indicating 46% higher costs in the late group. For ACPA-positive patients, costs were more similar (€11631 and €10988 respectively for the early and late group, β=0.96, 95%CI 0.52 – 1.8)(figure 1A). When 2012 prices were used, costs were in general higher: €14482 (29101) and €5158 (17897) for ACPA-positive and ACPA-negative patients, respectively. Comparing late and early groups using 2012 prices provided similar results in ACPA-negative RA (β=1.34 (95%CI 0.54 – 3.3), and a larger difference in costs for ACPA-positive RA (β=0.77 (95%CI 0.44 – 1.35)).

Conclusion: Treatment-related costs of ACPA-positive RA are higher compared to ACPA-negative RA. However, early detection and treatment has the greatest impact on reducing treatment costs in ACPA-negative RA.

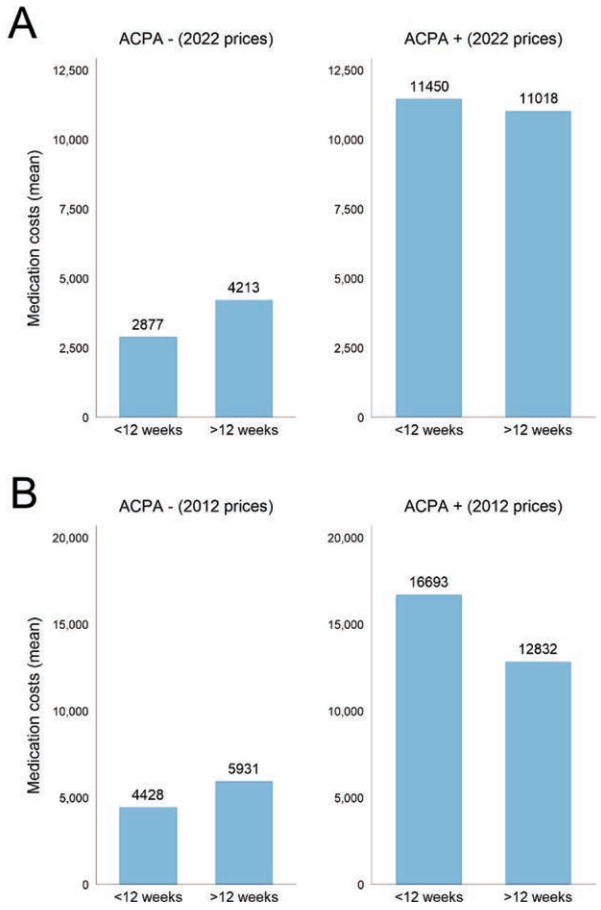

Figure 1. (A) Medication costs over 5 years indicated for ACPA-positive and ACPA-negative RA using current prices (2022), comparing early (<12 weeks after symptom onset) and later referral (>12 weeks after symptom onset). (B) Medication costs in euros over 5 years using prices at time of prescription (2012). ACPA: anti-citrullinated protein antibody

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POS0370

2023 EULAR RECOMMENDATIONS FOR THE MANAGEMENT OF FATIGUE IN PEOPLE WITH INFLAMMATORY RHEUMATIC AND MUSCULOSKELETAL DISEASES

Keywords: Patient reported outcomes, Health Services Research

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Background: Fatigue is prevalent in people with inflammatory rheumatic and musculoskeletal diseases (I-RMDs) and recognised as one of the most challenging symptoms to manage [1]. The existence of multiple factors associated with fatigue, the lack of clarity around underlying pathophysiological mechanisms and the limited evidence about what helps have led to a multifaceted and often fragmented approach to symptom management. However, there are no recommendations for fatigue management in people with I-RMDs, and this lack of guidance has been challenging for those living with fatigue as well as for healthcare professionals delivering clinical care.

Objectives: To develop EULAR recommendations for the management of fatigue in people with I-RMDs.

