Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

eAppendix 1. The NOR-DRUM Steering Group

Principal Investigator	Professor Espen A. Haavardsholm, M.D., Ph.D.
Project leader	Silje W. Syversen, M.D., Ph.D.
National medical leaders	Professor Tore K. Kvien, M.D., Ph.D., Rheumatology
	Professor Jørgen Jahnsen, M.D., Ph.D., Gastroenterology
	Cato Mørk, M.D., Ph.D., Dermatology
National laboratory leader	Nils Bolstad, M.D., Ph.D.
Biostatisticians	Joseph Sexton, Ph.D.
	Inge Christoffer Olsen, Ph.D.
Clinical coordinators	Guro L. Goll, M.D., Ph.D., Rheumatology
	Kristin K. Jørgensen, M.D., Ph.D., Gastroenterology
	Øystein Sandanger, M.D., Ph.D., Dermatology
Laboratory coordinators	Johanna Gehin, M.D.
	David J. Warren, Ph.D.
PhD fellow	Marthe Kirkesæther Brun, M.D.
User representatives	Jon Hagfors, The Norwegian Rheumatism Association
	Bjørn Gulbrandsen, The Norwegian IBD Patient Organisation
	Hilde Mellum, The Psoriasis and Eczema Association of Norway

eAppendix 2. Principal Investigators From Each Study Center

Lars Normann Karlsen, Geir Noraberg, Camilla Zettel, Maud Kristine Aga Ljoså, Anne Julsrud Haugen, Rune Johan Njålla, Trude Jannecke Bruun, Kathrine Aglen Seeberg, Brigitte Michelsen, Eldri Kveine Strand, Svanaug Skorpe, Ingrid Marianne Blomgren, Yngvill Hovde Bragenes, Christian Dotterud, Turid Thune, Carl Magnus Ystrøm, Roald Torp, Pawel Mielnik

eTable 1. Number of Randomized Patients by Study Hospital

	Therapeutic drug monitoring (n=198)	Standard therapy (n=200)
Diakonhjemmet Hospital, Oslo[a]	65	70
Akershus University Hospital, Lørenskog[b]	38	36
Hospital of Southern Norway Trust, Arendal[b]	8	12
Stavanger University Hospital[b]	10	10
Betanien Hospital, Skien[a]	8	10
Ålesund Hospital[a]	10	6
Østfold Hospital Trust, Moss[a]	8	7
Nordland Hospital Trust, Bodø[a]	9	6
The University Hospital of North Norway, Tromsø[a]	5	6
Vestfold Hospital Trust, Tønsberg[b]	6	4
Oslo University Hospital[c]	6	4
Lillehammer Hospital for Rheumatic Diseases[a]	2	7
Hospital of Southern Norway Trust, Kristiansand[a]	5	4
Haugesund Hospital for Rheumatic Diseases[a]	5	4
Fonna Hospital Trust, Haugesund[b]	3	5
Vestre Viken Hospital Trust, Drammen[a]	5	3
Trondheim University Hospital[c]	3	4
Innlandet Hospital Trust, Elverum[b]	4	1
Haukeland University Hospital, Bergen[c]	4	1
Innlandet Hospital Trust, Hamar[b]	1	3
Førde Hospital Trust, Førde[a]	2	1

Data are No.
[a] Department of Rheumatology, [b] Department of Gastroenterology, [c] Department of Dermatology

eTable 2. Changes in Medication During the Trial

eTable 2a. Medication following infliximab discontinuation

	Therapeutic drug monitoring N=59	Standard dosing N=44
No new medication added	17	23
Etanercept	12	8
Secukinumab	5	4
Vedolizumab	3	5
Methotrexate	4	2
Tofacitinib	4	1
Adalimumab	5	0
Abatacept	3	0
Glucocorticoids	4	0
Baricitinib	1	0
Golimumab	0	1
Ustekinumab	1	0

Data are No.

eTable 2b. Immunosuppressive comedication at baseline and at Week 30

	Therapeutic drug monitoring	Standard dosing
Any comedication at baseline	109/200 (55)	112/198 (57)
Any comediaction at Week 30	86/157 (55)	90/140 (64)
Methotrexate at baseline	78/200 (39)	72/198 (36)
Methotrexate at Week 30	60/157 (38)	51/140 (36)
Azathioprine at baseline	26/200 (13)	28/198 (14)
Azathioprine at Week 30	25/157 (16)	31/140 (22)

Data are No. (%)

eTable 3. Details of Study Endpoints

Endpoint	Abbreviation	Diagnosis	Description
Primary endpoint			
Clinical remission		All	Clinical remission is defined according to the patient's diagnosis (see below).
		RA	Clinical remission in Rheumatoid Arthritis is defined as Disease Activity Score of 28 joints <2.6. Separately, this endpoint is pre-specified as a secondary endpoint. More details are given below.
		SpA	Clinical remission in Spondyloarthritis is defined as Ankylosing Spondylitis Disease Activity Score <1.3. Separately, this endpoint is pre-specified as a secondary endpoint. More details are given below.
		PsA	Clinical remission in Psoriatic Arthritis is defined as Disease Activity Score of 28 joints <2.6. Separately, this endpoint is pre-specified as a secondary endpoint. More details are given below.
		UC	Clinical remission in Ulcerative Colitis is defined as a Partial Mayo score ≤2 with no sub-scores >1. Separately, this endpoint is pre-specified as a secondary endpoint. More details are given below.
		CD	Clinical remission in Cohn's Disease is defined as Harvey-Bradshaw Index ≤4. Separately, this endpoint is pre-specified as a secondary endpoint. More details are given below.
		Ps	Clinical remission in psoriasis is defined as Psoriasis Area and Severity Index ≤ 4. Separately, this endpoint is pre-specified as a secondary endpoint. More details are given below.
Secondary efficacy endpoints			
Common disease activity endpoints			
Physician's global assessment of disease activity	PhGA	All	Physicians global assessment of disease activity Range 0-100 on a visual analogue scale (VAS). 0 indicates no activity, 100 highest possible disease activity.
Patient's global assessment of disease activity	PGA	All	Patients assessment of disease activity range 0-100 on a visual analogue scale (VAS). Patients are asked to rate their disease activity according to the following question: "We ask you to assess how active your (disease) has been during the last week. Considering all your symptoms, please mark a vertical line on the scale below." 0 indicates no activity, 100 highest possible disease activity.
Erythrocyte sedimentation rate	ESR	All	Measured in mm/h, assessed by the Westergren method. Range 1-130 mm/h. Normal range 1-12 mm/h (men) and 1-17 mm/h (female).
C-reactive protein	CRP	All	Measured in mg/L. Normal range 0-4 mg/L.

