downregulated in ERA patients with erosions, with 6 (3.9%) downregulated more than twofold. A total of 16 miRNAs were differentially expressed ($P < 0.05$) and 4 were possibly differentially expressed ($P \leq 0.1$) between ERA patients with and without erosions. At baseline, expressions of miR-143-3p, miR-145-5p and miR-99b-5p were significantly higher in ERA patients with erosions than those without erosions ($P < 0.05$ for all). After 12 months of csDMARDs treatment, 31.7%, 47.7%, and 20.6% of the ERA patients had erosion progression, stable erosion and partial erosion repair respectively. Logistic regression analysis revealed baseline expression of miR-99b-5p to be an independent predictor of erosion progression at 12 months (Exp [B] = 4.203, 95% CI 1.166–15.147, $P = 0.028$) (table 1).

	Univariate			Multivariate		
	P value	Exp (B)	95% CI	P value	Exp (B)	95% CI
Depth	0.068	0.479	0.217–1.056	0.085	0.177	0.025–1.269
Width	0.108	0.746	0.522–1.067	0.871	1.069	0.481–2.373
RF+	0.102	3.833	0.764–19.224	0.087	5.407	0.784–37.317
ACPA>250U	0.062	3.281	0.941–11.439	0.084	4.238	0.822–21.843
miR99b-5p	0.075	2.512	0.913–6.905	0.028	4.203	1.166–15.147

Conclusions: Increased level of cell-free circulating miR-99b-5p was associated with erosions at presentation in ERA patients and could predict erosion progression as assessed by HR-pQCT over a period of 12 months, indicating that it may well serve as a biomarker of poor response to csDMARDs. Whether early biologic DMARDs use in these miR-99b-5p positive patients could reduce or prevent progression of erosion will need to be addressed in future studies.

Acknowledgements: This study was partly supported by the Health and Medical Research Fund (project no 10110071).

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.1980

FRI0667 DEVELOPMENT AND VALIDATION OF A RHEUMATOLOGIST SATISFACTION WITH PRACTICE SCALE- "THE RHEUMATOLOGIST SATISFACTION SCALE" (RSS)

K. Sheth¹, A. Valenzuela¹, S. Shoor¹, P. Ritter¹, K. Lorig¹. ¹Stanford University, Palo Alto, United States

Background: Rheumatology practice improvement research routinely measures patient satisfaction and disease-specific outcomes but seldom considers the satisfaction of physicians who deliver the care. Studies suggest that physician dissatisfaction may pose a barrier to implementing quality improvement efforts. There is a paucity of succinct measures of physician satisfaction.

Objectives: As part of a Performance Improvement Project, in an academic rheumatology practice and an affiliated practice, we developed and piloted a simple questionnaire to study physician satisfaction in Rheumatology.

Methods: Thirty-five rheumatologists in the academic or private setting were sent open-ended questions to determine the factors that made them satisfied or dissatisfied with respect to their rheumatology practice. From the responses we formed 14 questions on a 0 to 10 scale centering on satisfaction and dissatisfaction. We then administered the questionnaires to a small pilot of 30 rheumatologists in academic and/or private setting.

Results: Our sample included 30 rheumatologists, from whom 60% were faculty members, 27 % were fellows. 53% (N=16) were males and the majority (77%) were salaried. Racial distribution was 57% white, 40% Asian, with 7% Hispanic/Latino ethnicity. The most common practice setting was academic medicine (80%, N=24), followed by multi-specialty group (10%, N=3), private practice (7%, N=2), and rheumatology group (3%, N=1). 40% (N=12) and 37% (N=11) had been in practice <5 and >30 years, respectively. Coefficient Alpha for each factor was 0.54 (raw), 0.66 (standardized) for satisfaction and 0.60 (raw), 0.60 (standardized) for dissatisfaction. Based on the results of this survey, mean satisfaction factor in rheumatologists was high (8.6±0.99). 91.3% of rheumatologists (N=21) had mean satisfaction factor >8 (range 5.5–9.9). The ability to make a difference in patient's life and having the opportunity to work with great colleagues were the strongest contributors to physicians' satisfaction (mean 9.2±1.1 and 9.4±0.8, respectively). Time spent on documentation and getting inappropriate referrals that are not in the scope of practice were among the strongest contributors to physicians' dissatisfaction (mean 3±1.9 and 3.9±1.3, respectively). None of the items were highly correlated with each other. This work has now been expanded to more than 150 rheumatologists including in the United States(US) and Latin American countries. Analysis is in progress.

