whatever population of reference was used in women: 24.9%, 25.6% and 26.1% and men 18.2%, 19.2%, 19.8% with respectively 2002, 20013, and 2002–2013 as population of reference.

Conclusions: The incidence rates of hip fracture decreased in France between 2002 and 2013 in men and women aged 60 years and over. The decrease is more important after direct standardisation whatever population used as a reference as a results of a difference in age-structure of the population that can be erased by the process of direct standardisation. In conclusion, the incidence of hip fractures continues to grow despite a reduced incidence rate throughout a 12 year-period.

REFERENCES:

- Center JR, Mortality after all major types of osteoporotic fracture in men and women: An observational study. *Lancet* 1999.
- Vestergaard P, Increased mortality in patients with a hip fracture-effect of pre-morbid conditions and post-fracture complications, *Osteoporos Int* 2007.
- Bliuc D, Mortality Risk Associated With Low-Trauma Osteoporotic Fracture and Subsequent Fracture in Men and Women, *JAMA* 2009.
- Cummings SR, Epidemiology and outcomes of osteoporotic fractures. *Lancet* 2002.
- Gullberg B, World-wide projections for hip fracture. *Osteoporos Int* 1997.
- Briot K, Changes in number and incidence of hip fractures over 12 years in France, *Bone* 2015.
- Ballane G, Secular trends in hip fractures worldwide: opposing trends East versus West, *J Bone Miner Res* 2014.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.3147

THU0703

IDENTIFYING CLINICAL, PSYCHOLOGICAL AND WORK RELATED FACTORS ASSOCIATED WITH PRESENTEEISM: THE INTERNATIONAL EULAR-PRO AT-WORK PRODUCTIVITY STUDY

S. Verstaappen¹, D. Lacaille², C. Hoffstetter³, S. Talli⁴, G. Saellariou⁵, S. Dadoun⁶, C. Mihai⁷, S. Hagel⁸, A. Bosworth⁹, S. Ramiro¹⁰, J. Canas da Silva¹¹, G. Crepaldi⁵, J. Wallman⁸, S. Leggett¹, A. Boonen¹², on behalf of EULAR-PRO Worker productivity group. ¹CIMR, University of Manchester, Manchester, UK; ²ARC, Vancouver, ³OMERACT, Toronto, Canada; ⁴Central Hospital, Tallinn, Estonia; ⁵IRCCS, Pavia, Italy; ⁶APHP Hospital, Paris, France; ⁷IC Hospital, Bucharest, Romania; ⁸Lund University, Lund, Sweden; ⁹NRAS, Maidenhead, UK; ¹⁰LUMC, Leiden, Netherlands; ¹¹Garcia Hospital, Almada, Portugal; ¹²MUMC, Maastricht, Netherlands

Background: Worker productivity loss, including presenteeism, is an important outcome for patients with inflammatory (IA) diseases and osteoarthritis (OA) and is frequently seen as a health outcome in clinical studies. It is important to understand which factors are related with this patient reported outcome in order to inform future work related interventions.

Objectives: To assess the association between disease related, psychological and work related factors with presenteeism.

Methods: In a large international study evaluating measures of presenteeism we recruited patients with IA and OA from UK, Fr, NL, Es, Se, Ro, It, Pt, and Ca. Absence rates and presenteeism levels (range 0–10=worst score) were measured using the Work Productivity and Activity Impairment (WPAI) questionnaire. Other job related questions were about demands and satisfaction, help from colleagues and opportunities to postpone or organise ones work. Disease related variables included HAQ, EQ-5D, VAS health status. The Hospital Anxiety and Depression Scale (HADS) was also completed. Cross-sectional univariable and multivariable Zinb regression models were applied to assess the association between these disease related, psychological, and work related factors and presenteeism, adjusting for age, gender and country. Due to high co-linearity only HAQ and HAD-anxiety were included in the multivariable model.

Results: A total of 544 patients (AS=138, OA=43, PsA=97, RA=266) were recruited with a mean (SD) age of 47¹⁰ yrs and a median symptom duration [IQR] of 10^{5–18} yrs; 62% were women. 17% had a manual occupation. 111/544 (20.4%) reported being absent during the previous 7 days. Mean (SD) presenteeism score was 2.9 (2.7). In univariable analyses, worse self-reported disease activity and high levels of depression and anxiety were significantly associated with presenteeism in both the count and inflate part of the model (table 1). Less consistent results were observed for work related factors. In the multivariable model (β, 95% CI), worse functional disability was associated with presenteeism in both the count and excess zero part of the model (0.63; 0.49, 0.78: –2.70, –3.73, –1.66, resp). In addition, higher HAD-anxiety score (–0.09; –0.18; –0.00) was associated with a decreased likelihood of excessive zeros whilst not receiving help from colleagues (1.47; 0.64, 2.30) was associated with an increased likelihood of

excessive zeros. There was a trend towards an association between very demanding jobs (–0.79; –1.63, 0.05) and presenteeism.