Endpoint	Abbreviation	Diagnosis	Description
Disease specific disease activity endpoints			
Disease Activity Score 28 joints[1]	DAS28	RA PsA	Disease activity score 28 joints includes the 28 tender and swollen joint count (SJC28 and TJC28), ESR and PGA. The DAS28 is calculated as follows: DAS28 = 0.56*sqrt (TJC28) + 0.28*sqrt (SJC28) + 0.70*Ln (ESR) + 0.014*PGA. Range 0-9.4. Higher values indicate worse disease; DAS28 < 2.6 remission, 2.6-<3.2 low disease activity, 3.2-5.1 moderate, >5.1 high disease activity. MCID 1.2.[2] DAS28 is a recommended tool to be used for assessment of RA disease activity in clinical trials based on both psychometric properties and feasibility.[2]
Simple Disease Activity Index[3]	SDAI	RA PsA	The SDAI includes 28 tender and swollen joint count (SJC28 and TJC28), PGA, PhGA and CRP. The SDAI is calculated as follows: SDAI=TCJ28 + SJC28 + PGA/10 + PhGA/10 + CRP/10. Range 0-86. Higher values indicate worse disease. Remission <3.3, high disease activity >26. MCID 13.[2]
Modified Health Assessment Questionaire[4]	MHAQ	SpA RA PsA	The MHAQ consists of 8 questions evaluating the patient's physical function. Each item is scored on a categorical 0-3 scale and the sum score is divided by 8 to form the MHAQ score ranging 0.0 to 3.0. Higher values indicate worse physical function.
Disease Activity in Psoriatic Arthritis[5]	DAPSA	PsA	Disease Activity index for Psoriatic Arthritis (DAPSA) includes SDAI includes 68 tender and 66 swollen joint count, CRP, PGA and VAS Pain and is calculated as follows: TJC68 + SJC66 + CRP (mg/L)/10 + PGA (0-100)/10+VAS Pain (0-100)/10. Range 0 and higher (depending on the CRP). Higher score indicates worse disease.
Ankylosing Spondylitis Disease Activity Score[6]	ASDAS	SpA	Ankylosing Spondylitis Disease Activity Score includes components from the BASDAI, PGA and CRP: total back pain (VAS 0-100), PGA (VAS 0-100), peripheral pain/swelling (Numeric rating scale (NRS) 0-10), duration of morning stiffness (NRS 0-10) and CRP in mg/L. ASDAS is calculated as follows: ASDAS-CRP=0.121*total back pain + 0.0110*patient global + 0.073*peripheral pain/swelling + 0.058*duration of morning stiffness + 0.579*ln (CRP+1). Range 0.6-7.7. Higher values indicate worse disease. Remission (inactive disease) <1.3. Minimal clinically important improvement 1.1.[7] ASDAS is the recommended tool to be used for assessment of SpA disease activity in clinical trials based on both psychometric properties and feasibility.[8]
The Bath Ankylosing Spondylitis Disease Activity Index[9]	BASDAI	SpA	BASDAI includes six questions pertaining to the five major symptoms of ankylosing spondylitis: fatigue, spinal pain, joint pain/swelling, areas of localized tenderness, morning stiffness duration and morning stiffness severity. Each question is scored on a NRS (0-10). The two morning stiffness scores are averaged and added to the average of the other scores forming a total score in the range of 0-10 with larger values indicating worse disease. Components of BASDAI is included in ASDAS.
Partial Mayo Score[10]	PMS	UC	Partial Mayo Score consists of three components (rectal bleeding, stool frequency and physician rating of disease activity) rated from 0–3 that are summed to give a total score that ranges from 0–3. Range 0-9. Higher score indicates worse disease. Clinical remission ≤2 points. The non-invasive partial Mayo score is derived from the Mayo score (Range 0-12).[11] The partial Mayo score is more feasible as it does not require endoscopy and has been shown to perform as well as the full Mayo score to identify patient-perceived response in clinical trials.[10]

