Online Supplementary file

Clinical classification:

To determine the clinical classification of a physician (or physician assistant), we decided to make two categories; Active disease or Inactive disease.

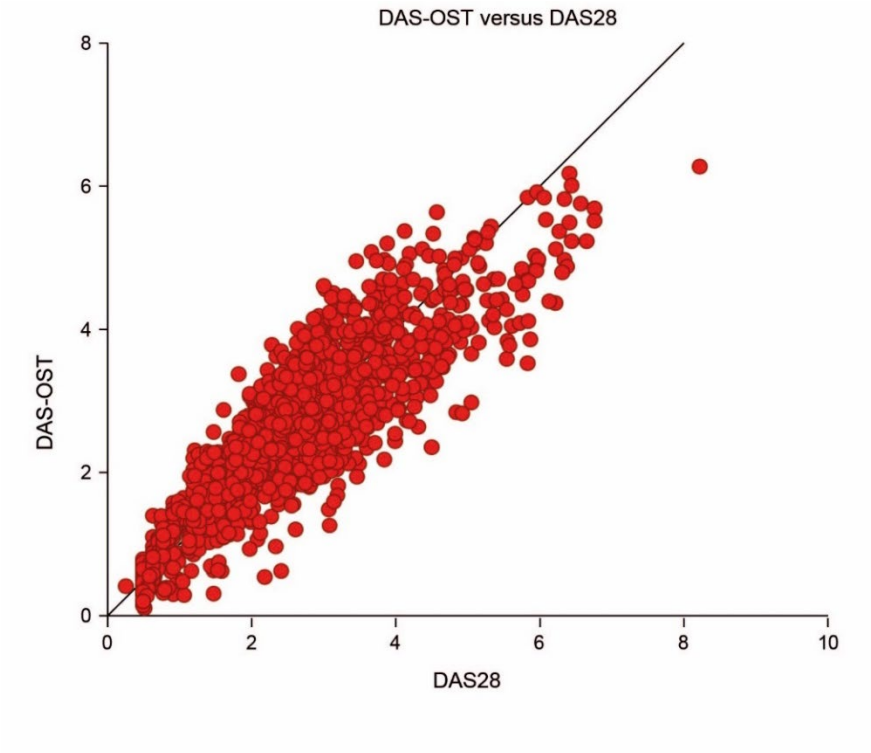
Active is defined as:

- The decision to start a new csDMARD / bDMARD / tsDMARD at present consultation
- Increasing dose of the used DMARD
- Intramuscular injection with glucocorticoid
- When the treating rheumatologist described “Active disease” or used synonym terms

Inactive is defined as:

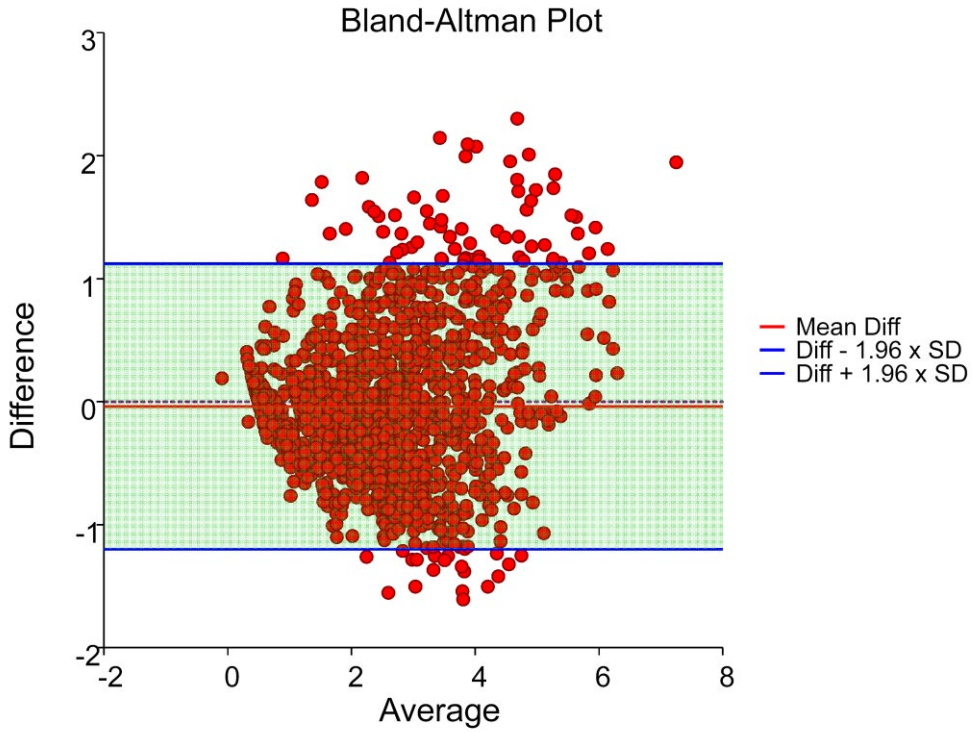
- Tapering the dose of csDMARD / bDMARD / tsDMARD, not because of adverse-effects
- Stopping csDMARD / bDMARD / tsDMARD, not because of adverse-effects
- When the treating rheumatologist described “remission” or used synonym terms