Abstract THU0703 – Table 1

	Value: N (%) / Mean (SD)	Univariable analyses	
		Count part Zinb model β (95%CI)	Inflate part Zinb model β (95%CI)
Age	47.7 (10.1)		
Gender	337/544 (62%)		
VAS health status	39.1 (25.8)	0.013 (0.01, 0.16)	–0.13 (–0.20, –0.06)
HAQ-score	0.50 (0.50)	0.66 (0.52, 0.80)	–4.61 (–7.11, –2.11)
EQ-5D score	0.63 (0.65)	–0.82 (–1.04, –0.60)	7.53 (5.31, 9.76)
HAD Anxiety	6.2 (5.9)	0.02 (0.01, 0.03)	–0.21 (–0.32, –0.11)
HAD Depression	4.7 (3.7)	0.05 (0.03, 0.07)	–0.29 (–0.46, –0.12)
PASS, satisfied	154/543 (28%)	–0.54 (–0.68, –0.40)	1.40 (0.68, 2.11)
Job demands:			
- a bit/not demanding	137/541 (25%)	ref	ref
- demanding	218/541 (40%)	–0.01 (–0.22, 1.20)	–0.72 (–1.43, –0.01)
- very/extremely demanding	186/541 (34%)	0.19 (–0.03, 0.41)	–0.70 (–1.42, 0.02)
Job satisfaction:			
- (very) satisfied	390/542 (72%)	ref	ref
- neither satisfied nor unsatisfied	82/542 (15%)	0.10 (–0.08, 0.29)	–1.71 (–3.08, –0.34)
- (very)unsatisfied	70/542 (13%)	0.14 (–0.08, 0.35)	–0.36 (–1.17, 0.45)
Help colleagues:			
- often/always	159/541 (29%)	ref	ref
- sometimes	278/541 (52%)	0.05 (–0.13, 0.23)	–0.09 (–0.87, 0.69)
- never	103/541 (19%)	0.09 (–0.16, 0.34)	1.65 (0.83, 0.46)
Ability to postpone tasks:			
- often/always	92/542 (17%)	ref	ref
- sometimes	319/542 (59%)	0.06 (–0.15, 0.27)	–0.08 (–0.86, 0.69)
- never	131/542 (24%)	0.33 (0.09, 0.57)	0.49 (–0.34, 1.33)
Ability to organise own work:			
- often/always	353/542 (65%)	ref	ref
- sometimes	147/542 (27%)	0.11 (–0.06, 0.29)	–0.12 (–0.72, 0.48)
- never	42/542 (8%)	0.30 (0.04, 0.55)	–0.37 (–1.34, 0.60)

VAS=visual analogue scale (0–100 worst score); EQ-5D=EuroQoL-5D (–0.11=perfect health); HAD=Hospital Anxiety Scale (0–21=abnormal); PASS=do you feel your current condition is satisfactory, when you take your general functioning and your current pain into account (satisfactory/unsatisfactory). Count part=score in those with a score>0; inflate part=estimate of excess zero scores.

VAS=visual analogue scale (0–100 worst score); EQ-5D=EuroQoL-5D (–0.11=perfect health); HAD=Hospital Anxiety Scale (0–21=abnormal); PASS=do you feel your current condition is satisfactory, when you take your general functioning and your current pain into account (satisfactory/unsatisfactory). Count part=score in those with a score>0; inflate part=estimate of excess zero scores.

Conclusions: In this large international study of patients with IA and OA having a median symptom duration of 10 years, worse functional ability was the main factor associated with presenteeism.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.6581

THU0704

A NEW ASSESSMENT TOOL FOR ULNAR DRIFT IN PATIENTS WITH RHEUMATOID ARTHRITIS USING PATHOPHYSIOLOGICAL PARAMETERS OF THE METACARPOPHALANGEAL JOINT

S. Toyama¹, R. Oda¹, D. Tokunaga¹, M. Asada¹, Y. Kawahito², H. Fujiwara¹, T. Kubo¹. ¹Department Of Orthopaedics; ²Department of Inflammation and Immunology, Graduate School Of Medical Science, Kyoto Prefectural University Of Medicine, Kyoto, Japan

Background: Ulnar drift (UD) in rheumatoid arthritis (RA) is the most common and difficult to manage deformity in the rheumatoid hand; it is reported that 44% of patients develop UD within the first 10 years. Nevertheless, the assessment of UD is challenging; the Fearnley classification method, first reported in 1951, is still used for evaluation. However, it is sometimes difficult to determine the best surgical procedure simply based on the Fearnley classification, which only evaluates reducibility. Therefore, we have been using both the Fearnley classification as a 'gold standard' and an original scoring method that enables us to easily treat the deteriorated condition contributing to UD.