Endpoint	Abbreviation	Diagnosis	Description
Harvey-Bradshaw Index[12]	HBI	CD	Harvey-Bradshaw Index consists of five domains; general well-being (0-4), abdominal pain (0-3), number of liquid soft stools per day, abdominal mass (0-3) and number of predefined complications. The scores of each sub-domain are summed up to compute the HBI. The range of HBI score is from 0 with no upper limit. Higher values indicate worse disease. The HBI score of ≤ 4 points is well established as clinical remission and a change of HBI score of ≥ 3 points is considered as a significant improvement in clinical trials assessing efficacy of medical therapy.[13] There are two validated, clinical activity indices for Crohn's disease, Crohn's disease activity index (CDAI) [14] and Harvey Bradshaw index.[12] These two indices are highly correlated.[13] Harvey Bradshaw index is often preferred to CDAI for assessment of CD disease activity in clinical trials due to feasibility (no need for diary card).
Calprotectin		UC CD	Fecal calprotectin is measured in mg/kg. Fecal calprotectin is a marker of inflammation in the gut and widely used to monitor disease activity in inflammatory bowel disease.[15] The measurement range for fecal calprotectin is from < 50 mg/kg to > 2000 mg/kg. Validated cut-off values are still lacking.[16]
Psoriasis Area and Severity Index[17]	PASI	Ps	The Psoriasis Area and Severity Index is a measure of redness, thickness and scaliness of lesions (each graded 0-4), weighted by the area and location of involvement*. It scores from 0 (no disease) to 72 (maximal disease severity).The PASI score is the current "gold standard" for assessment of Ps disease activity in clinical trials.[18] * The head, upper extremities, lower extremities, and trunk are assessed separately and then combined using weighting based on the surface area represented by each area (head = 0.1, upper extremities = 0.2, trunk = 0.3, and lower extremities = 0.4). The degree of erythema, induration, and scale in each area is judged on a 0–4 scale, the sum of which represents disease severity. The area of involvement of each area is graded from 0–6, depending on the estimated percentage of lesional area (0 = 0%, 1 = <10%, 2 = 10–29%, 3 = 30–49%, 4 = 50–69%, 5 = 70–89%, and 6 = 90–100%). These body scores are multiplied by the disease severity score and the weighting for each body area, yielding a score between 0 and 72. In trials, PASI calculators are supplied to facilitate ease of scoring.
Quality of life and utility endpoints			
SF-36 physical functioning[19]	SF36 PF	All	The RAND 36-item Short Form Health survey consists of 36 questions. The 36 questions are combined into eight domains by computing the raw scores, normalizing to the Norwegian general population mean and standard deviation and then multiplying 10 and adding 50 to form the domain t-score. This enables assessing the study t-score results with a general Norwegian population with a t-score of 50 and standard deviation of 10. Higher values indicate better quality-of-life.
SF-36 role limitation due to physical health problems	SF36 RP	All	See above.

Endpoint	Abbreviation	Diagnosis	Description
SF-36 bodily pain	SF36 BP	All	See above.
SF-36 general health	SF36 GH	All	See above.
SF-36 emotional well-being	SF36 EM	All	See above.
SF-36 role limitations due to personal or emotional problems	SF36 RE	All	See above.
SF-36 social functioning	SF36 SF	All	See above.
SF-36 energy/fatigue	SF36 EN	All	See above.
SF-36 physical component summary score	SF36 PCS	All	The SF-36 physical component summary score is a weighted sum of the domain normalized scores using Norwegian specific weights. Higher values indicate better quality-of-life.
SF-36 mental component summary score	SF36 MCS	All	See above
EQ5D VAS[20]	EQ5D VAS	All	European Quality of life five dimensions visual analogue scale. The EQ VAS records the patient's self-rated health on a vertical visual analogue scale, where the endpoints are labelled 'The best health you can imagine' and 'The worst health you can imagine'. The VAS can be used as a quantitative measure of health outcome that reflect the patient's own judgement. 0 indicates no activity, 100 very severe activity.
EQ5D index (UK weighted) [20]	EQ-5D	All	European Quality of life five dimensions EQ-5D is a standardized instrument for use as a measure of health outcome. The EQ-5D index values are calculated according to the EQ-5D United Kingdom Time Trade-Off (TTO) value set.
Work Productivity and Impairment Questionnaire Absenteeism[21]	WPAI absenteeism	All	WPAI absenteeism is the percent work time missed due to specified problem.
Work Productivity and Impairment Questionnaire Presentism[21]	WPAI presentism	All	WPAI presentism is the percent impairment while working due to specified problem.

Endpoint	Abbreviation	Diagnosis	Description
Work Productivity and Impairment Questionnaire overall work impairment[21]	WPAI WI	All	WPAI overall work impairment is the percent overall work impairment due to specified problem.
Work Productivity and Impairment Questionnaire activity impairment [21]	WPAI AI	All	WPAI activity impairment is the percent activity impairment due to specified problem.
Pain		RA PsA SpA	Range 0-100 on a visual analogue scale (VAS). 0 indicates no pain, 100 very severe pain.
Fatigue		RA PsA SpA	Range 0-100 on a visual analogue scale (VAS). 0 indicates no fatigue, 100 very severe fatigue.
Rheumatoid Arthritis Impact of Disease total score[22]	RAID total	RA	The Rheumatoid Arthritis Impact of Disease (RAID) score is calculated based on seven questions (pain, function, fatigue, sleep, emotional wellbeing, physical wellbeing and coping/self-efficacy), each scored 0-10 on a Numeric rating scale (NRS). The RAID total score is calculated as follows: RAID final value = 0.21*pain* 0.21 + 0.16*function + 0.15*fatigue + 0.12*physical wellbeing + 0.12*sleep + 0.12*emotional wellbeing + 0.12*coping. The range of the RAID total score is 0–10 where higher values indicate worse status.
Psoriatic Arthritis Impact of Disease total score[23]	PsAID	PsA	The PsAID questionnaire with 9 domains of health (PsAID-9) was developed by EULAR to calculate a score for clinical trials reflecting the impact of PsA from the patient's perspective. The nine domains with relative weights are: pain (0.174), fatigue (0.131), skin (0.121), work and/or leisure activities (0.110), function (0.107), discomfort (0.098), sleep (0.089), coping (0.087) and anxiety (0.085), each rated on an NRS (0-10). The rates of each domain are weighted and summed to form a score in the range of 0-10. Higher score indicates worse status.
Inflammatory Bowel Disease Questionnaire total score[24]	IBDQ	CD UC	The IBDQ is a tool to measure health-related quality of life in patients with inflammatory bowel diseases. The questionnaire consists of 32 questions scored in four domains: bowel symptoms, emotional health, systemic systems and social function. The response for each question ranges from one to seven with one corresponding to significant impairment and seven corresponding to no impairment. The total IBDQ score is the sum of all the question scores, ranging 32 to 224. Higher values indicate better quality-of-life.

