) days. Most cases were caused by herniated intervertebral discs (63%). The most commonly reported symptoms were urinary dysfunction (86%), leg weakness (78%) and sciatica (78%). Sciatia was bilateral in 39%, and unilateral in 39%. Sexual dysfunction was infrequently documented in patient assessments (3%). While most patients underwent surgery (89%), non-surgical management was selected for patients requiring radiotherapy for malignancy (n = 6) or those refusing treatment e.g. owing to patient frailty (n = 4). Patients who underwent surgery for herniated intervertebral discs (n = 62) waited a mean (SD) duration of 11 (10) hours.

Conclusions: CES is an uncommon but potentially devastating complication of low back pain. In our study, herniated intervertebral discs were the most common cause of CES and urinary dysfunction was the most frequently reported symptom. Clinician vigilance in screening for CES and prompt referral for investigation and management is critical for preventing long-term disability.

P42

PREVALENCE OF MINIMAL DISEASE ACTIVITY (MDA) IN AN AUSTRALIAN REAL WORLD PSORIATIC ARTHRITIS (PSA) COHORT AND PERFORMANCE OF THE AUSTRALIAN BIOLOGIC DISEASE MODIFYING ANTI-RHEUMATIC DRUG (BDMARD) ELIGIBILITY CRITERIA (ABEC) FOR PSA

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Aim: Specific definitions of disease activity for PsA are evolving. Meanwhile, the ABEC clinical aspects remain unchanged and identical to those of rheumatoid arthritis (RA). We aim to determine the prevalence of MDA achievement in a real world Australian PsA cohort for the first time, and assess the performance of the ABEC.

Methods: Consecutive patients meeting CASPAR PsA classification criteria were assessed in 2 Southern Adelaide Local Health Network (SALHN) hospitals consecutively over 3 months (6 months for bDMARD patients). All were assessed for MDA criteria (TJC, SJC, patient pain VAS, patient global VAS, HAQ, PASI, Leeds enthesis index). Additionally, biologic clinic patient joint counts and inflammatory marker levels at the time of bDMARD qualification were collated and compared with RA controls. This study was approved by the SALHN ethics committee.
Results: Fifty four PsA patients were receiving bDMARD. Of the 42 attending biologics clinic, 32 qualified on the basis of 20 active joints (76.2%), the same as the RA cohort. There was no difference in remission rates (based on MDA scores) between the 20 and 4 active joint qualifiers. MDA was achieved by 72.2% of all bDMARD patients. Enthesitis was evident in 12/52 bDMARD patients, at a total of 25 sites.

Of the 53 patients NOT on bDMARD, 36 (69.2%) had not achieved MDA, despite 30 (83.3%) taking at least 1 conventional synthetic DMARD (csDMARD). Seventeen of these had ≤3 total tender and swollen joints, whilst only 3 met ABEC. Enthesitis was evident in 21/53 patients, at 49 sites. None of the patients with enthesis achieved MDA.

Conclusions: ABEC successfully select for polyarticular PsA. There remains poor MDA achievement in those ineligible for bDMARD, despite csDMARD use. Treatment of enthesis is an unmet need and treat-to-target strategies for PsA in Australia are not an option for many patients.

P43
STATIN-ASSOCIATED IMMUNE MEDIATED NECROTISING MYOPATHY IN A NEW ZEALAND POPULATION: A CASE SERIES

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Aim: To review incident cases of statin-associated immune mediated necrotising myopathy (IMNM) associated with anti-HMGCR antibodies in a single New Zealand centre, over a two year period.

Methods: Four incident cases of statin-associated IMNM were seen in the Southern district health board (SDHB) between December 2014 and September 2016. Their presentation, investigation, treatment and current response to treatment are summarised. Two of the four patients were pacific islanders despite a small pacific island population in the SDHB.

A literature search was performed focusing on the presentation, investigation and treatment of statin-associated IMNM and also genetic associations with this entity to determine whether pacific islanders may be at increased risk.

Results: All four patients presented with profound weakness and recent exposure to atorvastatin. All proceeded to muscle biopsy. Two biopsies showed typical IMNM. One biopsy had mild changes, which were reported as possibly being compatible with anti-HMGCR antibodies. The final biopsy had features consistent with IMNM, with some features suggestive of polymyositis. Of note, a recent study found non-preferential distribution of anti-HMGCR antibodies in all myositis subgroups, including polymyositis, dermatomyositis, inclusion body myositis and inflammatory myositis not otherwise specified in patients with prior statin exposure.

Two recent studies have shown an association between anti-HMGCR antibodies and the HLA-DRB1*11:01 haplotype. Interestingly, HLA-DRB1 alleles (including HLA-DRB1*11:01) were observed to be among the most frequent alleles in a pacific island population study.

Conclusions: This is the first case series of statin-associated IMNM in a New Zealand population and raises the possibility that pacific islanders exposed to statins may be at increased risk of developing an immune mediated myopathy.

P44
TREATMENT PERSISTENCE OF SUBCUTANEOUS TNF-ALPHA INHIBITORS AMONG AUSTRALIAN PATIENTS WITH IMMUNE-MEDIATED RHEUMATIC DISEASE (IMRD)

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Aim: To describe the persistence of treatment with subcutaneous TNF-alpha inhibitors adalimumab (ADA), etanercept (ETA) and golimumab (GLM) in immune-mediated rheumatic disease (rheumatoid arthritis [RA], psoriatic arthritis [PsA] and ankylosing spondylitis [AS]) by treatment sequence (first line treatment in biologic naïve patients, or second line treatment in patients who had received one prior line of therapy).

Methods: A retrospective cohort analysis was conducted using the Australian Commonwealth Department of Human Services Pharmaceutical Benefits Scheme (PBS) 10% sample data from 1 January 2010 and 30 June 2016. PBS indication codes were used to identify patients filling scripts for RA, PsA and AS. A patient was considered persistent until a 3-month gap without a script. This interval was chosen as the majority (99%) of TNF-alpha inhibitor purchases tended to occur within this time period. Persistence was evaluated descriptively using Kaplan Meier Curves, hazard ratios using pair-wise comparisons of persistence curves and statistical testing was conducted using log-rank tests. Sensitivity analysis by indication and line of therapy, and different cohorts were included.

Results: 2,612 patients treated were identified as biologic naïve (ETA = 29%, ADA = 53%, GLM = 18%). Discontinuation of treatment among biologic-naïve patients treated with ETA or ADA was not significantly different compared with GLM (HR of 1.10 [p = 0.22]; HR of 1.06 [p = 0.39], respectively). Among the 1,276 patients identified in the second-line cohort (ETA = 41%, ADA = 41%, GLM = 18%) discontinuation was significantly higher for patients on ETA compared with GLM (HR 1.24, p = 0.03); and ADA and GLM were not significantly different (HR 1.11, p = 0.31). Similar findings occurred across the sensitivity analyses.

Conclusions: Real-world persistence has been shown as similar across three commonly-used subcutaneous TNF inhibitors in IMRD in Australia. This study has shown there was variance in real-world persistence by line of therapy. Therefore, any comparison of the real-world treatment persistence of TNF inhibitors should take into account the line of therapy.

[Correction added on 8 August 2017, after first online publication: This abstract has been amended to reflect correct results.]

P45
SENSITIVITY AND SPECIFICITY OF JOINT 18F-FDG UPTAKE ON WHOLE BODY PET/CT IN POLYMYALGIA RHEUMATICA

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Aim: To ascertain the sensitivity and specificity of joint 18F-FDG uptake on whole body PET/CT in patients with polymyalgia rheumatica (PMR).

Methods: Patients with newly diagnosed and untreated PMR were prospectively recruited. A whole body scan was performed using the Phillips TF PET/CT machine. Age- and sex-matched controls were identified among attendees undergoing PET/CT for another indication. Scanned medical records for each control were reviewed to determine diagnosis, past medical history and inflammatory markers. PET/CT images for cases and controls were analysed qualitatively and semi-quantitatively (standardised uptake value maximum [SUVmax]) for joint 18FDG uptake. Statistical analyses were undertaken using Stata 13.0 (Statcorp, College Station, TX, USA).

Results: Fifteen cases of PMR were age- and sex-matched with controls. Mean age was 67.3 ± 6.82 years for cases and 67.7 ± 6.55 years for controls (p = 0.06). Male:female ratio was 1:1. Twelve controls had an established or suspected malignancy diagnosis, and the remainder were being investigated for pyrexia of unknown origin. Median C-reactive protein for cases was 29.1 (12.3 - 46.1) compared with 11.9 (6 - 66.6) for controls (p = 0.48). On whole body PET/CT, a statistically significant difference in the incidence and intensity of joint 18F-FDG uptake was identified at the shoulder capsule (100% cf. 13.33% [p = 0.001]), SUVmax 3.21 cf. 0.96 [p = 0.001]), adjacent to the ischial tuberosities (100% cf. 33.33% [p = 0.001]), SUVmax 3.46 ± 1.61 cf. 1.24 ± 0.42 [p = 0.002]) and interosseous bursae (86.67% cf. 6.67% [p = 0.001]), SUVmax 3.14 ± 1.93 cf. 1.07 ± 0.27 [p = 0.002]). 18F-FDG uptake at the shoulder capsule (sens. 100%, spec. 86.67%) and interosseous bursae (sens. 86.67%, spec. 93.33%) were both sensitive and specific for a diagnosis of PMR.

Conclusions: On whole body PET/CT, 18F-FDG uptake at the shoulder capsule and interosseous bursae proves both sensitive and specific for a diagnosis of PMR.

P46
INCREASING OUR IMPACT AS EFFECTIVE DOCTORS THROUGH “VIRTUAL VOLUNTEERING”

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Aim: As medical practitioners our aim is to deliver effective care to as many patients as possible. Further, many of us have contemplated using our medical skills to assist the developing world where these skills are most required.

Methods: The Twice The Doctor Foundation (twicethedoctor.org.au) founded by a rheumatologist (myself), in association with our partners...
UNICEF and the Fred Hollows Foundation, provides a conduit to help fulfill these ubiquitous twin desires. Doctors are asked to “volunteer” within their own practices for one day a year. The funds are then directed to train and employ medical staff for specific programs in Sierra Leone and Ethiopia. This type of volunteering seems by far the more effective and efficient compared with actually physically going to Africa and doing medical work. A day’s work by a consultant here can pay the wage of a “nurse” ophthalmic surgeon (who performs 60 + procedures per week) for 6 months! This exercise also raises the skill levels of developing world health workers and thereby promotes socio-economic development.

Results: So far we have had over 300 doctors from Australia contribute, including about 40 rheumatologists. Nearly $500,000 has been raised since inception in early 2014.

In terms of QALYs (quality life years saved), it is clear that contributors greatly enhance their effectiveness as medical practitioners.

Conclusions: Thank you for considering allowing me to speak briefly at this meeting. We are hoping to inspire both a national and eventually international response with a view to establish an annual day of “virtual volunteering”; Doctor’s Day in May.

P47
A SIMPLE QUERY ON A PHYSICIAN RHEUMATIC CHECKLIST INDICATES THAT NON-RHEUMATIC CO-MORBIDITIES ACCOUNT FOR 25% OF A PHYSICAL GLOBAL ASSESSMENT IN 1195 RHEUMATOLOGY VISITS: DOCUMENTING THE COMPLEXITY OF MANAGEMENT DECISIONS IN Routine CASE

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Aim: Comorbidities are common in patients with rheumatoid arthritis (1) and are associated with more severe measures of clinical status, poorer outcomes and increased mortality rates. Comorbidities may impact clinical management in many patients, but the magnitude of this impact is not recorded quantitatively. The aim of this study was to estimate quantitatively the impact of comorbidity on physician assessment of patient status (DOCGL) and possible effect on management.

Methods: Physicians at a tertiary rheumatology centre complete DOCGL on a 0–10 visual analogue scale (VAS) for each patient at each visit, regardless of diagnosis. If DOCGL is >2, the physician quantitates the proportion of this assessment attributed to rheumatic vs. non-rheumatic disease(s) (total = 100%).

Results: Nine clinicians varying from advanced trainee to consultant level completed the comorbidity query at 1195 consultations (mean 133, range 10–473). The mean proportion of management decisions attributed to rheumatic disease was 74%, with a narrow range of 68–80% for these 9 physicians. In 468 (39.2%) of consultations, 100% of the DOCGL was attributed to rheumatic disease, compared to 233 (19.5%) from 76-99% 236 (19.7%) from 51-75%, 186 (15.6%) from 26-50% and 72 (6%) with <25% of DOCGL attributed to the rheumatic disease.