Methods: A multi-disciplinary taskforce comprising 26 members from 14 European countries was convened and two systematic reviews were conducted. The taskforce developed recommendations based on evidence from the systematic reviews and taskforce members' personal and professional experience of fatigue in I-RMDs.

Table 1. EULAR overarching principles and recommendations for the management of fatigue in people with I-RMDs.

Overarching principles		
1. Health professionals should be aware that fatigue encompasses multiple and mutually interacting biological, psychological and social factors. 2. In people with I-RMDs, fatigue should be monitored, and management options should be offered as part of their clinical care. 3. Management of fatigue should be a shared decision between the person with an I-RMD and healthcare and well-being professionals. 4. Management of fatigue should be based on the needs and preferences of people with I-RMDs, as well as their clinical disease activity, comorbidities and other individual psychosocial and/or contextual factors.		
Recommendations	**LoE**	**GoR**
1. Healthcare professionals should incorporate regular assessment of fatigue severity, impact and coping strategies into clinical consultations.	5	D
2. As part of their clinical care, people with I-RMDs and fatigue should be offered access to tailored physical activity interventions and encouraged to engage in long-term physical activity.	1a	A
3. As part of their clinical care, people with I-RMDs and fatigue should be offered access to structured and tailored psychoeducational interventions.	1a	A
4. The presence or worsening of fatigue should trigger evaluation of inflammatory disease activity status and consideration of immunomodulatory treatment initiation or change, if clinically indicated.	1a	A

I-RMDs, inflammatory rheumatic and musculoskeletal diseases; GoR, Grade of recommendation; LoE, Level of Evidence. GoR and LoE as per 2011 Oxford Centre for Evidence Based Medicine Levels of Evidence.

Results: Four overarching principles and four recommendations were developed (Table 1), including health professionals' awareness that fatigue should be monitored and assessed and that people with I-RMDs should be offered management options. Shared decisions about fatigue management should consider the needs and preferences of individuals, their clinical disease activity, comorbidities and other psychosocial and contextual factors (**Table 1**).

Conclusion: These 2023 EULAR recommendations provide consensus and up-to-date guidance on the management of fatigue in people with I-RMDs.

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[1] Dures E, et al. Fatigue in inflammatory arthritis. Best Pract Res Clin Rheumatol 2020;34.

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POS0371 DEVELOPMENT AND EVALUATION OF A TEXT-ANALYTICS ALGORITHM FOR AUTOMATED APPLICATION OF NATIONAL COVID-19 SHIELDING CRITERIA IN RHEUMATOLOGY PATIENTS

Keywords: Health Services Research, Safety, Disease-modifying Drugs (DMARDs)

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Background: Efficient pandemic planning is a key for providing a timely response to any developing disease outbreak. For example, at the beginning of the current Coronavirus disease 2019 (COVID-19) pandemic, the UK's Scientific Committee issued extreme social distancing measures, termed 'shielding', that were aimed at a subset of the UK population who were deemed especially vulnerable to infection. In April 2020 the British Society for Rheumatology (BSR) issued a risk stratification guide to identify patients at the highest risk of COVID-19 requiring shielding. This guidance was based on patients' age, comorbidities, and immunosuppressive therapies, including biologics that are not captured in primary care records. This meant rheumatologists needed to manually review outpatient letters to score patients' risk. The process required considerable clinician time, with shielding decisions not always transparently communicated.

Objectives: Our aim was to develop an automated shielding algorithm by text-mining outpatient letter diagnoses and medications, reducing the need for future manual review.

Methods: Rheumatology outpatient letters from Salford Royal Hospital, a large UK tertiary hospital, were retrieved between 2013-2020. The two most recent letters for each patient were extracted, created before 01.04.2020 when BSR guidance was published. Free-text diagnoses were processed using Intelligent Medical Objects software1 (Concept Tagger), which utilised interface terminology for each condition mapped to a SNOMED-CT code. We developed the Medication Concept Recognition tool (MedCore Named Entity Recognition) to retrieve medications type, dose, duration and status (active/past) at the time of the letter. The medication status was established based on the heading where they appeared (e.g. past medications, current medications), but incorporated additional information such as medication stop dates. The age, diagnosis and medication variables were then combined to output the BSR shielding score. The algorithm's performance was calculated using clinical review as the gold standard.