<table>
<tr><th>Endpoint</th><th>Abbreviation</th><th>Diagnosis</th><th>Description</th></tr>
<tr><td>Dermatology Life Quality Index total score[25]</td><td>DLQI</td><td>PS</td><td>The Dermatology Life Quality Index (DLQI) consists of 10 questions concerning patients' perception of the impact of skin diseases on their health-related quality of life over the last week. It has been validated for adult dermatology patients aged 16 years and older. The items of the DLQI encompass aspects of symptoms and feelings, daily activities, leisure, work/ school, personal relationships and side effects of treatment. Each question is scored on a 4-point Likert scale: Not at all/Not relevant=0, A little=1, A lot=2 and Very much=3. Scores of individual items (0-3) are added to yield a total score (0-30); higher scores mean greater impairment of patient's QoL.</td></tr>
<tr><td>European League Against Rheumatism response[2]</td><td>EULAR response</td><td>RA</td><td><table>
<tr><td></td><td colspan="3">Change from baseline</td></tr>
<tr><td>DAS28 at time-point</td><td>∆DAS28 ≤ - 1.2</td><td>-1.2 < ∆DAS28 < -0.6</td><td>∆DAS28 ≥ 0.6</td></tr>
<tr><td>DAS28 ≤ 3.2</td><td>Good</td><td>Moderate</td><td>None</td></tr>
<tr><td>3.2 < DAS28 ≤ 5.1</td><td>Moderate</td><td>Moderate</td><td>None</td></tr>
<tr><td>DAS28 > 5.1</td><td>Moderate</td><td>None</td><td>None</td></tr>
</table></td></tr>
<tr><td>American College of Rheumatology / European League Against Rheumatism remission[2]</td><td>ACR/EULAR remission</td><td>RA</td><td>To be in ACR/EULAR remission, the patient must satisfy all of the following: TJC28 ≤ 1, SJC28 ≤ 1, CRP ≤ 10 (mg/l), PGA ≤ 14.</td></tr>
<tr><td>American College of Rheumatology response</td><td>ACR20, ACR50, ACR70</td><td>RA</td><td>An ACR20 response is defined if the following criteria are fulfilled: 20% improvement in tender joint count 28, 20% improvement in swollen joint count 28, and 20% improvement in at least 3 of 5 other core set items (Investigator global assessment of disease activity, patient global assessment of disease activity, patient pain, disability, ESR/CRP. ACR50 and ACR70 are defined in a similar manner with 50% and 70% improvement, respectively.[26]</td></tr>
</table>

eTable 4. Prespecified Secondary Outcomes

Continous variables Change baseline week 30
Physician's global assessment of disease activity, visual analogue scale (VAS)
Patient's global assessment of disease activity (VAS)
Erythrocyte sedimentation rate, mm/h
C-reactive protein, mg/L
Disease Activity Score 28 joints (DAS28) RA/PsA
Simple Disease Activity Index (SDAI) RA/PsA
Modified Health Assessment Questionnaire (MHAQ) RA/PsA/SpA
Disease Activity in Psoriatic Arthritis (DAPSA) PsA
Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) SpA
Ankylosing Spondylitis Disease Activity Score (ASDAS) SpA
Partial Mayo Score (PMS) UC
Harvey-Bradshaw Index (HBI) CD
Calprotectin, mg/kg CD, UC
Psoriasis Area and Severity Index (PASI) Ps
State variables Week 14/ Week 30
Remission at week 14 All disease groups
Improvement at week 14[a] All disease groups
DAS28 remission week 30 RA/PsA
SDAI remission week 30 RA/PsA
American College of Rheumatology / European League Against Rheumatism remission (ACR/EULAR remission) RA
European League Against Rheumatism (EULAR) response RA week 30
American College of Rheumatology response 20%, 50%, 70% (ACR 20/50/70) RA
ASDAS remission week 30 SpA
PMS remission week 30 UC
HBI remission week 30 CD
PASI remission week 30 Ps
PASI mild to moderate disease week 30 Ps
PASI complete clearance week 30 Ps
Time to remission All disease groups
Time to sustained remission All disease groups
Quality of life and utility
36-item Short Form Health survey (SF 36) All disease groups
Work Productivity and Impairment Questionnaire (WPAI) All disease groups
European Quality of life five dimensions (EQ5D) All disease groups
Pain VAS RA/PsA/SpA
Fatigue VAS RA/PsA/SpA
Rheumatoid Arthritis Impact of Disease total score RAID Total score RA
Psoriatic Arthritis Impact of Disease (PsAID) PsA
Inflammatory Bowel Disease Questionnaire (IBDQ) CD/UC
Dermatology Life Quality Index total score (DLQI) Ps
[a] Improvement defined as; RA and PsA, a decrease in DAS28 of ≥1.2 from baseline; SpA, a decrease in ASDAS of ≥1.1 from baseline; UC, a decrease in the partial Mayo score of ≥ 3 points from baseline or a partial Mayo score of 0; CD a decrease in HBI of ≥ 4 points from baseline; Ps, a PASI 50 (A 50% decrease in the PASI obtained at baseline) Abbreviations: DAS28, Disease Activity Score in 28 joints with ESR; SDAI, Simplified Disease Activity Index; MHAQ, Modified Health Assessment Questionnaire; DAPSA, Disease Activity in Psoriatic Arthritis; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; ASDAS, Ankylosing Spondylitis Disease Activity Score; PMS, Partial Mayo Score; HBI, Harvey-Bradshaw Index; PASI, Psoriasis Area and Severity Index; SF-36, RAND Short Form Health Survey t-scores using Norwegian norms; EQ-5D,EuroQol questionnaire time trade-off United Kingdom weighted; VAS, visual analogue scale; WPAI,Work Productivity And Impairment questionnaire; RAID,Rheumatoid Arthritis Impact of Disease; PsAID,Psoriatic Arthritis Impact of Disease; IBDQ,Inflammatory Bowel Disease Questionnaire; DLQI,Dermatology Life Quality Index; ACR/EULAR,American College of Rheumatology/European League Against Rheumatism.