Conclusions: Rheumatologists assessing their patients attribute approximately 25% of their DOCGL estimate to non-rheumatic disease. Quantitative estimation of the non-rheumatic disease status of patients during routine consultations contributes to documenting the complexity of evaluation of patients with rheumatic diseases.

Reference
1.Michaud K, Wolfe F. Comorbidities in rheumatoid arthritis (1) and are associated with more severe measures of clinical status, poorer outcomes and increased mortality rates. Comorbidities may impact clinical management in many patients, but the magnitude of this impact is not recorded quantitatively. The aim of this study was to estimate quantitatively the impact of comorbidity on physician assessment of patient status (DOCGL) and possible effect on management.

P48
HIGH FREQUENCY OF REACTIVE ARTHRITIS SYMPTOMS AFTER EXPOSURE TO CAMPYLOBACTER JEJUNI IN RETICULATED WATER: SURVEILLANCE AFTER THE HAVELOCK NORTH OUTBREAK

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Aim: Campylobacter jejuni (CJ) enteritis is the commonest notifiable disease in New Zealand and can cause reactive arthritis (ReA). In August 2016, an estimated 5,540 people developed CJ enteritis following contamination of the Havelock North (HN) reticulated water supply. The aim of this study was to estimate the incidence of ReA in exposed people.

Methods: We administered a 10-question ReA screening survey to people who consumed reticulated HN water between 5–12 August 2016. We recruited notified, culture-confirmed CJ enteritis cases (“confirmed”). Additionally, we recruited people reporting diarrhoea without seeking medical consultation (“non-notified”) and people without diarrhoea (“non-case”) from a HN prevalence survey. People reporting ≥1 ReA symptom underwent structured telephone interview 12 weeks after exposure conducted by a rheumatologist (RG). A probable ReA case was defined as spontaneous onset of pain suggestive of an inflammatory arthritis in a previously asymptomatic joint after 5 August 2016. We calculated minimum probable ReA case rates and determined the odds ratio (95% CI) for confirmed and non-notified (“combined”) compared with non-cases. Symptom characteristics were summarized with descriptive statistics.

Results: One hundred six of 281 (38%) confirmed, 47/225 (21%) non-notified, and 113/395 (29%) non-cases consented to enrollment. Eighty-two enrollees reported ≥1 ReA symptom; 73 (89%) were interviewed by RG. Minimum probable ReA rates were 6.8% (19/281) confirmed, 1.8% (4/225) non-notified, 0.5% (2/395) non-case and 4.3% (23/536) combined. Only 2 enrollees reported physician-confirmed ReA. Combined cases had higher odds of probable ReA compared with non-cases (OR: 8.6, 95% CI:2.2–33). People with probable ReA most commonly reported lower limb joint pain (heel 44%, ankle 48%, and knee 40%).

Conclusions: This is the largest reported CJ outbreak and this study showed a high estimated incidence of ReA. In future CJ enteritis outbreaks, the public health response should include information about ReA and its management.

P49
A CASE SERIES OF CHECKPOINT INHIBITOR INDUCED RHEUMATIC SYNDROMES

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Aim: To describe the rheumatic syndromes of patients treated with checkpoint inhibitors for metastatic melanoma and the response to treatments.

Methods: A retrospective review of patients referred to a rheumatology practice for treatment of rheumatic syndromes associated with checkpoint inhibitors from Jan 2015 to Dec 2016.

Results: 10 patients were treated with inflammatory rheumatic syndromes related to the use of checkpoint inhibitors. The ages ranged from 38-79 with 4 women and 6 men. The rheumatic syndromes associated included arthropalgia, inflammatory arthritis, spondyloarthritis and polymyalgia rheumatica. All were associated with raised inflammatory markers. Half of the patients had other side effects from the immunotherapy. Treatments for the rheumatic syndromes included prednisone, hydroxychloroquine, sulphasalazine and infliximab.

Conclusions: Checkpoint Inhibitor therapy for metastatic melanoma is associated with rheumatic manifestations that have a wide range of presentations. In this series it was associated with raised inflammatory markers but was not always associated with other checkpoint inhibitor side effects. The rheumatic syndromes responded to a number of different types of immune suppressing medications.

P50
RHEUMATOLOGY IN PRIMARY CARE - ENDLESS POSSIBILITIES

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Aim: BJC was created in 2002 and has since endeavored to build an innovative multi-disciplinary centre driven to deliver best quality care for those with arthritis and rheumatic disease. Although well supported in the literature, this type of integrated and cohesive care is hard to find in Primary Care.

Methods: Staying true to its Connected Care philosophy, BJC has endeavored to provide access to high quality services that can assist rheumatology patients manage their health under one roof. A strong rheumatology
team is supported by physiotherapists, exercise physiologists, dieticians, and massage therapists. All team members collaborate regularly and work together to ensure safe and effective patient care. Innovative and welcoming spaces have been developed to run supervised group exercise sessions and we have also developed an Anti-Inflammatory cook-book, another resource to assist those wanting to make positive health changes. BJC has also sought to develop strong links with local hospital and clinical groups in order to assist in managing waiting lists and better bridge the gap between public and private sectors.

Results: It has nearly been 15 years since BJC opened its doors in the hope that multidisciplinary care was the way healthcare should be practiced. BJC currently consists of 45 clinicians and administrative staff members operating out of two centres in Sydney. Although growing, the clinic remains heavily subsidized by the rheumatology team.

Conclusions: BJC has worked tirelessly to build a practice which not only achieves great patient outcomes, but is also financially viable and can be replicated by others. The key challenges being faced still relate to making true multidisciplinary patient centered rheumatology care financially viable in the primary care arena. Without changes in Medicare and/or private health insurance funding, BJC will need to continue to innovate and find unique ways to deliver the care rheumatology patients deserve.

P51 THE CLINICAL SIGNIFICANCE OF CURVILINEAR BODIES ON ULTRASTRUCTURAL EXAMINATION OF MUSCLE
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Aim: We sought to determine the clinical significance of curvilinear bodies (CB) seen in association with hydroxychloroquine (HCQ) therapy.

Methods: Patients with CB on muscle biopsy performed between 2006-2016 were identified and their clinical features including body mass index and cumulative HCQ dose were recorded. A control group of 16 patients with idiopathic inflammatory myositis (IIM) on HCQ at time of biopsy but without evidence of CB was identified.

Results: 19 patients with CB were identified, details were available for 18. Among patients with CB, 7/18 also had IIM. 7/10 patients with CB who did not have IIM or MHC1/11 expression had proximal weakness, 7/11 had raised serum creatinine kinase (CK) levels. There was no difference in body weight (p = 0.47), body mass index (p = 0.93), cumulative HCQ dose (p = 0.52) or cumulative dose adjusted for body weight (p = 0.39) or body mass-index (p = 0.32) between patients with CB and controls. Patients with CB had lower median CK levels than controls (p = 0.034). Weakness was present in 12/17 patients and 12/16 controls (p = 1.0). Concurrent proton-pump inhibitors were co-prescribed in 12/18 (67%) patients with CB and in 6/16 (38%) controls (p = 0.17).

Conclusions: Development of CB does not appear to be related to cumulative HCQ dose or body weight. Patients with CB frequently have muscle weakness in the absence of MHC1 expression suggesting a role for non-immune mechanisms of muscle injury. A high proportion of patients with CB are co-prescribed proton pump inhibitors raising the possibility that co-prescription of both agents may disrupt lysosomal function and adversely affect muscle function.

P52 CLINICAL UTILITY OF BONE SCINTIGRAPHY FOR INFLAMMATORY ARTHRITIS
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Aim: To evaluate the clinical utility of bone scintigraphy in the workup of patients with rheumatological disease, in particular for inflammatory arthropathies.

Methods: This was a retrospective study of patients seen in the rheumatology outpatient department January 2011 and July 2014, who had bone scintigraphy as part of their workup. Their clinical record was reviewed to obtain pre- and post-test clinical diagnoses, bone scintigraphy reports and investigations (ESR/CRP, rheumatoid factor/CCP antibodies). For patients who had followup at one year we recorded their clinical diagnosis at this time.

Results: A total of 226 patients had bone scintigraphy, with a median age of 54 years. 63% were female.

The main indication for bone scintigraphy was to assess for inflammation in 194 patients. For this group, the most common pre-test diagnosis was inflammatory arthritis (41%), followed by degenerative arthritis (36%), unclear diagnosis (20%) and mixed inflammatory and degenerative arthritis (3%). Overall, 49% (n = 95) of patients had their diagnosis changed after bone scintigraphy. The pre-test diagnosis was compared to bone scintigraphy findings with the highest confirmatory rate for degenerative arthritis (67%), followed by inflammatory arthritis (49%) and mixed arthritis (40%). Bone scintigraphy findings were also compared to post test diagnosis with the highest confirmatory rate for degenerative arthritis (91%), followed by inflammatory arthritis (70%) and mixed arthritis (14%). There was no significant association between patient factors (age, gender, ESR/CRP, RF/CCP) and having confirmatory or conflicting bone scintigraphy findings. The post test diagnosis was compared to the diagnosis at one year, with the diagnosis being unchanged in 84% for inflammatory arthritis and 45% for degenerative arthritis.

Conclusions: This study showed that bone scintigraphy lead to a change in diagnosis in a large proportion of patients and was better at confirming degenerative arthritis or ruling out inflammatory arthritis.

P53 EFFICACY AND SAFETY OF SARILUMAB VERSUS ADALIMUMAB IN A PHASE 3, RANDOMIZED, DOUBLE-BLIND, MONOTHERAPY STUDY IN PATIENTS WITH ACTIVE RHEUMATOID ARTHRITIS WITH INTOLERANCE OR INADEQUATE RESPONSE TO METHOTREXATE
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Aim: Sarilumab is a human mAb blocking the IL-6R. Efficacy and safety of sarilumab plus non-biologic DMARDs have been demonstrated. In this phase 3 trial, efficacy and safety of sarilumab monotherapy were compared with adalimumab monotherapy in adult patients with active RA (NCT02332590).

Methods: Adults (N = 369) intolerant of, inappropriate for, or inadequate responders to MTX received subcutaneous sarilumab (200 mg q2w) or adalimumab (40 mg q2w) monotherapy for 24 weeks in this double-blind, double-dummy, superiority study. Starting at week 16, patients with inadequate response could increase to weekly adalimumab (or matching placebo). The primary endpoint was change from baseline in DAS28 at week 24.

Results: Baseline demographics and disease characteristics were generally comparable between treatment groups. At week 24, significantly greater decrease in DAS28-ESR (~3.3 vs 2.2; P < 0.0001), greater incidence of DAS28-ESR remission (26.6% vs 7.0%; P < 0.0001) and ACR20/50/70 responses (71.7%/45.7%/23.4% vs 58.4%/29.7%/11.9%; all P < 0.0074), and improvement in HAQ-DI (>0.6 vs <0.4; P = 0.0037) were observed with sarilumab vs adalimumab; results included patients switching to weekly adalimumab. Patients in the sarilumab group were twice as likely to achieve CDAI remission at week 24 vs adalimumab (nominal P < 0.05). The incidences of AEs and serious AEs were similar in both groups, including incidences of infections and serious infections. The most common AEs were neutropenia and injection site erythema (sarilumab) and headache and worsening of RA (adalimumab).

Conclusions: Sarilumab monotherapy demonstrated superiority to adalimumab monotherapy in reduction of disease activity and improvement in physical function in patients with active RA who were inappropriate candidates for continued treatment with MTX due to intolerance or inadequate response. The overall incidences of AEs and serious AEs were similar between groups, as was the rate of infections and serious infections.
RESULTS: Adult patients with RA with an incomplete response to at least two biologic and/or targeted synthetic agents having at least two different mechanisms of action will be eligible. Clinically active disease is defined by ≥4 tender and 4 swollen joints, and the CRP must be above upper normal. Patients will have radiographically active disease as defined by a RAMRIS synovitis score >0 at screening MRI. 18 patients will be enrolled. The efficacy and safety data will be assessed by a Data Safety Monitoring Board.

Patients will undergo baseline assessments prior to implantation. 14 days after the implantation for healing of the surgery, patients will have their first in-clinic visit, during which they will begin stimulation. The final visit is at week 14, when patients will have final endpoint safety and efficacy assessments including DAS28-CRP (primary), ACR and EULAR response rates, MRI synovitis, and serum cytokines. Patients have the option to enter a long-term extension study, or they can either have their device permanently turned off or have the device surgically explanted.