Objectives: To establish and verify a new assessment tool for UD in rheumatoid hand.

Methods: We established an observational cohort of 67 patients (134 rheumatoid hands) beginning in 2004, among the RA outpatients who had any apparent finger deformity in either hand. Fifty-two patients (100 hands) had follow-up in 2009, and thirty-seven patients (63 hands) completed follow-up in 2015. For evaluation of UD, we used both the Fearnley classification as a 'gold standard' and an original scoring method which assesses four parameters of the metacarpophalangeal joint. Cluster analysis using UD parameters divided hands into groups. For functional assessment, we used the modified Kapandji index (MKI). The MKI enables us to assess unilateral hand functional mobility within a few minutes. Changes in UD over time, correlation of the Fearnley stage and cluster with MKI, and reliability of the parameters with clustering were analysed.

Results: The 10 year follow-up rate was 55.2%, and UD increased and worsened over time (p<0.001). A dendrogram indicated five clusters would be appropriate. Twenty-six hands in total changed to a higher cluster number during the follow-up period. Both the Fearnley classification and cluster were associated with MKI

significantly. Though the Fearnley classification showed a floor effect, our method related to function more linearly (R-squared: 0.42). Each parameter of our method showed statistical significance for the clusters by regression analysis. And the ratio of the partial regression coefficient of each parameter was around 1:1.3:2, so we calculated a 'cluster score' using a weighted score for each parameter. A regression analysis has shown a strong correlation ($r=0.95$, $p<0.001$); however, its scatter plot also suggested that it is difficult to classify the cluster using CS only. We found one type of hand in which bone destruction precedes the joint dislocation and one type in which joint dislocation progresses with little deviation during UD progression. It is considered that two patterns of pathological findings and included some suggested indications for operative therapy to recover disability due to UD.

Conclusions: Our UD evaluation method is quite simple but is closely related to function. Additionally, it enables dividing UD hands into five stages. Thus, our assessment should be beneficial compared to the Fearnley classification in considering treatments of UD.

Acknowledgements: The authors thank all the researchers involved in this 10 year observational study.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.1496

THU0705

OCCURRENCE OF ANKYLOSING SPONDYLITIS (AS) AMONG RELATIVES OF PROBANDS WITH RADIOGRAPHIC AS AND NON-RADIOGRAPHIC AS/AXIAL SPONDYLOARTHRITIS (SPA)

S. Van Der Linden¹, P. Villiger², H. Baumberger³, M. Brown⁴, A. Boonen¹, M. A. Khan⁵. ¹Rheumatology, University Medical Center, Maastricht, Netherlands; ²Rheumatology, Inselspital, University of Bern, Bern; ³NA, Flims, Switzerland; ⁴Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia; ⁵Rheumatology, Case Western Reserve University, Cleveland, OH, USA

Background: The occurrence of AS in families as it relates to the presence or absence of HLA-B27 and radiographic sacroiliitis is not well-known.

Objectives: To assess among relatives the occurrence of AS and its association with HLA-B27 and presence of sacroiliitis among AS probands. AS is broader than just radiographic (classical) AS by modified New York criteria (mNY). We asked whether the likelihood of having a relative with classical AS is comparable for probands with radiographic AS by mNY criteria, and probands with non-radiographic AS/axSpA.

Methods: Re-analysis of the 1985–86 Swiss AS Family Study: 1178 subjects (363 clinically defined AS probands, 806 first-degree relatives, and 9 spouses) had participated. The AS patients were members of the Swiss AS patient society. The invited and consenting participants underwent physical exam of the spine and joints, completed questionnaires dealing with musculoskeletal problems, had pelvic radiographs taken, and provided blood samples for HLA-A,B,C typing. Radiographs were blindly read twice by each of up to 4 experienced readers. They scored sacroiliac joints according to NY criteria for sacroiliitis (bilateral grade ≥ 2 or unilateral grade ≥ 3). The study had been approved by the ethical committee of the University of Bern, Switzerland.

Results: Among 358 AS probands, 308 (86%) were HLA-B27(+) and 50 (14%) lacked this gene. The radiographic NY criteria were met by 81% of the 308 HLA-B27(+) probands versus only 44% of the 50 HLA-B27(-) probands. AS, as defined by NY criteria, was observed only among relatives of HLA-B27(+) probands; and all 14 of these relatives were also HLA-B27(+). Note: The probands in 12 of these 14 cases met the NY criteria, while 2 did not. Two of 59 HLA-B27(+) relatives from AS probands not-fulfilling the mNY criteria met the NY criteria, compared with 12 of 245 HLA-B27(+) relatives from AS probands fulfilling the mNY criteria ($p=0.62$). Interestingly, inflammatory back pain (by Calin criteria) occurred among 46 of 286 (16.1%) HLA-B27(+) relatives of HLA-B27(+) probands, but in only 27 of 272 (9.9%) HLA-B27(-) relatives of HLA-B27(+) probands ($p=0.031$).