eTable 5. Demographic and Baseline Characteristics in Disease Subgroups

eTable 5a: Demographic and baseline characteristics in rheumatoid arthritis

	Therapeutic drug monitoring (n=38)	Standard therapy (n=42)
Demographics		
Age, mean (SD) y	54.7 (10.7)	50.7 (16.5)
Women, No. (%)	32 (84%)	35 (83%)
Men, No. (%)	6 (16%)	17 (%)
Disease duration, mean (SD) y	5.8 (0.9-12.6)	3.8 (1.1-10.1)
Medication, No. (%)		
No prior biological treatment	29 (76%)	28 (67%)
No prior TNFα inhibitor[a]	29 (76%)	29 (69%)
Used one prior TNFα inhibitor[a]	6 (16%)	11 (26%)
Used two or more prior TNFα inhibitors[a]	3 (8%)	2 (5%)
Other prior biological treatment[b]	2 (5%)	3 (7%)
Concomitant immunosuppressive therapy[c]	34 (89%)	42 (100%)
Concomitant use of glucocorticoids	18 (47%)	12 (29%)
General baseline characteristics		
Erythrocyte sedimentation rate (mm/h), median (IQR)	14.0 (7.0-24.0)	13.5 (7.0-26.0)
C-reactive protein (mg/L), median (IQR)	4.0 (2.0-7.0)	4.0 (1.0-9.0)

Abbreviations: SD, standard deviation; TNF, tumor necrosis factor; IQR, interquartile range.
[a] Prior TNFi includes: Etanercept, adalimumab, certolizumab pegol, golimumab, and Infliximab.
[b] Other biologics includes: abatacept, rituximab, secukinumab, tocilizumab, ustekinumab, and vedolizumab.
[c] Concomitant immunosuppressive medication includes methotrexate, leflunomide and sulfasalazine.

eTable 5b: Demographic and baseline characteristics in psoriatic arthritis

	Therapeutic drug monitoring (n=20)	Standard therapy (n=22)
Demographics		
Age, mean (SD) y	53.5 (13.7)	46.1 (12.9)
Women, No. (%)	16 (80%)	10 (45%)
Men, No. (%)	4 (20%)	12 (55%)
Disease duration, mean (SD) y	10.9 (3.1-20.5)	2.3 (0.7-9.5)
Medication, No. (%)		
No prior biological treatment	8 (40%)	18 (82%)
No prior TNFα inhibitor[a]	8 (40%)	18 (82%)
Used one prior TNFα inhibitor[a]	6 (30%)	2 (9%)
Used two or more prior TNFα inhibitors[a]	6 (30%)	2 (9%)
Other prior biological treatment[b]	3 (15%)	1 (5%)
Concomitant immunosuppressive therapy[c]	16 (80%)	17 (77%)
Concomitant use of glucocorticoids	1 (5%)	4 (18%)
General baseline characteristics		
Erythrocyte sedimentation rate (mm/h), median (IQR)	14.5 (7.0-23.0)	15.0 (6.0-27.0)
C-reactive protein (mg/L), median (IQR)	3.5 (2.0-11.5)	6.5 (1.0-24.0)

Abbreviations: SD, standard deviation; TNF, tumor necrosis factor; IQR, interquartile range.
[a] Prior TNFi includes: Etanercept, adalimumab, certolizumab pegol, golimumab, and Infliximab.
[b] Other biologics includes: abatacept, rituximab, secukinumab, tocilizumab, ustekinumab, and vedolizumab.
[c] Concomitant immunosuppressive medication includes methotrexate, leflunomide and sulfasalazine.

eTable 5c: Demographic and baseline characteristics in spondyloarthritis

	Therapeutic drug monitoring (n=59)	Standard therapy (n=58)
Demographics		
Age, mean (SD) y	44.8 (13.9)	42.6 (14.1)
Women, No. (%)	29 (49%)	21 (36%)
Men, No. (%)	30 (51%)	37 (64%)
Disease duration, mean (SD) y	3.3 (0.5-14.7)	3.1 (0.4-14.2)
Medication, No. (%)		
No prior biological treatment	40 (68%)	37 (64%)
No prior TNFα inhibitor[a]	41 (69%)	37 (64%)
Used one prior TNFα inhibitor[a]	12 (20%)	10 (17%)
Used two or more prior TNFα inhibitors[a]	6 (10%)	11 (20%)
Other prior biological treatment[b]	2 (3%)	3 (5%)
Concomitant immunosuppressive therapy[c]	16 (27%)	11 (19%)
Concomitant use of glucocorticoids	2 (3%)	2 (3%)
General baseline characteristics		
Erythrocyte sedimentation rate (mm/h), median (IQR)	17.0 (6.0-35.0)	14.5 (6.0-27.0)
C-reactive protein (mg/L), median (IQR)	5.0 (2.0-16.0)	5.5 (2.0-16.0)

Abbreviations: SD, standard deviation; TNF, tumor necrosis factor; IQR, interquartile range.
[a] Prior TNFi includes: Etanercept, adalimumab, certolizumab pegol, golimumab, and Infliximab.
[b] Other biologics includes: abatacept, rituximab, secukinumab, tocilizumab, ustekinumab, and vedolizumab.
[c] Concomitant immunosuppressive medication includes methotrexate, leflunomide and sulfasalazine.