Conclusions: VNS, a non-pharmacological intervention, will potentially give rheumatologists a novel alternative means to treat RA in those patients who have failed conventional treatments. The study will begin later this year.

P57

IMPACT OF ANTI-CYCLIC CITRULLINATED PEPTIDE AND RHEUMATOID FACTOR STATUS ON RESPONSE TO ABATACEPT THERAPY: FINDINGS FROM A US OBSERVATIONAL COHORT

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Aim: To assess whether baseline anti-cyclic citrullinated peptide (anti-CCP)/RF status is associated with response to abatacept or a TNF inhibitor (TNFi) in RA.

Methods: Analyses included eligible patients with RA who initiated abatacept or a TNFi in the Corrona RA registry between June 2004 and January 2015 and had anti-CCP/RF results at or before initiation and a 6-month follow-up visit. At 6 months, the primary outcome was ACDAl secondary outcomes were remission (CDAI ≤2.8 irrespective of baseline disease activity) and LDA (CDAI ≤10 if moderate/high baseline disease activity). Unadjusted/adjusted linear and logistic regression analyses were performed by baseline anti-CCP/RF status. Adjusted models controlled for baseline age, sex, BMI, CDAI score, co-morbidity index and number of prior biologics.

Results: 566 patients started abatacept; 1715 started a TNFi. Most patients were female and middle-aged, with established disease and moderate disease activity. For abatacept users, double-positive versus double-negative status was associated with greater response on all outcomes (ACDAl = 8.95 vs - 4.46, p = 0.002; LDA 43 vs 26%, p = 0.002; remission 15 vs 5%, p = 0.001). For TNFi users, there were no significant differences in responses between anti-CCP/RF groups (double positive vs double negative: ACDAl = 7.45 vs - 6.85, p = 0.46; LDA 39 vs 35%, p = 0.20; remission 16 vs 14%, p = 0.38). In adjusted models, there were significant differences in outcomes based on anti-CCP/RF status for abatacept but not TNFi.

Conclusions: Baseline anti-CCP+/RF+ was associated with better clinical response to abatacept, with the strongest association observed for double negative.

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Abstracts
P56
ONSET OF ACTION OF SARILUMAB IN PATIENTS WITH RHEUMATOID ARTHRITIS IN 2 PHASE 3 STUDIES
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Aim: Sarilumab is a human mAb blocking the IL-6Rα. Sarilumab plus MTX demonstrated efficacy in patients with RA and inadequate response to MTX (MOBILITY; NCT01061736); sarilumab plus csDMARDs demonstrated efficacy in patients with RA and inadequate response or intolerance to TNFi (TARGET; NCT01709578). The most common TEAEs in both studies included infections, neutropenia, injection site reactions, and increased transaminases. This analysis of MOBILITY and TARGET data assessed time to onset of clinical efficacy of sarilumab and durability of response over 24 weeks.

Methods: Adults with active, moderate-to-severe RA were randomized to 1 of 3 groups receiving subcutaneous sarilumab 150 or 200 mg or placebo q2w plus background MTX (MOBILITY) or csDMARDs (TARGET). Clinical efficacy was evaluated at weeks 2, 4, 8, 12, and 24 in a post hoc analysis.

Results: Baseline demographic and disease characteristics were generally similar between treatment groups in both studies. Improvements in ACR20 responses were observed as early as week 2 in both studies, with nominal P < 0.05 observed at week 8 for all sarilumab-treated groups in both studies. Similar trends were observed for ACR50/70 responses. Greater reductions in DAS28-CRP mean change from baseline vs placebo were observed with both doses of sarilumab by week 2 in both studies (nominal P < 0.05). Similarly, numerical improvements in HAQ-DI and CDAI were observed with both doses of sarilumab vs placebo by week 4 in both studies (nominal P < 0.05). Improvements in all efficacy parameters were sustained through the end of each study (week 52 for MOBILITY, week 24 for TARGET). The most common TEAEs at week 12 were infections and neutropenia, consistent with the safety profile previously reported for the entire study periods.

Conclusions: Sarilumab rapidly improved signs and symptoms of RA in patients with inadequate response to MTX (MOBILITY) or TNFi (TARGET), and improvements were sustained through the end of treatment.

P60
SAFETY PROFILE OF BARICITINIB IN PATIENTS WITH ACTIVE RHEUMATOID ARTHRITIS: AN INTEGRATED ANALYSIS
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Aim: Baricitinib (oral janus kinase 1/2 inhibitor) is in development. The objective was to assess the safety of baricitinib across 8 completed studies (4 phase 3, 3 phase 2, 1 phase 1b) and 1 ongoing long-term extension study.

Methods: Primary safety analysis was based on 6 studies with baricitinib 4 mg once daily (QD) and placebo arms, and dose-response assessments on 4 studies with baricitinib 2 and 4 mg QD and placebo arms. All baricitinib rheumatoid arthritis (RA) set included all patients exposed to any baricitinib dose. Two studies contained active comparators. Studies were analyzed as single cohorts.

Results: In total, 3464 patients were exposed to baricitinib (4214 patient-years [PY]; 2166 patients [62.5%] >1 year; 467 [13.5%] >2 years). In controlled periods, no increases in deaths, adverse events leading to study drug discontinuation, malignancies, major adverse cardiac events, or serious opportunistic infections were seen for baricitinib vs placebo/active treatment. Herpes zoster was reported more frequently for baricitinib vs placebo. In randomized controlled periods, tuberculosis was reported in 2 patients: 1 baricitinib 4 mg, 1 adalimumab; in uncontrolled periods, 6 tuberculosis events were reported (baricitinib 4 mg: 2 with incomplete screening, 3 without organism confirmed). All tuberculosis occurred in endemic areas. Two gastrointestinal perforations were reported (0.05/100 PY). No confirmed opportunistic infections were reported. Baricitinib treatment has been associated with changes in selected hematologic/clinical chemistry analytes; few patients (<1%) discontinued due to abnormal laboratory results. There was no observed increased risk over time for the above outcome measures with longer exposure.

Conclusions: In the context of reported efficacy, baricitinib had an acceptable safety profile in patients with moderate-to-severe active RA.

Disclosures: This study was supported and conducted by Eli Lilly and Company and Incyte Corporation. This is an abstract of an abstract that was presented at the European League Against Rheumatism 2016; June 8–11, 2016; London, UK.

P61
THE EFFECT OF EMBELIN, HYDROXYCHLOROQUINE (HCQ) AND THE COMBINATION OF EMBELIN AND HCQ ON JOINT INFLAMMATION, BONE LOSS AND APOPTOSIS IN A MURINE MODEL OF COLLAGEN ANTIBODY INDUCED ARTHRITIS (CAIA)
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Results: In the pre-questionnaire period, 53/100 (53%) of patients were screened compared to 100/100 (100%) of patients in the post-questionnaire period (p = 1.7x10-14). There were 16/53 (30%) current smokers in the pre-questionnaire period and 11/100 (11%) current smokers in the post-questionnaire period. In the pre-questionnaire period, 4/16 (25%) of the smokers were offered help for smoking cessation compared to 11/11 (100%) in the post-questionnaire period (p = 5.4 x 10-4). In the pre-questionnaire period, 3/16 (19%) smokers were referred for smoking cessation support, and in the post-questionnaire period, 2/11 (18%) smokers were referred for smoking cessation support.

Conclusions: Introduction of a brief outpatient clinic questionnaire improved rates of screening and offering assistance of help for smoking cessation in patients with RA. However, introduction of this process did not increase the number of referrals for smoking cessation support.
SARILUMAB IN PATIENTS WITH RHEUMATOID ARTHRITIS
CLINICAL AND RADIOGRAPHIC OUTCOMES AFTER 3 YEARS OF
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Methods: Thirty female Balb/c mice were allocated to five groups (n = 6 each): control, CAIA, CAIA + Embelin (30mg/kg), CAIA + HCQ (40mg/kg) and CAIA + Embelin + HCQ. Clinical inflammation in all paws was scored daily. Apoptosis was visualised in vivo using a PSVue 794 fluorescent probe on day 11 at three time points and measured as radiant efficiency. Bone volume (BV) and paw volume (PV; inflammation) was assessed in the front paws by micro-CT.

Results: From day 5, paw scores were significantly greater in treated groups compared to the control (p = 0.0012). On day 5 CAIA + Embelin mice had a significantly lower paw score compared to CAIA + Embelin + HCQ mice (p < 0.05). Radiant efficiency was greater in CAIA + Embelin and CAIA + HCQ mice compared to CAIA mice 4 hours post probe injection, however this was not statistically significant. BV (mm3) was significantly greater in CAIA mice, compared to control (p = 0.008). CAIA + Embelin + HCQ mice had the lowest PV (mm3) out of all CAIA groups, although was not statistically significant. BV did not statistically differ among groups (p = 0.203).

Conclusions: Embelin reduced clinical paw scores on day 5 and the combination of HCQ and Embelin caused greatest reduction in PV, but this was not significant. Embelin and HCQ may increase apoptosis in the paws of CAIA mice as indicated by higher radiant efficiency. Overall measurements showed no difference in treated and untreated CAIA mice.

P63 CLINICAL AND RADIOGRAPHIC OUTCOMES AFTER 3 YEARS OF SARILUMAB IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Aim: Sarilumab is a human mAb blocking the IL-6Rα. Sarilumab + MTX significantly reduced disease activity, improved physical function, and inhibited radiographic progression in the 1-year phase 3 MOBILITY study (NCT01061736). This analysis examined 3-year clinical and radiographic outcomes and safety in patients who completed MOBILITY and entered the open-label extension study EXTEND (NCT01146652).

Methods: Patients in MOBILITY were initially randomized to placebo or sarilumab 150 or 200 mg q2w for 2 years, followed by sarilumab 200 mg q2w for subsequent years. The primary endpoint was the proportion of patients with ACR20 response at week 24. Measures at baseline and subsequent years were centrally read by 2 readers independently.

Results: Of the 1197 randomized patients in MOBILITY, 901 entered EXTEND. At year 3, all patients had received open-label sarilumab for 2 years, percentages of patients achieving DAS28-CRP <2.6 or CDAI ≤3.2 were similar in all groups, though the initial sarilumab 200 mg q2w group exhibited the most favorable outcomes. Improvements were maintained from year 2 to year 3. Three-year radiographic data were available for 755 patients; linear extrapolation was used in 29. At year 3, mTSS in the initial placebo and sarilumab groups was only slightly increased since year 2. TEAEs occurred in 89.7% of patients over 3 years. The most common TEAEs (≥10%) were neutropenia (19.4%), increased ALT (13.0%), and upper respiratory tract infections (12.7%). Infections were the most frequently reported serious AE (4.2/100 patient-years).

Conclusions: Sarilumab 200 mg q2w resulted in durable clinical response and stabilization of radiographic progression at 3 years irrespective of prior treatment, though the initial sarilumab 200 mg q2w group showed the most favorable outcomes. Adverse events were consistent with the anticipated effects of IL-6 inhibition.

P64 CLINICAL RESPONSES OF SARILUMAB BASED ON RHEUMATOID FACTOR AND ANTI-CYCLIC CITRULLINATED PEPTIDE AUTOANTIBODY STATUS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Aim: Sarilumab is a human mAb blocking the IL-6Ra. Sarilumab plus MTX demonstrated efficacy in patients with RA and inadequate response to TNFi. This analysis assessed clinical efficacy of sarilumab in subgroups of patients based on rheumatoid factor (RF) and anti-cyclic citrullinated peptide (CCP) autoantibody status in MOBILITY and TARGET.
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Methods: ACR20/50/70 response rates (week 24), mean change from baseline in HAQ-DI (week 12/TARGET, week 16/MOBILITY), and DAS28-CRP (week 24) were evaluated by RF and CCP status.