Conclusions: AS among relatives was only observed in families of HLA-B27(+) AS/axSpA probands. The risk for HLA-B27(+) relatives to develop AS by NY criteria seems not to be influenced by the presence of sacroiliitis in the HLA-B27(+) AS/axSpA probands. HLA-B27(+) relatives who do not show radiographic

sacroiliitis are at higher risk to demonstrate symptoms of non-radiological AS/axSpA as they seem more prone to have inflammatory back pain.

REFERENCE:

- [1] Khan MA, van der Linden SM, Kushner I, Valkenburg HA, Cats A. Spondylitic disease without radiologic evidence of sacroiliitis in relatives of HLA-B27 positive ankylosing spondylitis patients. *Arthritis Rheum* 1985;28(1):40–3.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.5583

THU0706

PRESENCE OF EXTRACTABLE NUCLEAR ANTIGENS (ENA) ANTIBODIES IN A LARGE POPULATION-BASED COHORT FROM THE NETHERLANDS

S. Arends¹, L. Brouwer¹, C. Roozendaal², B. Doestzada¹, H. Bootsma¹, K. de Leeuw¹. ¹Rheumatology and Clinical Immunology; ²Laboratory Medicine, UMCG, Groningen, Netherlands

Background: Previous studies have demonstrated that years before the clinical onset of auto-immune diseases, auto-antibodies can already be present in the blood of these patients. However, it is also known that some individuals can have these auto-antibodies and will never develop an auto-immune disease. So far, little information is available on the presence of Extractable Nuclear Antigens antibodies (anti-ENA) in the general population in relation to the risk of developing an auto-immune disease.

Objectives: To estimate the prevalence of anti-ENA and their association with the presence of known risk factors of Systemic Lupus Erythematosus (SLE) and Sjögren Syndrome (SS) in the general Dutch population.

Methods: Lifelines is a prospective population-based cohort study in the Netherlands. Cross-sectional data from 40 135 participants were analysed. The detection of anti-ENA was performed using the ENA-CTD (connective tissue disease) screen on the Phadia-250 analyser with a ratio >1.0 are considered positive. An extensive questionnaire was taken on demographic and clinical information (e.g. early musculoskeletal symptoms). Furthermore, some general blood parameters were available. SLE and SS were defined by a combination of self-reported SLE or SS, specific medication use and visiting a medical specialist within the last year. Characteristics were compared between 3 groups: SLE/SS patients, anti-ENA positive, and anti-ENA negative participants (without defined SLE/SS).

Results: Of the total 40 135 consecutive individuals, 41 were detected as having defined SLE or SS of whom 48% were anti-ENA positive SLE/SS patients were older and more often female. Of the remaining individuals, 40,094 1089 (2.7%) were anti-ENA positive and anti-ENA positivity was also significantly associated with older age and female gender in this population. No significant associations were found for smoking and alcohol intake. As might be expected, SLE/SS patients reported more often complaints concerning fatigue, joint pain and joint stiffness. But also anti-ENA-positive participants reported significantly more often joint stiffness compared to anti-ENA-negative participants. Interestingly, levels of haemoglobin, leucocytes and lymphocytes were significantly decreased in anti-ENA-positive participants compared to anti-ENA-negative participants.

Conclusions: In this large population-based study, the prevalence of anti-ENA-positivity was 2.8% for the total group and 2.7% when excluding patients with SLE or SS. Older age, female gender, joint complaints and lower levels of haemoglobin, leucocytes and lymphocytes were more frequently present in anti-ENA-positive participants. Longitudinal studies are performed up to 15 years to investigate which individuals might develop SLE or SS to be able to develop prediction models.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.4606

THU0707

ANALYSIS OF ANTINUCLEAR ANTIBODIES IN BREAST CANCER PATIENTS

A. Neppel, M.C.C. Machoski, T. A. F. G. Santos, R. Nishihara, T.L. Skare. Departamento de Reumatologia, Hospital Universitário Evangélico de Curitiba, Curitiba, Brazil

Background: Analysis of antinuclear antibodies (ANA) may be found in malignant diseases

Objectives: To study the prevalence of ANA in breast cancer patients and its association with tumour characteristics.

Methods: Ninety one patients with breast mass detected by image studies and assigned to do diagnostic biopsy and eventual surgical treatment were studied for demographical, tumour data and presence of ANA. Serum of positive ANA patients was submitted to examination of ENA (extractable nuclear antigens)