Conclusions: A simple and practical questionnaire to measure physician satisfaction was developed and successfully piloted on a predominately academic sample of rheumatologists. The strongest correlates of physician satisfaction

were the "ability to make a difference in a patient's life" and to "work with great colleagues" whereas the greatest correlates of dissatisfaction were "time spent on documentation" and "inappropriate referrals." With further testing on a larger sample from the US and Latin American countries, we aim to gain a deeper understanding of how the cultural differences and practice of medicine may affect physician satisfaction. It is hoped that, this scale will serve as a means of determining aids and barriers to improving rheumatology practice for both patients and physicians and become a useful tool in rheumatology performance practice implementations and studies.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.5010

FRI0668 ITEM RESPONSE THEORY TO STANDARDIZE PATIENT REPORTED PHYSICAL FUNCTION OUTCOMES; LINKING 10 COMMONLY USED QUESTIONNAIRES TO A COMMON METRIC

M. Oude Voshaar¹, H. Vonkeman^{1,2}, D. Courvoisier³, A. Finckh³, L. Gossec⁴, K. Leung Ying Ying⁵, K. Michaud⁶, G. Pinheiro⁷, E. Soriano⁸, N. Wulfrat⁹, A. Zink¹⁰, M. van de laar^{2,11}. ¹Psychology, Health & Technology and Arthritis center Twente, University of Twente, ²Department of Rheumatology and Clinical Immunology, Medisch Spectrum Twente, Enschede, Netherlands, ³Division of Rheumatology, University Hospitals of Geneva, Geneva, Switzerland, ⁴Rheumatology department, Pitié Salpêtrière hospital, Paris, France, ⁵Dept of Rheumatology & Immunology, Singapore General Hospital, Singapore, Singapore, ⁶University of Nebraska Medical Center, Omaha, United States, ⁷Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil, ⁸Rheumatology Unit, Internal Medical Services, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina, ⁹Wilhelmina Children's Hospital, Utrecht, Netherlands, ¹⁰Rheumatology and Clinical Immunology, Charité University Medicine Berlin, Berlin, Germany, ¹¹Department of Psychology, Health and Technology, University of Twente, Enschede, Netherlands

Background: Physical function is a core outcome domain in clinical trials in various inflammatory rheumatic diseases. It is also included in the recently developed International Consortium for Health Outcomes Measurement (ICHOM) standard set for patients with inflammatory arthritis. Physical function patient reported outcome measures (PROMs) are commonly collected in patient registries and are used by decision makers in ways that require outcomes to be aggregated across different data sources. A major barrier to such initiatives is that many different physical function PROMs are in widespread use, and results cannot be meaningfully compared across them, if the traditional scoring procedures based on summing of the individual item scores are used. This is because summed scores depend on both patient- and item characteristics. To facilitate standardization of physical function outcome measurement, we developed a common metric for ten commonly used physical function PROMs using item response theory (IRT), that can be used to adjust PROM scores for item characteristics.

Methods: Data of 16,386 patients with inflammatory arthritis from the United States National Databank of Rheumatic Disease, the Swiss Clinical Quality Management Registry, the National Database of the German Collaborative Arthritis Centres, the Dutch Rheumatoid Arthritis Monitoring Study, and several smaller observational studies were used to map the items of 10 commonly used physical function PROMs on a continuous latent physical function variable. The resulting common metric was cross-validated in an independent dataset of 243 patients with gout, osteoarthritis or polymyalgia rheumatica, in which four of the linked PROMs were administered

Results: Our analyses supported that all 97 items of the 10 included PROMs relate to a single underlying physical function variable and that responses to each item could be described by the generalized partial credit IRT model. In the cross-validation analyses we found congruent mean scores for four different PROMs when the IRT based scoring procedures were used.

Conclusions: We showed that scores obtained using the IRT based common metric developed in this study can be used to make physical function outcomes obtained using different physical function PROMs comparable.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.5135

FRI0669 PHYSICIAN GLOBAL ASSESSMENTS FOR DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS ARE ALL OVER THE MAP!

M. A. Turk¹, J. Pope². ¹Biochemistry, ²Rheumatology, Schulich School of Medicine and Dentistry, London, Canada

Background: Assessments of disease activity in rheumatoid arthritis (RA) determine the course of treatment. Physician global assessments of disease activity (MD globals) are important outcomes in trials as they are part of the CDAI and

SDAI composite scores. MD globals may vary between physicians based on their age, sex, practice setting, experience, and years in practice.

Objectives: Our research goal was to determine which factors contribute to the variability of MD globals. We expected assessments to be lower as physician experience increased.

Methods: After obtaining ethics approval, we surveyed rheumatologists who were members of the Canadian Rheumatology Association with RA patient scenarios where each was rated as a MD global for disease activity from 0 – 10. The cases covered a range of disease activity; to determine extreme cases and cases in between. There were some scenarios where a change in status was given (i.e. a rating with one disease state and then the patient returned and another rating was given by each participant when the patient was obviously better or worse). Kappa, Intra-class correlation (ICC) coefficients, and linear mixed models were used to analyze the data

Results: We received 145 responses from eligible physicians spanning the above categories (approximately 40% response rate). Contrary to our original hypothesis, MD global assessments were not significantly different between physicians in any category (number of RA patients seen per year, years of experience, age, sex, type of practice [community vs. university], and self-reported expertise in RA). Moreover, the range of answers for the same scenario was as high as 7.6 out of a possible 10, indicating vast discrepancies between physicians. We checked to ensure the questions were not answered backwards by individuals using the scenarios where a patient changed disease activity over time. The agreement was highest in the extreme scenarios (very low and very high disease activity, but in the spectrum in between agreement was extremely poor). Some scenarios outlined changes in individual patients, however physicians surveyed were often in disagreement as to how well the patient recovered or worsened. The change in MD globals between one time and the next in the cases had better agreement than the actual scores.