Results: Most MOBILITY (78%) and TARGET (70%) patients were RF +/CCP+. Treatment-by-subgroup interaction (P < 0.05) was observed for ACR20 (CCP in MOBILITY; RF, CCP in TARGET) and HAQ-DI (RF, CCP in MOBILITY; RF, CCP in TARGET). Clinical and functional responses in RF/CCP single- and double-positive patients were generally similar to overall study results. Certain clinical measures, including HAQ-DI, showed trends toward smaller effect sizes, particularly in double-negative patients, that were somewhat more pronounced with sarilumab 150 mg q2w, though sample sizes were small. Comparable findings were observed for DAS28-CRP: mean change from baseline for placebo, sarilumab 150 mg q2w, and sarilumab 200 mg q2w was −1.56 (n = 191), −2.75 (n = 237), and −3.09 (n = 246), respectively, for RF+/CCP+ patients and −1.97 (n = 22), −2.10 (n = 13), and −2.51 (n = 20), respectively, for RF−/CCP− patients in MOBILITY. TARGET results were similar. In MOBILITY, change from baseline in mTSS appeared to be similar regardless of autoantibody status.

Conclusions: Overall, within MOBILITY and TARGET, clinical responses with sarilumab were generally consistent among RF+ and/or CCP+ patients. Regardless of autoantibody status, there was a more robust response regarding clinical signs and symptoms with sarilumab 200 mg q2w.

P65
BARICTINIB DOSE STEP-DOWN FOLLOWING DISEASE CONTROL IN PATIENTS WITH RHEUMATOID ARTHRITIS
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Aim: Phase 3 studies demonstrated clinical efficacy of 2- and 4-mg once-daily (QD) doses of baricitinib in patients with active rheumatoid arthritis (RA) and inadequate response (IR) to conventional synthetic or biologic disease-modifying antirheumatic drugs. In general, larger, more rapid, consistent treatment effects were observed for the 4-mg dose across measures. The objective was to investigate the effects of dose step-down in patients who had achieved sustained low disease activity (LDA)/remission with 4-mg baricitinib QD.

Methods: Patients who completed a phase 3 study (RA-BEGIN, RA-BEAM, RA-BUILD, or RA-BEACON) could enter a long-term extension study, RA-BEYOND. In RA-BEYOND, patients who had received baricitinib 4 mg for ≥15 months and who had achieved sustained LDA/remission (defined by Clinical Disease Activity Index score at 2 consecutive visits ≥3 months apart) were re-randomized (double-blind) to continue receiving baricitinib 4 mg or to step down to a 2-mg QD dose. Disease activity was assessed at a 12-week landmark following randomization.

Results: Among patients who achieved satisfactory and sustained disease control with baricitinib 4 mg QD, randomized double-blind dose reduction to 2 mg QD was associated with modest, statistically significant increases in disease activity across measures at a subsequent 12-week assessment. However, a majority of patients (continued 4-mg and reduced to 2-mg groups) retained the state of LDA/remission that led to randomization.

Conclusions: Consistent with completed studies, these data indicate that baricitinib 4 mg QD was the most efficacious dose for patients with RA in clinical studies. Most patients who had achieved sustained disease control with baricitinib 4 mg sustained LDA/remission 12 weeks after randomized blinded dose taper to 2 mg QD.

Disclosures: This study was supported and conducted by Eli Lilly and Company and Incyte Corporation. This is an encore of an abstract that was presented at the European League Against Rheumatism 2016; June 8–11, 2016; London, UK.

P66
IMPACT OF PARTICIPATION IN THE ADALUMABUM (HUMIRA) PATIENT SUPPORT PROGRAM ON FUNCTIONAL AND CLINICAL OUTCOMES AMONG PATIENTS WITH RHEUMATOID ARTHRITIS: PASSION STUDY
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Aim: To date, no prospective study has been conducted to assess the acceptance and impact of Patient Support Programs (PSPs) on treatment effectiveness. The purpose of this study was to examine the effectiveness of adalimumab (ADA) in rheumatoid arthritis (RA) patients in the context of PSP participation.

Methods: PASSION (NCT01383421) was a 78-week post-marketing observational study of patients with moderate to severe RA receiving ADA in routine clinical care. Patients from the EU, Israel, Mexico, Puerto Rico, and Australia with an insufficient response to ≥1 disease-modifying anti-rheumatic drug (DMARD) newly initiating ADA (1 prior biologic DMARD was allowed) were enrolled. The primary endpoint was the percentage of patients achieving minimal clinically important difference (MCID; improvement of ≥0.22 vs baseline) in the Health Assessment Questionnaire Disability Index (HAQ-DI) at week 78. Patients were categorized based on participation in the PSP: ever (PSP users) vs never (PSP non-users); and outcomes were compared after adjusting for corresponding baseline values.

Results: 1,025 patients were included in the Intent-to-treat population. Overall, 48.7% patients were PSP users. The percentage of patients achieving MCID in the HAQ-DI was higher in PSP users vs PSP non-users (48.1% vs 37.8%, NRI) at week 78 (p < 0.001). Significant changes (p ≤ 0.05) from baseline to week 78 were observed for patients using the PSP vs PSP non-users in HAQ-DI (−0.53 vs −0.39), DAS28(CRP) (−2.33 vs −1.97), SDAI (−24.5 vs −19.8), and CDAI (−22.66 vs −18.55) scores. Study discontinuation rates were significantly (p < 0.001) lower among PSP users vs PSP non-users (25.5% vs 41.6%).

Conclusions: In patients with moderate to severe RA who initiated ADA, PSP users achieved significantly greater improvement in functional and clinical outcomes than PSP non-users. Improvements were achieved at early timepoints and continued to increase throughout the study.

P67
AUSTRALIAN RHEUMATOID ARTHRITIS (RA) BIOLOGIC TREATMENT PATHWAYS: AN AUSTRALIAN RHEUMATOLOGY ASSOCIATION DATABASE (ARAD) ANALYSIS
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Aim: To describe current biologic treatment patterns for ARAD participants with RA including switching and reasons for switching.

Methods: Biologic (bDMARD), DMARD and prednisolone start and stop dates, and reasons for stopping bDMARDs were extracted from ARAD in October 2015 for all RA participants. Switching patterns were determined for each bDMARD and time on first, second and third line bDMARD was analysed using survival analysis methods.

Results: 3220 participants were included in the analysis. The 2651 exposed to bDMARDs at ARAD entry were younger than those unexposed. The number of participants starting first-line therapy with etanercept (n = 1350), adalimumab (n = 941) or infliximab (n = 152), was greater than for more recently available biologics: golimumab (n = 72), abatacept (n = 38), certolizumab (n = 34), tocilizumab (n = 14), rituximab (n = 23), 47.5% starting first-line biologic therapy switched to another bDMARD.
Conclusions: There was some variation between rheumatologist-performed joint counts, consistent with that reported in other studies. Patient self-examination improved following observation of the rheumatologists examination and the consensus discussion. Discrepancies between examiners were similar across all joints examined. A short tutorial for people with RA may increase the accuracy of self-reported joint counts.

P70 SAFETY PROFILE OF BARICITINIB IN PATIENTS WITH ACTIVE RHEUMATOID ARTHRITIS: AN INTEGRATED ANALYSIS
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Aim: Baricitinib (oral janus kinase 1/2 inhibitor) is in development. The objective was to assess the safety of baricitinib across 8 completed studies (4 phase 3, 3 phase 2, 1 phase 1b) and 1 ongoing long-term extension study.

Methods: Primary safety analysis was based on 6 studies with baricitinib 4 mg once daily (QD) and placebo arms, and dose–response assessments on 4 studies with baricitinib 2 and 4 mg QD and placebo arms. The all

Baricitinib rheumatoid arthritis (RA) set included all patients exposed to any baricitinib dose. Two studies contained active comparators.

Results: In total, 3464 patients were exposed to baricitinib (4214 patient-years [PY]; 2166 patients [62.5%] >1 year; 467 [13.5%] >2 years). In controlled periods, no increases in deaths, adverse events leading to study drug discontinuation, malignancies, major adverse cardiac events, or serious infections were seen for baricitinib vs placebo/active treatment. Herpes zoster was reported more frequently for baricitinib vs placebo. In randomized controlled periods, tuberculosis was reported in 2 patients: 1 baricitinib 4 mg; 2 and incomplete screening, 3 without organism confirmed). All tuberculosis occurred in endemic areas. Two gastrointestinal perforations were reported (0.05/100 PY). No confirmed opportunistic infections were reported. Baricitinib treatment has been associated with changes in selected hematology/c clinical chemistry analytes; few patients (<1%) discontinued due to abnormal laboratory results. There was no observed increased risk over time for the above outcome measures with longer exposure.

Conclusions: In the context of reported efficacy, baricitinib had an acceptable safety profile in patients with moderate-to-severe active RA.

Disclosures: This study was supported and conducted by Eli Lilly and Company and Incyte Corporation. This is an encore of an abstract that was presented at the European League Against Rheumatism 2016; June 8–11, 2016, London, UK.
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P71 BARTICITINIB INHIBITS RADIOGRAPHIC PROGRESSION OF STRUCTURAL JOINT DAMAGE AT 1 YEAR IN PATIENTS WITH RHEUMATOID ARTHRITIS (RA) AND AN INADEQUATE RESPONSE TO CONVENTIONAL SYNTHETIC DISEASE-MODIFYING ANTI-RHEUMATIC DRUGS (CSDMARDS) Jenoveve M1, Van Der Heijde D2, Dougados M3, Chen Y4, Greenwald M5, Drezner C6, Klar R1, Xie L5, De La Torre F5, Rooney T7, Witt S7, Schlichting D2, De Bono S8, Emery P9

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Aim: To determine factors associated with the commencement and cessation of opioid therapy in adult patients with RA.

Methods: The analysis included adult patients with a diagnosis of RA enrolled in ARAD. Fixed effects panel regression was used to examine potential predictors of current opioid use including current age, disease duration, self-reported pain score, self-reported arthritis activity score, HAQ score and current medication use including bDMARDs, csDMARDs, NSAIDs and oral glucocorticoids (GCs). A transition state analysis was used to assess how these factors influenced the likelihood of commencing or ceasing opioids.

Results: Of 3699 patients with RA (mean age 57 years, 73% female), 57% reported opioid use. 1629 contributed to the analyses (2 one follow up questionnaire and reported opioid use for one, but not all time points). The proportion of patients taking opioids at any given time point was 32% (95% CI 31–33). Opioid use was higher in females (34%; 32–35) compared to males (27%; 25–30, p < 0.001). Opioid use was associated with current NSAID (OR 2.24; 1.63–2.04), GC (2.24; 1.94–2.60), csDMARD (OR 2.03; 1.73–2.37), p < 0.0001, or bDMARD (OR 1.18; 1.02–1.36) therapy, as well as higher HAQ (OR 1.61; 1.48–1.89) and pain scores (OR 1.15; 1.11–1.19). Patients more likely to commence opioids had higher pain levels (HR 1.11; 1.07–1.15), higher HAQ scores (HR 1.37; 1.27–1.48), and GC use (HR 1.17; 1.90–1.28). Those less likely to commence opioids were older (HR 0.91; 0.88–0.95), receiving csDMARDs (0.69; 0.62–0.77), or NSAIDs (HR 0.90; 0.82–0.99). Patients were less likely to cease opioids if they had higher HAQ scores (HR 0.72; 0.67–0.78), were on bDMARDs (HR 0.84; 0.76–0.93), csDMARDs (HR 0.81; 0.72–0.91), or GCs (HR 0.83; 0.76–0.91). The only factor associated with an increased likelihood of ceasing opioids was older age (HR 1.12; 1.12–2.12).

Conclusions: There was a high prevalence of opioid use among RA patients. GC use and higher pain or HAQ scores were associated with a higher risk of commencing opioids. Older patients were more likely to cease opioids.

P73 PATIENT REPORTED OUTCOMES (PROS) IN PATIENTS WITH RHEUMATOID DISEASES: USING THE OPAL REGISTRY TO LINK PROS WITH CLINICAL OUTCOME

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Aim: Symptom assessment remains an important component of clinical care, although it is often undetected.1 The aim of this research is to link PROs with clinical outcomes within a point-of-care registry for patients with rheumatic diseases.

Methods: The Optimising Patient outcome in Australian rheumatoLogy (OPAL) database is a point-of-care quality use of medicines initiative that is implemented in 42 rheumatology clinics around Australia. It aims to optimize patient outcomes in rheumatic disease through audit and collaborative research. OPAL has more than 80 members, approximately 25% of Australian clinical rheumatologists, with in excess of 32,000 patients enrolled. PROs are included into the OPAL registry data collection in July 2016. PROs include a skin cancer incidence questionnaire, FACIT fatigue scale, SF-1, patient health questionnaire-2 (PHQ-2), Rapid-3, and healthcare resource utilisation (HCRU). Patients are selected by their physician to receive PROs assessments electronically. These are completed and data transmitted via secure link to the individual clinician’s electronic
medical record (Audit4). The benefit of linking the PROs within the OPAL point-of-care system is that PROs can be linked to clinical outcomes, and changes in PROs assessed longitudinally.