Results: To allow for the comparison with manual decisions, we focused on all 895 patients who were reviewed clinically. 64 patients (7.1%) had not consented for their data to be used for research as part of the national opt-out scheme. After removing duplicates, 803 patients were used to run the algorithm. 5,942 free-text diagnoses were extracted and mapped to SNOMED CT, with 13,665 free-text medications. The automated algorithm demonstrated a sensitivity of 80.3% (95% CI: 74.7, 85.2%) and specificity of 92.2% (95% CI: 89.7, 94.2%). Positive likelihood ratio was 10.3 (95% CI: 7.7, 13.7), negative likelihood ratio was 0.21 (95% CI: 0.16, 0.28), F1 score was 0.81. False positive rate was 7.9%, whilst false negative rate was 19.7%. Further evaluation of false positives/negatives revealed clinician interpretation of BSR guidance and misclassification of medications status were important contributing factors.

Conclusion: An automated algorithm for risk stratification has several advantages including reducing clinician time for manual review to allow more time for direct care, improving efficiency and transparently communicating decisions based on individual risk. With further development, it has the potential to be adapted for future public health initiatives that requires prompt automated review of hospital outpatient letters.

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POS0372 GROUP-BASED TRAJECTORIES OF ADHERENCE TO ANTI-TUMOUR NECROSIS FACTOR (TNF) AGENTS: A POPULATION-BASED LONGITUDINAL STUDY

Keywords: Health Services Research, Inflammatory arthritides, bDMARD

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Background: Studies of adherence to biologic disease modifying anti-rheumatic drugs (bDMARDs), namely anti-TNFs, have been largely limited to short durations or used traditional methods that do not capture the dynamic nature of medication taking.

Objectives: Our objective was to characterize long-term trajectories of adherence to anti-TNFs and evaluate associated factors.

Methods: We linked population-based health data on all physician visits, hospital admissions, and all dispensed medications, regardless of payer in British Columbia from 01/01/1996 to 3/31/2021. We identified prescriptions for anti-TNFs (including infliximab, etanercept, adalimumab) using drug identification numbers among indicated individuals (e.g., rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis) with at ≥6 years of continuous data following initiation. We used group-based trajectory models (GBTMs), a semi-parametric application of finite mixture modeling which detects longitudinal patterns in a repeatedly measured outcome, to identify and group individuals with similar patterns of bDMARD use (i.e., 'adherence trajectory group') over 6 years of follow-up. We then evaluated factors associated with each adherence trajectory group using multinomial logistic regression.

Results: We identified 1,593 patients prescribed anti-TNFs, of which 59.7% were female with a mean age of 45.2 ± 13.2 years. Group-based trajectory modeling identified 4 distinct adherence trajectories for anti-TNFs overall (**Figure 1a**): "moderate then high adherence" (Group 1; n = 814, 51.1% of the cohort), "moderate then low adherence" (Group 2; n = 314, 19.7%), "low adherence, declining to discontinuation" (Group 3; n = 291, 18.3%), and "low then high adherence" (Group 4; n = 174, 10.9%). Specific group-based trajectories for adalimumab, etanercept, and infliximab are presented in **Figure 1b-d**. Among anti-TNFs, number of prior hospitalizations was significantly associated with initial low adherence increasing to high adherence (Group 4) compared to initial moderate adherence increasing to high adherence (Group 1)(odds ratio 1.41; 95% confidence interval: 1.19, 1.68).

Conclusion: This population-based study demonstrates the heterogeneity in real-world patterns of anti-TNFs use. Findings also suggest the inadequacy of clinical and demographic characteristics in predicting patients' adherence trajectories.