eTable 5d: Demographic and baseline characteristics in ulcerative colitis

	Therapeutic drug monitoring (n=39)	Standard therapy (n=41)
Demographics		
Age, mean (SD) y	38.8 (14.5)	41.3 (16.2)
Women, No. (%)	15 (39%)	13 (32%)
Men, No. (%)	24 (62%)	28 (68%)
Disease duration, mean (SD) y	2.1 (0.6-5.1)	2.4 (0.9-7.8)
Medication, No. (%)		
No prior biological treatment	37 (95%)	38 (98%)
No prior TNFα inhibitor[a]	37 (95%)	40 (98%)
Used one prior TNFα inhibitor[a]	2 (5%)	1 (2%)
Used two or more prior TNFα inhibitors[a]	0	0
Other prior biological treatment[b]	0	0
Concomitant immunosuppressive therapy[c]	15 (38%)	17 (41%)
Concomitant use of glucocorticoids	19 (49%)	8 (20%)
General baseline characteristics		
Erythrocyte sedimentation rate (mm/h), median (IQR)	11.0 (4.0-20.0)	11.0 (3.0-21.0)
C-reactive protein (mg/L), median (IQR)	4.0 (1.0-24.0)	4.0 (1.0-20.0)

Abbreviations: SD, standard deviation; TNF, tumor necrosis factor; IQR, interquartile range.
[a] Prior TNFi includes: Etanercept, adalimumab, certolizumab pegol, golimumab, and Infliximab.
[b] Other biologics includes: abatacept, rituximab, secukinumab, tocilizumab, ustekinumab, and vedolizumab.
[c] Concomitant immunosuppressive medication includes methotrexate, leflunomide, azathioprine and sulfasalazine.

eTable 5e: Demographic and baseline characteristics in Crohn's disease

	Therapeutic drug monitoring (n=29)	Standard therapy (n=28)
Demographics		
Age, mean (SD) y	35.4 (11.0)	41.0 (11.5)
Women, No. (%)	14 (48%)	13 (46%)
Men, No. (%)	15 (52%)	15 (54%)
Disease duration, mean (SD) y	1.1 (0.7-2.8)	6.7 (0.7-18.2)
Medication, No. (%)		
No prior biological treatment	26 (90%)	24 (86%)
No prior TNFα inhibitor[a]	26 (90%)	24 (86%)
Used one prior TNFα inhibitor[a]	3 (10%)	4 (14%)
Used two or more prior TNFα inhibitors[a]	0	0
Other prior biological treatment[b]	0	1 (4%)
Concomitant immunosuppressive therapy[c]	23 (79%)	14 (50%)
Concomitant use of glucocorticoids	1 (3%)	5 (18%)
General baseline characteristics		
Erythrocyte sedimentation rate (mm/h), median (IQR)	15.0 (9.0-27.0)	14.5 (6.0-24.0)
C-reactive protein (mg/L), median (IQR)	12.0 (7.0-17.0)	7.0 (1.0-16.5)

Abbreviations: SD, standard deviation; TNF, tumor necrosis factor; IQR, interquartile range.
[a] Prior TNFi includes: Etanercept, adalimumab, certolizumab pegol, golimumab, and Infliximab.
[b] Other biologics includes: abatacept, rituximab, secukinumab, tocilizumab, ustekinumab, and vedolizumab.
[c] Concomitant immunosuppressive medication includes methotrexate, leflunomide, azathioprine and sulfasalazine.

eTable 5f: Demographic and baseline characteristics in psoriasis

	Therapeutic drug monitoring (n=13)	Standard therapy (n=9)
Demographics		
Age, mean (SD) y	48.8 (16.6)	40.2 (11.4)
Women, No. (%)	4 (31%)	1 (11%)
Men, No. (%)		
Disease duration, mean (SD) y	20.7 (14.7-35.8)	17.8 (5.1-23.8)
Medication, No. (%)		
No prior biological treatment	11 (85%)	8 (89%)
No prior TNFα inhibitor[a]	12 (92%)	8 (89%)
Used one prior TNFα inhibitor[a]	1 (8%)	1 (11%)
Used two or more prior TNFα inhibitors[a]	0	0
Other prior biological treatment[b]	1 (8%)	1 (11%)
Concomitant immunosuppressive therapy[c]	7 (54%)	9 (100%)
Concomitant use of glucocorticoids	0	0
General baseline characteristics		
Erythrocyte sedimentation rate (mm/h), median (IQR)	5.5 (3.0-9.0)	2.0 (1.0-3.0)
C-reactive protein (mg/L), median (IQR)	1.0 (1.0-2.0)	1.0 (1.0-3.0)

Abbreviations: SD, standard deviation; TNF, tumor necrosis factor; IQR, interquartile range.
[a] Prior TNFi includes: Etanercept, adalimumab, certolizumab pegol, golimumab, and Infliximab.
[b] Other biologics includes: abatacept, rituximab, secukinumab, tocilizumab, ustekinumab, and vedolizumab.
[c] Concomitant immunosuppressive medication includes methotrexate, leflunomide and sulfasalazine.

eTable 6. Sensitivity Analyses of the Primary Endpoint

eTable 6a: Pre-specified sensitivity analyses of the primary endpoint			
Analysis	**Therapeutic drug monitoring**	**Standard therapy**	**Difference in remission rate**
Baseline adjusted[a]	100/189 (53)	106/196 (54)	-0.2% (-9.6,9.4)
Worst-case imputation	100/198 (51)	106/200 (53)	2.7% (-6.8,12.3)
Best-case imputation	109/198 (55)	110/200 (55)	0.2% (-9.3,9.7)
Complete-case analyses	100/189 (53)	106/196 (54)	1.5% (-8.2,11.1)
Last observation carried forward	101/198 (51)	107/198 (54)	3.4% (-6.2,12.9)
Patients with high adherence to the protocol [b]	93/136 (53)	103/156 (55)	1.9% (-8.1,11.8)