Results: Collection of OPAL PROs started in September 2016. Of patients selected for PROs reporting, there has been a 70-80% response rate. At this initial stage, there is a potential for selection bias within the sample, although as the program is expanded, a wider range of patients will be included.

Conclusions: PROs are a central part of assessing disease outcomes. Linking electronic health records and PROs may improve patient quality of life and communication between patients and their clinicians, in our case with the rheumatologist [1]

Reference

P74 TREATMENT PATTERNS AMONG PATIENTS WITH RHEUMATIC DISEASE (RHEUMATOID ARTHRITIS (RA), ANKYLOSING SPONDYLITIS (AS), AND PSORIATIC ARTHRITIS (PsA)) TREATED WITH SUBCUTANEOUS TNF-ALPHA ANTAGONISTS

Youssef P

In this real-world biologic-naïve Australian cohort (RA, AS, PsA) treated with subcutaneous TNF antagonists, patients were propensity score matched on a 1:1 basis with treatment groups. There was no significant difference in treatment persistence between golimumab and other subcutaneous TNF-antagonists, patients were propensity score matched on a 1:1 basis with treatment groups. Propensity score matching led to well matched baseline treatment combination and disease. Treatment persistence was approximately two-thirds of patients were women. The mean (SD) disease duration was 7.8 (10.2) years. The mean common diagnosis was rheumatoid arthritis only (n = 1,774, 47%). Comorbidities were similar between treatment groups. Propensity score matching led to well matched groups. There was no significant difference in treatment persistence by treatment in the overall population (adalimumab 33.6 months [95% CI:28.6-40.7], certolizumab 24.8 months [95%C123.2-42.1], etanercept 27.6 months [95%C23.4-36.5], golimumab 30.3 months [95% CI:23.26-36.5], p = 0.045). In the propensity score matched populations, no differences in treatment persistence between golimumab and another of the other TNF-antagonists were observed. No safety signals were detected.

Conclusions: In this real-world biologic-naïve Australian inflammatory rheumatic disease cohort (RA, AS, PsA) treated with subcutaneous TNF inhibitors during the period 2010–2016, there was no difference in treatment persistence between agents.

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Aim: To determine the patient characteristics and 2011 ACR/EULAR criterion based remission rates in rheumatoid arthritis patients on biological DMARDs in routine private practice from an Australian regional center. We also aimed to compare the outcomes in our relatively resource limited practice to those from larger international and national databases.

Methods: Data was collected on adult patients (age > 18 years) who were seen during routine clinical practice between April – August 2016 on a biologic assessment day. Therefore, all patients had been on biologic therapy for a minimum of three months. Patient characteristics were retrieved from our medical records and disease activity data (TJC, SJC, physician and patient global scores) was collected during our review. All patients had routine bloods prior to review and the CRP was also recorded. The disease activity data was collected, with blinding to the Medicare Australia biologic application form, which was completed separately, by the treating rheumatologist.

Results: A total of 51 patients were assessed from an estimated potential pool of 336 in the private practice. The mean age was 62 years (range: 36-85) and 75% of the cohort was female. The mean time since diagnosis was 15 yrs (2–55). Of the 51 patients, 80% were on methotrexate and only 31% were on prednisone. The mean dose of the prednisone was 4mg. Majority of the patients were overweight or obese (67%). Majority of the patients were rheumatoid factor and anti-CCP positive (79%). Percentage of patients in disease remission by the ACR/EULAR 2011 criteria was 33% (Boolean) and 40% (SDAI). This compares favorably to DANBIO cohort in 2013, which reported 15% of RA patients on biologics in ACR/EULAR Boolean remission.

Conclusions: Rheumatoid arthritis care in regional, relatively resource limited setting can be at national and international standards.

P76 CONCORDANCE BETWEEN THE PATIENT, NURSE AND PHYSICIAN ASSESSMENT OF CLINICAL OUTCOMES IN A COHORT OF RHEUMATOID ARTHRITIS PATIENTS TREATED WITH DMARDS

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Aim: Swollen (SJC) and tender joint counts (TJC) are used in rheumatoid arthritis (RA) for monitoring disease activity and treatment effectiveness. We assessed scoring by trained professionals compared to patients.

Methods: SJC and TJC were assessed at baseline, 6 and 12 weeks. Data was collected utilising patient reported outcome measurement tool (PRO). There were 157 Nurse, 106 Patient and 78 Physician joint count measurements. At baseline matched joint count episodes were available for 104 Patient – Nurse, 72 Physician – Nurse and 21 Patient – Physician pairs and at 12 weeks for 20, 21 and 20 pairs respectively.

The Least Squares Method (LSM), Pearson correlation (R) and weighted Kappa scores were used to assess inter-rater reliability and agreement of responses between the patient, nurse and physician for changes in tender joint counts (TJC) and swollen joint counts (SJC) from 0 to 12 weeks treatment.

Results: TJC: LSM of score at 12 weeks was significantly different for Physician-Nurse (~2.06, p = 0.034), but not Physician-Patient (~1.79, p = 0.20) or Patient-Nurse scores (0.26, p = 0.767). The change in Patient-Nurse, Physician-Nurse & Physician-Patient scores, from baseline to week 12, were 4.47 (2.18, 6.77), −1.98 (~4.22, 0.27) & 5.64 (2.40, 8.88), respectively. Correlation of scores per assessor pairs were R. 0.83 (p < 0.001) for Patient-Nurse, R 0.85 (p < 0.001) for Physician-Nurse & R. 0.59 (p = 0.005) for Physician-Patient. The inter-rater reliability (agreement) of the Patient-Nurse pairs at 12 weeks had a weighted Kappa of 0.59 (0.53, 0.64).

SJC: score showed more moderate Correlation for assessor pairs: R 0.69 (p < 0.001) for Physician-Nurse, R 0.66 (p < 0.001) for Physician-Nurse & R. 0.42 (p = 0.058) for Physician-Patient. The inter-rater reliability (agreement) of the Patient-Nurse pairs at 12 weeks had a weighted Kappa of 0.48 (0.41, 0.55).
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Conclusions: The moderate to high level of correlation and agreement between patients and clinicians assessments suggests patient self-assessment of disease activity may be a reliable option.

P77 RETENTION ON METHOTREXATE: THE RHEUMATOLOGY AUDIT PARTNERSHIP NEW ZEALAND EXPERIENCE

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Aim: To investigate factors determining retention on Methotrexate (MTX) in a real world population of patients with rheumatoid arthritis (RA).

Methods: Patients with RA, who are currently or who had previously been treated with MTX were identified from the NZ Audit4 database. We recorded route of administration, duration of treatment, concomitant therapies and reason for discontinuation. Interruptions of treatment of up to 6 months were recorded but not classified as cessation of treatment. Retention was demonstrated with Kaplan-Meier analysis and factors associated with discontinuation assessed with a Cox proportional hazards model.

Results: Our cohort consisted of 638 patients, 64.6% female and with a mean age of 62.6 years. MTX was used as mono therapy in 146 cases, in 2 other cDMARDs in 49 cases, with TNFi in 75 cases and with steroid in 91 cases. The main reasons for discontinuation were adverse reaction (38%), lack of efficacy (22) and clinician opinion that treatment was no longer required (22).

Conclusions: This descriptive study has evaluated the use MTX in real-world practice and highlighted the pattern of use and main reasons for discontinuation.

P78 DOES OUT-OF-POCKET COSTS AFFECT MEDICATION ADHERENCE IN ADULTS WITH RHEUMATOID ARTHRITIS? A SYSTEMATIC REVIEW

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Aim: This systematic review aimed to determine whether out-of-pocket costs affect medication adherence in adults with rheumatoid arthritis.

Methods: Twelve databases were searched to identify primary, peer-reviewed English articles from inception to April 2016 that referred to the relationship between medication adherence and out-of-pocket costs. The quality of all studies was assessed using the CASP checklist. A descriptive summary of results was provided for each included article.

Results: Seven articles were identified and all were considered as high quality studies. Among them, three studies directly considered the association between out-of-pocket cost and medication adherence as their main objective. Although the population and methods of studies varied widely, we saw a clear negative relationship between out-of-pocket costs and medication adherence in RA patients.

Conclusions: The findings of this review suggest that out-of-pocket costs can contribute to medication non-adherence in rheumatoid arthritis patients. Therefore, health policy makers in every country should find the right OOP amount so these costs do not affect adherence and at the same time costs not be an intolerable burden for providers and insurers.

P79 A REVIEW OF PATIENTS WITH SYSTEMIC SCLEROSIS ATTENDING CAIRNS HOSPITAL: RATES OF DECLINE IN PULMONARY FUNCTION

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Aim: To estimate the prevalence of systemic sclerosis (SSc) in Cairns (estimated population of 160,000), and to evaluate rates of decline in pulmonary function and frequency of pulmonary arterial hypertension (PAH) in this cohort. Monitoring frequency of these patients was also audited.

Methods: A retrospective case notes review of SSc patients followed up at Cairns Hospitals Rheumatology department from 1999 to 2016 was conducted. Pulmonary function and SSc outpatient records were used to compile our database. Cerner integrated electronic medical records contained consultant rheumatologist clinic letters which were cross-checked to confirm diagnosis and autoantibodies. Echocardiograms, right heart catheterisation pressures and pulmonary measurements were obtained from electronic sources. A reduction in lung diffusion capacity (DLCO) by >15% from baseline was deemed significant.

Results: 94 SSc patients were identified, ageing between 28–96 years. 73/94 patients lived in Cairns. Female to male ratio was 6.2:1. 15% had diffuse systemic sclerosis (DSSc), 85% limited disease (LSSc). The commonest autoantibodies were ANA (57%), anti-centromere (44%) and anti-Scl-70 (9%). DLCO remained stable in 80% of LSSc patients, and in 89% of DSSc patients. 16% of LSSc patients had severe pulmonary artery hypertension (PAH) versus 7% of DSSc patients. 37.5% of all deaths (6/16) were due to PAH. 96% of SSc patients underwent cardiopulmonary assessments every 1–2 years.

Conclusions: The estimated prevalence of SSc in Cairns is 45.6/100,000 (95% CI: 41.9 to 49.3). This is almost double the expected rate in Australia (23.3/100,000 in 1999), possibly due to migration of those with Raynaud’s from cooler southern areas to regions of permanent warmth. LSSc was most common, and pulmonary function was stable in the majority. Rates of PAH were doubled in the LSSc cohort. Standards of monitoring were high at Cairns Hospital, and perhaps cardiopulmonary assessment intervals could be extended in stable patients, given such low rates of PAH and DLCO decline.

P80 INCIDENCE OF MYOSITIS-SPECIFIC AUTOANTIBODY (MSA) SPECIFICITIES IN SERA REFERRED TO NEW ZEALAND (NZ) MEDICAL LABORATORIES

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Aim: To define the incidence and specificities of MSA in serum referred for testing in New Zealand.

Idiopathic inflammatory myopathies can be classified by clinicopathological phenotype into four major groups: overlap myositis (OM), dermatomyositis (DM), immune mediated necrotising myositis (IMNMN) and inclusion body myositis (IBM). The different phenotypes associate with distinct MSA specificities although a variable percentage within each group are seronegative for the majority of IBM patients are seronegative. No commercial assay for the IBM associated specificity, cN1A, is available. In NZ testing for MSA is restricted to Waikato Hospital (WHL) and Canterbury Health Laboratories (CHL) using the Euroimmun Euroline assay which does not include the HMGCR specificity. To include this specificity in screening CHL has developed a specific anti-HMGCR ELISA.

Methods: For the period 3 November 2015 to 2 November 2016 each laboratory information system (LIS) was interrogated for requests for MSA. For the purposes of this report positive results were grouped into the specificities associated with each of the defined clinicopathological phenotypes.

DM: Mi2, Tif-11, MDA 5 NXP2 SAE1
OM: Ku, PM-Scl-100, PL75, Jo1, PL-12, EL, OJ
IMNMN: HMGCR, SRP

Results: Of screened sera (n = 793, CHL = 622, WHL = 171) 11% were positive for MSA (88/793). Positive sera where distributed amongst three clinicopathological associated autoantibody specificities: DM 23% OM 50%,IMNMN 27%. The most common serum specificities were HMGCR (n = 24) and Jo-1 (n = 13). No serum with specificities to SRP or Oj was detected. 22/24 sera positive for anti-HMGCR had an elevated CK concentration (CK > 2500u/l in 21/24 and CK = 544 in 1/24, reference range =66-220).