One rheumatologist, AAAW, went cross-sectionally through the medical records of the participating patients to assess disease activity as active/inactive based on his clinical interpretation on the records. One of the inclusion criteria for participation was the availability of a DAS28 measurement, with, thereafter, a HandScan measurement, performed during the same clinical visit. In addition, only one unique visit per patient was included. Of the included medical records, a randomly drawn subset of 39 clinic visits was blindly re-assessed by two other rheumatologists, JT and JWGJ for testing agreement on this clinical interpretation, which was overall 92.5% with classifications of AAAW.



Supplementary Figure S1 Scatter plot of the relationship between DAS-OST and DAS28 on patient level.

DAS-OST= disease activity using optical spectral transmission, DAS28= disease activity score assessing 28 joints



Supplementary Figure S2 Bland-Altman plot of the mean difference DAS28 – DAS-OST (y-axis) versus the mean of DAS28 and DAS-OST (x-axis)

DAS28= disease activity score assessing 28 joints, DAS-OST= disease activity using optical spectral transmission, Diff= difference, SD= standard deviation

Supplementary Table S1 Diagnostic values and agreement of clinical interpretation with (modified) disease activity outcomes.

Disease activity state	**Diagnostic values**					**Agreement**	
	Sensitivity	*Specificity*	*PPV*	*NPV*	*accuracy*	*Cohen's Kappa (95%CI)*	*Gwet's AC1 (95%CI)*
DAS28[#]							
Remission	0.71	0.85	0.95	0.42	0.74	0.41 (0.37 – 0.46)	0.55 (0.51 – 0.60)
LDA	0.87	0.72	0.93	0.58	0.84	0.54 (0.49 – 0.59)	0.76 (0.73 – 0.79)
DAS-OST[##]							
Remission	0.62	0.74	0.91	0.32	0.65	0.24 (0.20 – 0.29)	0.37 (0.32 – 0.42)
LDA	0.81	0.59	0.89	0.44	0.77	0.36 (0.30 – 0.41)	0.64 (0.60 – 0.68)
OST-score							
Optimal cut-off for inactive RA in males (OST-score ≤16.36)	0.66	0.50	0.85	0.26	0.63	0.11 (0.03 – 0.20)	0.37 (0.29 – 0.46)
Optimal cut-off for inactive RA in females (OST-score ≤10.64)	0.53	0.63	0.85	0.25	0.55	0.10 (0.05 – 0.15)	0.17 (0.11 – 0.24)

PPV= positive predictive value, NPV= negative predictive value, CI= confidence interval, DAS28= disease activity score assessing 28 joints, LDA= low disease activity, DAS-OST= disease activity using optical spectral transmission, OST-score= single measurement of optical spectral transmission.

[#] Number of patients with; DAS28 remission and inactive= 858, DAS28 remission and active= 43, no DAS28 remission and inactive= 345, no DAS28 remission and active=252
DAS28 LDA and inactive= 1048, DAS28 LDA and active= 84, no DAS28 LDA and inactive= 155, no DAS28 LDA and active=211.

[##] Number of patients with; DAS-OST remission and inactive= 750, DAS-OST remission and active= 77, no DAS-OST remission and inactive= 453, no DAS-OST remission and active=218
DAS-OST LDA and inactive= 977, DAS-OST LDA and active= 120, no DAS-OST LDA and inactive= 226, no DAS-OST LDA and active=175.