Data are No. (%).
[a] Adjusted for the following baseline factors: age, gender, prednisolone use, number of prior TNF inhibitors, immunosuppressive co-medication, disease activity
[b] Patients with high adherence to the protocol defined as patients without study withdrawals prior to the week 30 visit, deviations to eligibility criteria, intervals between infusions >12 weeks, or deviations to the TDM strategy

eTable 6b: Post hoc sensitivity analyses of the primary endpoint			
Analysis	**Therapeutic drug monitoring**	**Standard therapy**	**Difference in remission rate**
Center as random effect	100/189 (53)	106/196 (54)	0.9% (-8.6,10.4)
Center as fixed effect	100/189 (53)	106/196 (54)	0.7% (-8.7,10.1)
All patients receiving ≥1 dose of infliximab	104/194 (54)	107/199 (54)	0.0% (-9.4,9.5)

Data are No. (%).

eTable 7. Results Secondary Endpoints

	Baseline		Week 30		Difference at 30 weeks (95% CI)
	Therapeutic drug monitoring	Standard therapy	Therapeutic drug monitoring	Standard therapy	
	Observed values		Change from baseline		
Continuous outcomes					
Measures of disease activity					
Physician's global assessment of disease activity	46.6 (21.1)	46.4 (21.6)	-28.4 (24.9)	-27.2 (27.7)	1.7 (-1.8,5.2)
Patient's global assessment of disease activity	59.6 (23.0)	56.8 (22.3)	-30.6 (29.6)	-24.8 (27.7)	3.7 (-0.6,8.0)
Erythrocyte sedimentation rate, mm/h	13.0 (6.0,25.0)	14.0 (6.0,25.0)	-7.2 (19.1)	-6.0 (14.4)	-0.3 (-2.4,1.7)
C-reactive protein, mg/L	5.0 (2.0,14.0)	5.0 (1.0,15.0)	-6.6 (21.7)	-5.8 (14.0)	-0.4 (-2.0,1.2)
Disease Activity Score 28 joints (DAS28)[RA/PsA]	4.5 (1.1)	4.5 (1.2)	-1.5 (1.2)	-1.8 (1.6)	-0.3 (-0.7,0.1)
Simple Disease Activity Index (SDAI)[RA/PsA]	22.4 (10.8)	23.1 (12.2)	-12.2 (9.8)	-13.5 (14.4)	-0.7 (-3.7,2.4)
Modified Health Assessment Questionnaire (MHAQ)[RA/PsA/SpA]	0.6 (0.4)	0.6 (0.4)	-0.3 (0.5)	-0.3 (0.4)	0.0 (-0.1,0.1)
Disease Activity in Psoriatic Arthritis (DAPSA)[PsA]	31.4 (12.6)	36.6 (25.1)	-13.6 (16.5)	-25.1 (26.5)	-6.2 (-13.1,0.7)
Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)[SpA]	5.1 (1.7)	5.3 (1.5)	-2.0 (2.3)	-2.2 (2.0)	-0.0 (-0.7,0.6)
Ankylosing Spondylitis Disease Activity Score (ASDAS)[SpA]	3.1 (1.0)	3.1 (0.9)	-1.4 (1.4)	-1.3 (1.1)	0.2 (-0.2,0.5)
Partial Mayo Score (PMS)[UC]	5.7 (1.9)	5.3 (1.9)	-4.0 (2.5)	-3.7 (3.0)	-0.1 (-1.0,0.9)
Harvey-Bradshaw Index (HBI)[CD]	8.7 (4.3)	7.8 (3.9)	-4.4 (3.5)	-2.0 (7.1)	1.9 (-0.0,3.8)
Calprotectin, mg/kg [CD,UC]	1375 (398,3000)	1096 (248,3000)	-1727 (1631)	-1230 (1285)	64.2 (-463,591)
Psoriasis Area and Severity Index (PASI)[Ps]	10.1 (4.8)	9.7 (4.1)	-6.5 (4.3)	-6.4 (4.0)	0.0 (-2.6,2.7)

	Baseline	Baseline	Week 30	Week 30	Difference at 30 weeks (95% CI)
	Therapeutic drug monitoring	Standard therapy	Therapeutic drug monitoring	Standard therapy	
	Observed values		Change from baseline		
Quality of life and utility endpoints					
SF-36 physical function	64.0 (25.0)	66.1 (22.5)	12.9 (22.7)	11.4 (21.6)	-1.3 (-4.6,2.1)
SF-36 role limitation physical	22.3 (32.2)	26.4 (37.1)	27.2 (44.3)	25.8 (45.3)	0.7 (-6.7,8.1)
SF-36 pain	51.0 (21.5)	54.5 (21.2)	16.7 (27.5)	14.7 (27.7)	0.7 (-3.4,4.8)
SF-36 general health	49.9 (19.6)	50.9 (19.6)	3.9 (17.1)	5.4 (17.5)	1.8 (-1.3,4.9)
SF-36 emotional well-being	68.0 (17.2)	72.0 (17.5)	5.6 (16.3)	4.7 (15.3)	1.2 (-1.4,3.9)
SF-36 role limitation emotional	51.5 (42.8)	57.7 (44.7)	14.4 (49.8)	10.1 (51.0)	0.7 (-6.9,8.3)
SF-36 social functioning	60.4 (26.9)	63.4 (26.5)	15.2 (24.9)	14.3 (26.7)	0.9 (-2.9,4.8)
SF-36 energy/fatigue	31.5 (19.1)	35.3 (19.9)	13.5 (20.8)	14.8 (20.9)	2.8 (-1.0,6.6)
SF-36 physical component summary score	38.4 (8.7)	38.8 (8.6)	6.0 (10.0)	6.0 (9.5)	-0.0 (-1.5,1.5)
SF-36 mental component summary score	43.0 (11.0)	45.2 (11.5)	4.0 (11.5)	3.4 (10.4)	0.9 (-0.8,2.7)
EQ5D VAS	52.7 (20.0)	54.5 (20.3)	14.4 (26.6)	12.6 (24.3)	-0.3 (-4.2,3.6)
EQ5D index (UK weighted)	0.6 (0.3)	0.5 (0.3)	0.1 (0.3)	0.2 (0.3)	0.0 (-0.0,0.1)
WPAI Percent work missed due to specified problem (Absenteeism)	34.0 (41.3)	30.4 (36.9)	-19.2 (43.8)	-14.9 (36.9)	3.0 (-3.9,10.0)
WPAI Percent impairment while working due to specified problem (Presentism)	38.4 (23.8)	36.7 (25.3)	-19.3 (25.7)	-14.3 (27.8)	-1.0 (-6.5,4.5)
WPAI Percent overall work impairment due to specified problem	44.0 (26.0)	44.1 (28.8)	-22.5 (27.7)	-17.0 (33.0)	0.7 (-6.0,7.3)
WPAI Percent activity impairment due to specified problem	53.2 (26.2)	49.8 (25.4)	-19.5 (28.9)	-19.7 (28.2)	-1.8 (-6.2,2.7)
Pain VAS[RA/PsA/SpA]	51.7 (20.3)	50.8 (21.9)	-24.4 (28.0)	-20.5 (25.2)	3.4 (-2.1,8.9)
Fatigue VAS[RA/PsA/SpA]	62.8 (25.4)	59.3 (26.1)	-18.6 (26.2)	-19.4 (28.1)	-2.8 (-7.5,1.8)
RAID Total score[RA]	4.8 (2.2)	4.5 (2.1)	-1.4 (2.0)	-1.2 (2.4)	0.1 (-0.7,0.9)
PsAID Total score[PsA]	5.1 (1.3)	4.9 (1.6)	-1.8 (1.7)	-1.7 (1.6)	-0.1 (-1.0,0.8)
IBDQ Total score[CD/UC]	133.2 (35.2)	141.5 (30.4)	35.2 (33.1)	34.0 (31.2)	4.0 (-4.5,12.6)
DLQI Total score[Ps]	8.4 (9.6)	6.9 (6.5)	-3.4 (5.9)	-4.3 (5.1)	-0.9 (-2.4,0.6)