Conclusions: In New Zealand 11% of sera referred for MSA testing were positive. As a group the most common specificities were those associated with OM while the most common antigen specificity was to HMGCR. Anti-HMGCR autoantibodies were almost invariably associated with major elevations in serum CK.
**P81**

**URINARY MONOCYTE/MACROPHAGE RELATED MARKERS MCP-1 AND SOLUBLE CD163 REFLECT THE RENAL DISEASE ACTIVITY IN LUPUS NEPHRITIS: A CROSS SECTIONAL AND LONGITUDINAL ASSESSMENT**

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**Aim:** Macrophages are important players in pathogenesis of lupus nephritis (LN) and alternatively activated macrophages (CD163+) are the predominant subtype infiltrating the glomeruli. Monocyte/Macrophage markers like Monocyte Chemotactic Protein-1 (MCP-1) and soluble CD163 (shed form of CD163; sCD163) in urine may reflect LN disease activity.

**Methods:** A total of 117 SLE patients with active nephritis (AN), active non-renal disease (ANR) and inactive disease (ID) were enrolled. AN patients were followed up every 3 months for 1 year. At all visits, urine and plasma samples were collected. Twenty urine samples each from healthy subjects (HC) and rheumatoid arthritis (RA) patients served as controls. MCP-1 and sCD163 in plasma and urine was measured using ELISA. Urinary values were normalized for creatinine excretion. Variables were expressed as median (range) and non-parametric tests were used.

**Results:** Baseline uMCP-1 was significantly higher in AN as compared to ANR, ID, HC and RA. uMCP-1 correlated modestly with rSLEDAI (r = 0.55, p < 0.001), SLEDAI (r = 0.45, p < 0.001), protein:creatinine ratio (r = 0.43, p < 0.001) but not with corresponding plasma levels (r = 0.17). Similarly, baseline uCD163 was also significantly higher in AN as compared to other groups. uCD163 correlated modestly with rSLEDAI (r = 0.48, p < 0.001), SLEDAI (r = 0.31, p < 0.001), protein:creatinine ratio (r = 0.56, p < 0.001) but not with corresponding plasma levels (r = 0.23).

On ROC analysis to differentiate AN from ANR, uMCP-1 (AUC = 0.75) and uCD163 (AUC = 0.72) performed better than the conventional markers. Urinary MCP-1 and sCD163 could differentiate between AN and ANR patients whereas plasma levels couldn’t.

In the longitudinal study, uMCP-1 and uCD163 decreased significantly at all follow-up visits in AN patients. Plasma levels also decreased but showed an erratic and irregular trend.

uMCP-1 and uCD163 rose before conventional markers in 4 patients who relapsed within 1 year whereas plasma levels did not.

**Conclusions:** Urinary MCP-1 and sCD163 are produced in the kidney and are good biomarkers of LN disease activity with a potential to predict relapse of LN.

**P82**

**MORTALITY IN THE WAIKATO SYSTEMIC SCLEROSIS COHORT**

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**Aim:** To assess the predictors of mortality for a cohort of patients with Systemic Sclerosis (SSc).

**Methods:** A cohort of 132 patients enrolled at the Waikato systemic sclerosis clinic was prospectively followed from the period of 2005 to 2016. Patient demographics, diagnoses and lab reports were used to assess risk of mortality and generate standardised mortality ratios (SMR). Survival was analysed using Kaplan-Meier methods and Cox proportional hazards models.

**Results:** Of 677 patients with IIM in the SAMD, information regarding preceding vaccination/infections was available for 206 patients. The incidence of IIM with a history of prior vaccination was 20/206 (9.7%), prior infection was 29/206 (14%) and either vaccination or infection was 49/206 (23.8%). Vaccinations against influenza were the commonest reported vaccination prior to IIM onset (n = 16) with a median time between vaccination and date of muscle biopsy = 10 weeks (range 1–24 weeks). Dermatomyositis comprised a greater proportion of disease among patients with preceding vaccination (p = 0.03), or prior infections (p = 0.02) compared with controls, p = 0.03. Antibodies to Ro52 were more frequent among patients with preceding vaccination compared with controls, p < 0.002.

**Conclusions:** The temporal relationship of prior infection/vaccination in 24% of patients with IIM prompts further enquiry. Anti-Ro52 is a marker for systemic autoimmunity and is the commonest autoantibody in IIM. Myositis autoantibodies predate disease by many years, and the question is raised whether the presence of anti-Ro52 increases the risk of vaccine-induced myositis. That dermatomyositis is over-represented, and the possible role of anti-Ro52 in susceptibility to vaccine-induced myositis require confirmation in large international cohorts.

**P84**

**PROMOTES [PATIENT AND PHYSICIAN REPORTED OUTCOMES - MEASURES OF THE TRUE EXPERIENCE IN SLE]**

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**Aim:** Patients with systemic lupus erythematosus (SLE) may assess their disease activity discordantly from their physicians. Indices used by a health professional to assess SLE disease activity include Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) and SLE Disease Activity and Damage Index (SLEDAI and SLEDAI-2K). We sought to determine the incidence of preceding vaccination/infection in a large cohort of patients with IIM.

**Methods:** Patients with histologically-confirmed myositis registered in the South Australian Myositis Database (SAMD) were sent questionnaires regarding infection/vaccinations (including their dates) prior to development of IIM. Clarification was obtained through phone calls to patients and their general practitioners. The characteristics of this group were compared with controls (myositis patients without prior infection/vaccination) using the Fisher’s Exact Test.

**Results:** Of 677 patients with IIM in the SAMD, information regarding preceding vaccination/infections was available for 206 patients. The incidence of IIM with a history of prior vaccination was 20/206 (9.7%), prior infection was 29/206 (14%) and either vaccination or infection was 49/206 (23.8%). Vaccinations against influenza were the commonest reported vaccination prior to IIM onset (n = 16) with a median time between vaccination and date of muscle biopsy = 10 weeks (range 1–24 weeks). Dermatomyositis comprised a greater proportion of disease among patients with preceding vaccination (p = 0.03), or prior infections (p = 0.02) compared with controls, p = 0.03. Antibodies to Ro52 were more frequent among patients with preceding vaccination compared with controls, p < 0.002.

**Conclusions:** The temporal relationship of prior infection/vaccination in 24% of patients with IIM prompts further enquiry. Anti-Ro52 is a marker for systemic autoimmunity and is the commonest autoantibody in IIM. Myositis autoantibodies predate disease by many years, and the question is raised whether the presence of anti-Ro52 increases the risk of vaccine-induced myositis. That dermatomyositis is over-represented, and the possible role of anti-Ro52 in susceptibility to vaccine-induced myositis require confirmation in large international cohorts.
Abstracts

in many rheumatic diseases including SLE1, correlated significantly with the traditional disease activity measures.

Methods: Seventy-two consecutive patients with SLE were studied in the usual care of three rheumatologists. All patients completed an MDHAQ and the rheumatologist completed a physician global assessment, SLEDAI and BILAG at each outpatient visit. Patients were classified as having possible secondary fibromyalgia (FM) if they scored pain ≥6/10 and range of symptoms ≥16/60. These criteria have been found to identify FM with 80% agreement with ACR FM criteria2. The three indices were compared using correlations and t-tests.

Results: Patients included 65 women and 7 men, with a total of 203 outpatient visits. In the entire cohort, RAPID3 was not correlated significantly with SLEDAI or BILAG. If patients with FM were excluded, the mean RAPID3, pain and patient global scores were significantly higher in the remaining patients with a severe BILAG score. Patient global was correlated modestly with physician global (r = 0.33, p < 0.0001), and is higher than physician global by 2.2 points (p < 0.001).

Conclusions: MDHAQ can provide additional information including the possible presence of FM, not found in SLEDAI and BILAG. These preliminary results suggest further study to analyze the clinical value of MDHAQ/RAPID3 as a measure of SLE disease activity.

References

P85
IS PRETERM DELIVERY PRIOR TO 34 WEEKS A RISK FACTOR FOR FUTURE CARDIOVASCULAR EVENTS IN PAROUS WOMEN WITH SLE?

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Aim: Women with SLE are at greater risk of cardiovascular disease. Studies have previously demonstrated that maternal-placental syndrome (MPS) is associated with accelerated maternal cardiovascular events (CVE) in women with SLE. MPS may manifest as hypertensive disorders of pregnancy, placental abruption, fetal growth restriction or stillbirth - all of which, along with active SLE during pregnancy, may lead to preterm delivery. Therefore, could preterm delivery be a surrogate marker for accelerated CVE in women with SLE?

The aim is to determine if preterm delivery <34 weeks was associated with accelerated development of CVE in women with SLE.

Methods: Utilising linked population-based registries from Sweden between 1973–2011, parous women with SLE were identified. Preterm delivery was defined as delivery <34 + 0 weeks’ gestation. Outcome was any CVE (i.e. coronary artery disease, stroke, peripheral vascular disease or death from these causes). Multivariate analysis adjusting for cardiovascular risk factors and SLE-related morbidity (inclusive of inpatient admissions, duration of SLE, renal disease, infection and cancer) was performed.

Results: Of the 3,963 women included during the study interval, 7.9% had a delivery <34 weeks and 10.4% developed CVE. Those who delivered <34 weeks were younger but had more SLE-related morbidity and cardiovascular risk factors, while 63.5% had MPS complicating their pregnancy. Preterm delivery <34 weeks’ gestation conferred a hazard of 1.8 (95%CI 1.3–2.4) of developing CVE, and an increased likelihood of developing accelerated CVE compared to those with uncomplicated pregnancies.

Conclusions: The women with preterm deliveries <34 weeks displayed a more severe clinical phenotype of SLE. Despite adjusting for these factors, they had a 2-fold increased hazard of CVE with an accelerated rate of development of CVE compared to those who delivered later. Therefore, preterm delivery <34 weeks may be a useful screening question for identifying parous women with SLE at high-risk of early CVE.

P86
VITAMIN D AND FATIGUE IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Aim: To Assess the Relationship Between Vitamin D, Fatigue and Disease Activity in an Australian Systemic Lupus Erythematosus (SLE) Cohort.

Methods: Twenty seven patients from the SLE cohort at Liverpool Hospital, Australia were recruited. Serum 25-hydroxyvitamin D (25(OH)D) levels (vitamin D) were measured. Each patient self-reported their fatigue using a ten point visual analogue scale (VAS). Patients were divided into those with active SLE (BILAG score of A or B in any system), inactive SLE (BILAG scores of C, D, E only), low or normal vitamin D status (less than or greater than 50 nmol/L respectively), coexistence of fibromyalgia and compliance with vitamin D supplementation. Statistical analysis of the study cohort and the various subgroups was then performed using ANOVA and linear regression.

Results: Vitamin D insufficiency was detected in 27% of patients, however, no difference was observed in fatigue scores when compared to those with normal vitamin D status. Fatigue scores were significantly lower in patients taking vitamin D supplementation, regardless of vitamin D level, with a mean difference of 2.8 on the ten point VAS (p = 0.027). Significantly higher fatigue was reported in patients with concomitant fibromyalgia with a mean VAS of 7.6 compared to 3.8 in those without fibromyalgia (p = 0.0084). There was no difference in mean vitamin D level or fatigue score between the active (n = 8) and inactive (n = 19) SLE groups.

Conclusions: Vitamin D deficiency was not associated with increased fatigue or increased SLE disease activity in this cohort. Regardless of vitamin D level, vitamin D supplementation was associated with lower fatigue scores and should be further assessed in randomised clinical trials. Fatigue is prevalent in SLE and should alert the clinician to the possibility of concomitant fibromyalgia.

P87
SERUM CYTOKINE ANALYSIS AND TRANSCRIPTOMICAL BLOOD PROFILING REVEAL AN ASSOCIATION BETWEEN IL-3 AND INFN IN HUMAN SLE

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Aim: IFNαs, produced by plasmacytoid dendritic cells (pDCs) is a major contributor to systemic lupus erythematosus (SLE) pathogenesis. IL-3 promotes pDC survival, but its role in SLE has not been well characterised. This study investigated serum IL-3 and IFNα levels, and a whole blood ‘IL-3 gene signature’ in human SLE.