Conclusions: This research emphasizes the need to establish stringent evaluation criteria of disease activity as rated by the physician in RA; particularly if remission and low disease activity is used clinically by CDAI or SDAI. Perhaps a catalogue examples of patient scenarios of MD globals that range from 0 to 10 should be developed, standardized and agreed upon; to decrease the wide variability of ranking by rheumatologists.

REFERENCES:

1. Aletaha D, Smolen J. The Simplified Disease Activity Index (SDAI) and the Clinical Disease Activity Index (CDAI): a review of their usefulness and validity in rheumatoid arthritis. *Clin Exp Rheumatol* 2005;23:S100–108.
2. Her M, Kavanaugh A. Patient-reported outcomes in rheumatoid arthritis. *Curr Opin Rheumatol* 2012;24:327–34.
3. Smolen JS, Breedveld FC, Schiff MH, Kalden JR, Emery P, Eberl G, et al. A simplified disease activity index for rheumatoid arthritis for use in clinical practice. *Rheumatol Oxf Engl* 2003;42:244–57.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.2149

FRI0670 VALIDATION OF THE ERS-RA RISK SCORE IN THE DUTCH CARRÉ STUDY.

M. Baniaamam¹, M. Nurmohamed¹. ¹Amsterdam Rheumatology immunology Center/ Reade and VU University Medical Center, Amsterdam, Netherlands

Background: The most frequent cause of death in patients with chronic rheumatoid arthritis (RA) is of cardiovascular (CV) origin¹. CV risk prediction scores in the

normal population do not predict the CV risk in RA patients adequately due to the additional systemic inflammatory burden which is pathogenic for CV disease. Recently, Solomon et al developed the ERS-RA Risk Score, a newly and expanded CV risk score predicting the 10 year CV event risk in RA patients². This is based on a cohort from the Consortium of Rheumatology Researchers of North America registry. In this abstract we present the results of a validation test performed with the ERS-RA Risk Score in the Dutch CARRÉ study³.

Objectives: To perform a validation test of the ERS-RA Risk Score in the Dutch CARRÉ study.

Methods: We validated the ERS-RA Risk Score in the CARRÉ cohort by performing a ROC curve analysis. The CARRÉ study is a Dutch cohort study investigating CVD and its risk factors in RA-patients who have been followed prospectively for at least five years. RA patients registered at Reade (location Jan van Breemen institute in Amsterdam, the Netherlands) participated if they fulfilled the 1987 ACR classification criteria, were diagnosed between 1989 and 2001, and were aged between 50 and 75 years. In contrast to the cohort used in study of Solomon et al, the CARRÉ study used the HAQ instead of the m-HAQ and the CARRÉ lacks the Predictor's Global Assessment to calculate the CDAI. However, to proximate the true outcome of the m-HAQ and the CDAI we conducted the following modifications of the CARRÉ cohort data. To calculate the CDAI we estimated the Predictor's Global Assessment as 70%, 80%, 100%, 110%, 120% and 130% of the Patient's Global Assessment. Furthermore, we approximated the m-HAQ score 50% lower than the HAQ score as described in a recent published article⁴.

Results: The CARRÉ study included 352 RA patients with 60 CV events over a 10 year follow up period. The mean age was 63.3 years of which 121 (34%) male participants. The ROC curve analysis shows an area under the curve of 0.603–0.612 depending on the predicted Predictor's Global Assessment (see figure 1).

Figure 1. ROC curve analysis of the ERS-RA Risk score in the CARRE cohort with different approximated CDAI scores

Conclusions: In conclusion, the ERS-RA Risk Score has a limited validity in the CARRÉ study, a Dutch RA cohort and can therefore not be used for risk prediction in Dutch RA patients

REFERENCES:

- 1) Avina-Zubieta JA, et al. Risk of cardiovascular mortality in patients with rheumatoid arthritis: a meta-analysis of observational studies. *Arthritis Rheum* 2008;59:1690–7.
- 2) Solomon DH, et al. Derivation and internal validation of an expanded cardiovascular risk prediction score for rheumatoid arthritis: a Consortium of Rheumatology Researchers of North America Registry Study. *Arthritis Rheumatol*. 2015 May;67(8):1995–2003.
- 3) van Halm VP, et al. Rheumatoid arthritis versus diabetes as a risk factor for cardiovascular disease: a cross-sectional study, the CARRÉ Investigation. *Annals of the Rheumatic Diseases* 2009;68:1395–1400.
- 4) Uhlig T, et al. Comparison of the Health Assessment Questionnaire (HAQ) and the modified HAQ (MHAQ) in patients with rheumatoid arthritis. *Rheumatology (Oxford)* 2006 April;45(4):454–458.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.5438