Methods: Serum cytokine levels were measured by ELISA in n = 42 SLE donors from The Royal Melbourne Hospital and n = 44 healthy donors from The Walter and Eliza Hall Institute’s Volunteer Blood Donor Registry. IL-3 upregulated genes were determined by RNASeq of healthy donor whole blood stimulated in vitro with IL-3 for 6 or 24 hours. Whole blood RNASeq analysis was also undertaken in n = 31 SLE donors from the Monash Lupus Clinic and n = 28 healthy donors from The Skin and Cancer Foundation.

Results: Serum IL-3 levels correlated with serum IFNαs (r = 0.612, 95% CI 0.455–0.733, p < 0.001). IL-3 stimulation in vitro altered 794 genes (≥1 ≥ log2FC ≥ 1, FDR < 0.05). Thirty-five of these genes overlapped with differentially expressed genes between SLE and healthy donors. These 35 genes were expressed in 28/31 SLE donors, revealing the presence of an ‘IL-3 gene signature’. There was strong correlation between the IL-3 signature and an IFN signature determined by hierarchical clustering of the five hundred most variable genes in SLE donors (r = 0.939, 95% CI 0.896–0.964, p < 0.0001).
Conclusions: We have previously reported a novel anti-IL-3R mAb (CSL362/NJ-56022473), which depletes pDCs and reduces IFNγ production, as well as neutralising IL-3 signalling (Oon et al, JCI Insight, 2016). An association between IL-3 and IFNγ was found in this study, raising the possibility that CSL362 may be especially useful for lupus patients with a dual IL-3/IFNγ gene signature.

P88
EXPLORING DIMENSIONS OF STIFFNESS IN RHEUMATOID ARTHRITIS AND PSORIATIC ARTHRITIS: THE AUSTRALIAN RHEUMATOLOGY ASSOCIATION DATABASE (ARAD) OMERACT STIFFNESS SURVEY
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Aim: Little is known about optimal ways to assess stiffness in psoriatic arthritis (PsA) and rheumatoid arthritis (RA), or whether the stiffness experience differs between these conditions. The aims of this study were to:
1. Measure and compare stiffness in PsA and RA using patient-reported outcome measures
2. Determine how dimensions of stiffness reflect the patient experience
3. Assess how different dimensions of stiffness affect physical function

Methods: An online survey was sent to 158 ARAD participants with PsA and age- and sex-matched participants with RA. The survey assessed stiffness severity, duration, impact, importance, coping and physical function (mHAQ). Cognitive debriefing was conducted with nine respondents via semi-structured telephone interviews.

Results: 111 participants with RA and 103 with PsA responded (response rate 214/316, 67.7%). Stiffness ratings were similar between diagnoses (RA vs PsA) for severity ([scale 1–10] median (IQR) 3.0 (1.0–5.0) vs 3.0 (1.0–5.0); p = 0.50) and duration [median (IQR) 30.0 (10.0–90.0)] vs 30.0 (10.0–60.0); p = 0.50). Severity, impact and coping scores were strongly correlated (r’s 0.76-0.90; p’s < 0.0001). Stiffness duration demonstrated moderate to strong correlations with other dimensions (r’s 0.58–0.69; p’s < 0.0001). In cognitive debriefing, six participants described rating both severity and impact in terms of activities they were unable to do eg. “severe means you can’t get out of bed”. “Impact” and “importance” of stiffness were very similar or the same in meaning to five respondents. After controlling for age, sex, disease, duration, disability pension, prednisone use and obesity, stiffness severity, impact and duration each independently predicted mHAQ (r2 = 0.60, 0.60, 0.48 respectively, p’s < 0.0001).

Conclusions: When rating stiffness, most participants thought about its effect on daily activities but not duration. Stiffness was very similar between PsA and RA, across all dimensions measured. Stiffness impact, severity and duration were independent predictors of physical function.

P90
SECUKINUMAB PROVIDES SUSTAINED IMPROVEMENTS IN THE SIGNS AND SYMPTOMS OF ACTIVE PSORIATIC ARTHRITIS (PSA) THROUGH 3 YEARS: EFFICACY AND SAFETY RESULTS FROM A PHASE 3 TRIAL
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Aim: Secukinumab, an anti-interleukin-17A monoclonal antibody, provided significant improvements in the key clinical domains of PSA over 2 years of the FUTURE-1 study (NCT01392326). Here, we present results through 3 years.

Methods: 606 adults with active PSA were randomized to receive secukinumab or placebo. Secukinumab patients received a 10mg/kg intravenous loading dose at baseline, weeks 2 and 4, and then either 150mg subcutaneously (IVa1*150mg) or 75mg subcutaneously (IVa1*75mg) every 4 weeks. At week 16 or week 24, based on week 16 clinical response, placebo-
treated patients were re-randomized to receive secukinumab. At week 104, patients could enter the extension phase of the study. Efficacy results at week 156 are presented for patients that were originally randomized to secukinumab (n = 308). Clinical assessments included: ACR20/50/70, PASI-75, DAS28-CRP, SF-36 PCS, HAQ-DI, dactylitis, and enthesitis. Analyses were stratified by anti-TNFα status. Safety analysis is based on exposure-adjusted incidence rate (EAIR). All patients (n = 587) who received ≥1 dose of study treatment were included in the safety analysis.

Results: 457 of the original 606 patients entered the extension study (including 308 originally randomized to secukinumab). 435 patients completed 156 weeks. At week 156, ACR 20/50/70 response rates were 76.8/54.9/32.0% with IVI 150mg and 65.2/39.0/26.0% with IVI 75mg, respectively. Sustained clinical improvements through week 156 were observed across other clinically important domains. Improvements were sustained in both anti-TNFα-naïve and anti-TNFα-inadequate responder patients. Over the entire study period the type, incidence and severity of adverse events were consistent with those reported previously. EAIRs for serious infections/infestations/Crohn’s disease were consistent with those reported previously.

Conclusions: Secukinumab provided sustained improvements in multiple clinical domains of active PsA in patients who completed 3 years of therapy. Secukinumab’s safety profile is consistent with that previously reported.

P91 COMPARATIVE EFFECTIVENESS OF SECUKINUMAB AND ADAHILUMAB IN ANKYLOSING SPONDYLITIS (AS) AS ASSESSED BY MATCHING-ADJUSTED INDIRECT COMPARISON (MAIC): AN ANALYSIS BASED ON ALL PIVOTAL PHASE 3 CLINICAL TRIAL DATA

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Aim: The aim of this MAIC was to assess the relative effectiveness of secukinumab 150mg and adalimumab 40mg in active AS.

Methods: Individual patient data (IPD) from the pooled secukinumab 150mg arm of MEASURE-1 (n = 125) and MEASURE-2 (n = 72) were weighted to match the baseline characteristics of the adalimumab 40mg arm of ATLAS (n = 208); placebo arms were also matched. Logistic regression was used to determine weights for sex/age/BASI1 scores and previous anti-TNF therapy. Recalculated secukinumab 150mg outcomes (effective sample size [ESS] = 120; placebo ESS = 120) were compared with aggregated adalimumab data at weeks 12, 24, and 52. Placebo-adjusted results were valid only until week 12 as patients receiving placebo in ATLAS could switch to open-label adalimumab (69% had switched by week 24). Therefore, comparisons beyond week 12 were non-placebo adjusted. Imputation methods for missing data were matched between trials. NRI was available for all binary outcome data except for adalimumab at week 52 which was LOCF only and included placebo switchers. This was matched by including placebo switchers for secukinumab at week 52. Comparisons are presented as response rate (%) and pairwise comparisons using odds ratios (OR).

Results: At week 12 there were no differences in placebo-adjusted response rates. At week 16, there was a higher ASAS20 non-placebo adjusted response rate for secukinumab (OR [95% CI]: 1.60 [1.01-2.54], p = 0.047). At week 24, there were higher ASAS20/ASAS40 non-placebo adjusted response rates for secukinumab (OR [95% CI]: 1.76 [1.14-2.62], p = 0.011) and ASAS40 (OR [95% CI]: 1.54 [1.06-2.23], p = 0.023). A sensitivity analysis that included BASDAI score in the baseline matching showed similar findings.

Conclusions: Secukinumab 150mg was associated with higher (non-pla-cebo-adjusted) ASAS20 response rates at weeks 16, 24 and 52 and ASAS40 at weeks 24 and 52. No differences in placebo-adjusted response rates were evident at week12. Therapy switching in ATLAS precluded analysis of placebo-adjusted data beyond week12.
A META-ANALYSIS OF THE RELATIONSHIP BETWEEN SERUM KLEBSIELLA ANTIBODIES AND ANKYLOSING SPONDYLITIS

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Aim: It is believed that Klebsiella infection is a causative or exacerbating factor in the pathophysiology of ankylosing spondylitis (AS). The aim of this study was to quantitatively assess the link between serum anti-Klebsiella immunoglobulin levels and AS using a meta-analysis of relevant studies.

Methods: Ten case-control studies involving 672 AS patients and 5883 control patients were identified following a systematic search of electronic databases and a manual review of reference lists. Studies measuring serum anti-Klebsiella immunoglobulin levels using ELISA were included whilst studies using immunoblotting or immunofluorescence techniques were excluded. Meta-analyses were conducted to assess the standard difference in mean anti-Klebsiella immunoglobulin levels between AS patients and healthy controls as well as the odds ratio of elevated anti-Klebsiella immunoglobulin levels in these groups.

Results: Compared to healthy controls, AS patients had increased serum anti-Klebsiella total immunoglobulin (Standard Difference in Means (SDM) 7.79, 95% CI 2.92-12.67; p = 0.002), IgG (SDM 3.24, 95% CI 1.69-4.80; p < 0.001) and IgA (SDM 2.74, 95% CI 1.18-4.30; p = 0.001) but not IgM (SDM 1.02, 95% CI -0.02-2.06; p = 0.055). This translated to incredibly increased chances that AS patients had elevated anti-Klebsiella total immunoglobulin (Log Odds Ratio (LOR) 14.14, 95% CI 5.30-22.98; p = 0.002), IgG (LOR 5.88, 95% CI 3.06-8.70; p < 0.001) and IgA (LOR 4.97, 95% CI 2.13-7.80; p = 0.001). The increased risk was particularly elevated in studies performed in the UK (LOR 14.80, 95% CI 8.82-20.77, p < 0.001) but not so elsewhere (LOR 0.50, 95% CI 0.03-0.97, p = 0.33).

Conclusions: AS patients have elevated serum anti-Klebsiella immunoglobulins, particularly of the IgA and IgG class. This supports the hypothesis that Klebsiella infection is involved in the pathogenesis of AS and suggests that anti-Klebsiella immunoglobulins have the potential for use as diagnostic markers for this disease.

P96 GENETICS OF ANKYLOSING SPONDYLITIS: DOES HLA-B*27 ALLELE SUBTYPE MATTER?

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Aim: The HLA-B*27 is a well-known genetic risk variant for ankylosing spondylitis (AS). However, the degree of association varies for different subtypes and depends on ethnicity. We aimed to investigate the association of the HLA-B*27 allele subtypes in patient with AS.

Methods: A total of 135 clinically-diagnosed AS patients (29 Malays, 87 Chinese, 12 Indians and 7 mixed-ethnicities) were enrolled in this study between 2014 and 2016. The HLA-B*27 subtype alleles were genotyped using the PCR-SSO method on LumineX platform. A total of 2,703 ethnically-matched healthy subjects (2,102 Malays, 209 Chinese, 292 Indians and 100 mixed-ethnicities) were also HLA-typed for association testing with odds ratio (OR) and 95% confidence interval (CI).

Results: Our data demonstrate preponderance of male AS patients (89%, n=109). The risk of developing AS was strongly associated with HLA-B*27 alleles (OR = 65.8, 95% CI 41.3-104.9, p < 0.0001) irrespective of ethnic groups. Five different HLA-B*27 subtypes were identified in the AS population (i.e. HLA-B*27:01, B*27:02, B*27:04, B*27:05 and B*27:07) and in the normal population (i.e. HLA-B*27:03, B*27:04, B*27:05, B*27:06 and B*27:07). The HLA-B*27 subtype analysis revealed high frequency of HLA-B*27:04 (95%), followed by the HLA-B*27:05 (10%) in the HLA-B27-positive AS patients. Interestingly, we observed a high frequency of HLA-B*27:06 (approximately 70%) in the HLA-B*27-positive normal population and none of the AS patients carried the HLA-B*27:06 genetic variant.

Conclusions: The risk of developing AS is strongly associated with HLA-B*27 alleles. The association seems to apply to the specific HLA-B*27:04, which is common in Asian populations, but not in Caucasians.
involved. One patient had tophi, one patient had renal stones and one patient had both tophi and renal stones. Co-morbidities included hypertension (100%), dyslipidemia (45.5%), diabetes, ischemic heart disease and renal impairment (36.4%), stroke and cardiac failure (9.1%).

**Conclusions:** All women with gout were in menopausal state at the time of gout diagnosis and majority were Malay. Half of these patients presented with polyarthritis which were restricted to the ankles, feet and metacarpophalangeal joints. Similar to the male counterparts, cardiovascular co-morbidities were high in these patients.

**P97**  
**EFFECTS OF SHORT TERM INTAKE OF SOME COMMONLY USED NSAIDS ON OVULATION IN YOUNG WOMEN**  
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**Aim:** Ovulation is the central event in ovarian physiology, and ovulatory dysfunction is a relevant cause of female infertility. (NSAIDs) may have inhibitory effects on ovulation, due to the inhibition of cyclooxygenase that is the rate limiting enzyme in prostaglandin (PG) synthesis.

The present study was designed to find out the possible influence of some COX-1 and COX-2 drugs on ovulation in women at the childbearing age.

**Methods:** The present study recruited young women [52 patients with mechanical back pain plus 12 controls] attending Baghdad teaching hospital department of rheumatology to assess the influences of some COX-1 and COX-2 NSAIDs [celecoxib, mefenamic acid and ibuprofen on ovulation using ultrasound and measuring the levels of Progesterone, FSH and LH]. Endometrial thickness was measured before and after intake of the NSAIDs in the same cycle. The controls had placebo NSAIDs, underwent same measures.

**Results:** The present study demonstrated a significant inhibition of ovulation in patients treated with celecoxib, ibuprofen & mefenamic acid. Celecoxib was the highest inhibitor of ovulation compared to the other two drugs. A non significant decrease in progesterone level in all three groups compared to the control group, Functional cysts have been observed in patients treated with celecoxib, and no functional cyst occurs in other two groups treated with mefenamic acid and ibuprofen. Endometrial thickness was affected in all three treated groups.

**Conclusions:** The above findings should be kept in mind and taken into consideration by physicians when they prescribe NSAIDs [Celecoxib, Ibuprofen & Mefenamic acid] to treat female patients at childbearing age, particularly those having difficulty conceiving.

**P98**  
**SURVIVAL OF CHILDHOOD ONSET SLE IN A SINGLE CENTER**  
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**Aim:** To evaluate the mortality of childhood SLE in a single tertiary care center in Southern Thailand.

**Methods:** We retrospectively reviewed the medical records of children (aged < 15 years) who were diagnosed with SLE at the Department of Pediatrics, Songklanagarind Hospital, from 1985–2014 and were followed up for at least 2 years.

**Results:** This study included 327 children (272 girls, 55 boys) with a mean age at presentation of 11.6 ± 2.7 years. During a mean follow-up of 6.8 ± 5.1 (range 2–28) years, children (22.3%) died, one third within the first year. The mortality rate was 3.4 per 100 person years. Survival rates at 1, 5 and 10 years were 93.4%, 82.8% and 72.0%, respectively. Ten-year survival rates for the children diagnosed in the decades 1985–1994, 1995–2004 and 2005–2014 were 67.4%, 63.7% and 80.6%, respectively (p < 0.001).

Boys had worse survival than girls (hazard ratio = 2.3, 95% CI: 1.4- 3.8) even after adjusting for decade of diagnosis.

**Conclusions:** In our setting, the survival rate of childhood onset SLE has improved over the past 10 years, but mortality is still high, particularly in boys. Deaths occurred within the first year of presentation more than in other years.

**P99**  
**DISEASE MANIFESTATION AND CAPILLOROSCOPY FINDINGS IN MIXED CONNECTIVE TISSUE DISEASE (MCTD): A SINGLE CENTRE COHORT REVIEW**  
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**Aim:** To describe the clinical and immunological manifestations, and the capilloroscopy findings of our Mixed Connective Tissue Disease (MCTD) cohort.

**Methods:** Retrospective cross sectional study of MCTD patients in Hospital Putrajaya, Malaysia from 1996 to December 2016 with the availability of previous nailfold capillaroscopy (NC) assessment 5 years before inclusion.

The electronic medical records were reviewed extracting all the information.

**Results:** A total of 19 patients were analysed with the mean age and disease duration were 42.8 ± 3.42 and 11.4 ± 3.02 years, respectively. Main clinical manifestations were arthritis/arthralgia (89%), Raynaud (63%), mucocutaneous (62%) and pulmonary manifestations (42%). The most frequently identified serologies were antinuclear antibody (94.7%) and anti-RNP antibodies (73.7%). During last clinic visit, 42% patients were still on glucocorticoids, 69% on hydroxychloroquine and 37% on Azathioprine.

Of the 19 patients with MCTD, scleroderma-pattern (SD) were observed in 11 patients (57.9%) who had NC assessment. Raynaud were present significantly in 90.9% (10) patients with SD pattern (p = 0.003). Furthermore, 6 (75%) patients who had SD pattern were also found to have interstitial lung disease (p = 0.37). Moreover, SD pattern was also observed in 47% of patients taking immunosuppressive therapy (p = 0.38).

**Conclusions:** Overall, arthritis/arthralgia was the main clinical manifestation with the majority having positive anti-RNP antibodies. SD pattern on nailfold capillaroscopy was common in our cohort with significant association with Raynaud. However, no significant association between SD pattern and lung involvement or disease severity was observed. This was likely due to a small number of patients and retrospective study design.

**P100**  
**DIALYSIS TREATMENT OF LUPUS NEPHRITIS IN BULGARIAN CHILDREN**  
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**Aim:** Childhood-onset SLE (cSLE) is a rare disease. As in adult onset SLE, approximately 80 % of patients with cSLE are female. Renal involvement occurs in 50 to 75 % of all cSLE patients and the incidence of end-stage renal disease (ESRD) is reported to be between 10-20 % by 10 years from diagnosis. The aim of our study was to review the results of the dialysis treatment in cSLE patients in a single dialysis center for children in Bulgaria.

**Methods:** For 30 year period (1986-2016 year) 11 cSLE patients with renal insufficiency were treated by hemodialysis. All of them were female aged from 10-18 years (mean age 14.63).

**Results:** 7 children had chronic kidney disease (CKD) 5 stage, 3 presented acute renal failure (ARF) and 1 with acute on CKD. All children were treated by hemodialysis with mean duration of 7 months (from 2 to 48 months). 10 of the patients died and 1 ended with dialysis after 7 months of treatment and stayed on CKD 3 stage.

**Conclusions:** Children with lupus nephritis rarely develop CKD 5 stage in childhood but more than 90 % of those who will develop CKD 5 have poor prognosis.
Aim: Systemic Lupus Erythematosus (SLE) patients are known to have sleep disturbances. Quality of sleep may affect quality of life, but this association has not been systematically evaluated. The aim of this study was to examine the association of quality of sleep, quality of life and SLE disease activity in patients diagnosed with SLE.

Methods: 132 SLE patients with a confirmed diagnosis of SLE according to the ACR classification criteria were enrolled in this study. The patients completed the following questionnaires: the Pittsburgh Sleep Quality Index (PSQI), the 12 item Short Form Health Survey (SF-12), the Lupus Patient-Reported Outcome Tool (LupusPRO), SLE Quality of Life Questionnaire (SLE-QoL). Clinical information, including the SLE Disease Activity Index (SLEDAI), was obtained from medical records. Students’ t-test, ANOVA, Pearson correlation measured were used in statistical analysis.

Results: The majority of the participants (84,4 %) had sleep disturbances (PSQI > 5). Total PSQI score was weakly associated with all of the SF-12 subcategories and showed weak to moderate associations with the LupusPRO subcategories (r < 0.05), except for “medication” (r > 0.20). “Sleep duration” was not associated with any of the SF-12 or LupusPRO subcategories. “Sleep efficiency” was weakly associated with “physical health”, “physical function”, and “pain” in the SF-12 and LupusPRO. “Sleep quality” and “sleep disturbances” were weakly associated with “pain” and the “emotional” and “mental” subcategories in the SF-12 and LupusPRO. SLE - QoL was significantly higher in patients with poor sleep.

Conclusions: We found that quality of sleep, especially “sleep efficiency”, was poor for the majority of patients with SLE. Quality of sleep was associated with various aspects of quality of life, especially pain, vitality, and emotional health. Management of pain and emotional health may be important for improving quality of sleep in SLE patients.

P102 PROLONGED REMISSION IN PATIENTS WITH LUPUS NEPHRITIS
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Aim: The aim of this study is to assess the prevalence of prolonged remission in patients with lupus nephritis (LN) and its relationship with damage accrual.

Methods: Patients diagnosed with LN between 1990 and 2015 were included in the study. We defined remission as prolonged when lasting ≥ 5 consecutive years. (proteinuria ≤ 0,03 g/l and serum creatinine ≤ 136,6 μmol/l) Three levels of remission were defined using the SLE Disease Activity Index-2000 (SLEDAI-2K): complete remission: no disease activity in corticosteroid-free and immunosuppressant-free patients; clinical remission off corticosteroids: serologically active clinical quiescent activity index-2000 (SLEDAI-2K): complete remission: no disease activity in corticosteroid-free and immunosuppressant-free patients; clinical remission on corticosteroids: SACQ disease in patients taking prednisone 5 mg, SACQ disease in corticosteroid-free patients and clinical remission on corticosteroids: SACQ disease in patients taking prednisone 5–10 mg/24 h. Damage was measured by the SLICC/ACR-SLE Disease Activity Index (SDI).

Results: 318 patients (293 women) fulfilled inclusion criteria. During the 10-year follow-up, 52 patients (16,35 %) achieved prolonged complete remission, 107 (33,65 %) prolonged clinical remission off corticosteroids and 114 (35,85%) prolonged clinical remission on corticosteroids. SDI increased more frequently in unremitting than in remitted patients (p < 0.05); SDI median increase was higher in unremitting than in remitted patients. At multivariate analysis, unremitting disease and high-dose corticosteroid intake were risk factors for damage accrual.

Conclusions: Patients with prolonged remission was associated with a better outcome in terms of damage accrual.

P103 SPIRONOLACTONE AS A NOVEL DMARD IN RHEUMATOID ARTHRITIS: BENCH TO BEDSIDE STUDY
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Aim: To investigated the anti-inflammatory effects of SPIR in collagen-induced arthritis model as well as in rheumatoid arthritis (RA) patients in a randomized, placebo-controlled study.

Methods: Mice (DBA/1) with collagen-induced arthritis (CIA) were treated SPIR (20, 40 and 80 mg/kg/day), methotrexate (MTX) after the first signs (day 21) of arthritis until day 42. At bed side, in this study we have recruited 70 patients (36 in SPIR and 34 in placebo) with active RA were randomized to oral SPIR (2 mg/kg/day) or placebo for 24 weeks as an adjunct to existing stable DMARD regimen. Therapy results were evaluated by ESR, CRP, DAS-28 and inflammatory cytokines (TNF-α, IL-6 and IL-1). Flow mediated dilatation (FMD) and endothelial progenitor cells (EPCs) (CD34+/CD133+) were quantified by flow cytometry.

Results: Treatment with SPIR after the onset of CIA significantly reduced the severity of CIA indicated by arthritis score, paw swelling and serum level of TNF-α and IL-6. Histological analysis confirmed the suppression of joint inflammation after SPIR treatment and its effect was found comparable to that of MTX. At bed side, after 24 weeks treatment with SPIR, ESR, CRP and DAS-28 significantly (p < 0.05) improved in SPIR group compared with placebo. At 24weeks, TNF-α, IL-6 and IL-1 improved significantly in SPIR compared with placebo. After treatment with SPIR the FMD improved from 6.5 to 8.9 (p < 0.05) compared with placebo (p = 0.12). SPIR significantly improved EPC population (p < 0.05) compared with placebo (p = 0.12).

Conclusions: Our data strongly indicate that spironolactone ameliorate arthritis score, inflammatory mediators and histopathological changes in CIA mice. Our clinical results confirmed that SPIR is a potent anti-inflammatory agent that significantly reduces inflammatory biomarkers, disease severity, improves endothelial dysfunction and EPC population indicating its beneficial effects on the enhanced cardiovascular risk of RA.