			Week 30 No. (%)	Week 30 No. (%)	Difference at 30 weeks (95% CI)
			Therapeutic drug monitoring	Standard therapy	
State variables					
Measures of disease activity					
DAS28 remission status[RA/PsA]			26 (48.1)	33 (52.4)	4.2% (-13.8,22.3)
SDAI remission status[RA/PsA]			18 (34.0)	20 (31.7)	-2.1% (-19.2,15.0)
ACR/EULAR remission status[RA/PsA]			15 (27.8)	19 (30.2)	2.4% (-14.1,18.8)
ASDAS remission status[SpA]			23 (40.4)	21 (36.8)	-3.5% (-21.4,14.4)
PMS remission status[UC]			25 (65.8)	29 (70.7)	4.9% (-15.6,25.5)
HBI remission status[CD]			17 (60.7)	17 (65.4)	4.7% (-21.1,30.4)
PASI remission status[Ps]			9 (75.0)	6 (66.7)	-8.3% (-47.7,31.0)
EULAR response[RA/PsA] EULAR good response			25 (46.3)	34 (54.0)	5.2 (-10.5-20.8)
EULAR response[RA/PsA] EULAR moderate response			12 (22.2)	18 (28.6)	9.4% (9.1,27.9)
Remission at week 14			91 (48.9)	104 (54.2)	5.9% (-3.7-15.6)
Improvement at week 14			166 (87.4)	179 (87.6)	0.3% (-6.6-7.3)
ACR20 [RA/PsA]			29 (55.8)	37 (58.7)	3.0% (-15.2,21.1)
ACR50 [RA/PsA]			19 (36.5)	27 (42.9)	6.3% (-11.5,24.2)
ACR70 [RA/PsA]			12 (23.1)	17 (27.0)	3.9% (-12.0,19.7)
PASI mild to moderate disease [a]			10 (83.3)	9 (100)	
PASI complete clearance [a]			1 (8.3)	0 (0)	

[a] Results not reported. Analyses not applicable due to small numbers.
Data are mean (SD) at baseline and mean (SD) change (follow-up minus baseline) from baseline. Difference is adjusted treatment difference at week 30 with 95% confidence interval. Data are N (%) of state at study end. Difference is adjusted treatment difference at study end. Details regarding the assessments are given in eTable 3.

Abbreviations: CI, Confidence interval; DAS28, Disease Activity Score in 28 joints with ESR; SDAI, Simplified Disease Activity Index; MHAQ, Modified Health Assessment Questionnaire; DAPSA, Disease Activity in Psoriatic Arthritis; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; ASDAS, Ankylosing Spondylitis Disease Activity Score; PMS, Partial Mayo Score; HBI, Harvey-Bradshaw Index; PASI, Psoriasis Area and Severity Index; SF-36, RAND Short Form Health Survey t-scores using Norwegian norms; EQ-5D,EuroQol questionnaire time trade-off United Kingdom weighted; VAS, visual analogue scale; WPAI,Work Productivity And Impairment questionnaire; RAID,Rheumatoid Arthritis Impact of Disease; PsAID,Psoriatic Arthritis Impact of Disease; IBDQ,Inflammatory Bowel Disease Questionnaire; DLQI,Dermatology Life Quality Index; ACR/EULAR,American College of Rheumatology/European League Against Rheumatism;,

eTable 8. Secondary Efficacy Endpoints (by Disease Subgroup)

	Baseline		Week 30		Difference at 30 weeks (95% CI)
	Therapeutic drug monitoring	Standard therapy	Therapeutic drug monitoring	Standard therapy	
	Observed values		Change from baseline		
Measures of disease activity					
Physician's global assessment of disease activity (VAS 0-100)					
Rheumatoid arthritis	40.5 (18.7)	39.3 (20.9)	-23.6 (23.1)	-21.5 (27.8)	2.9 (-4.3,10.1)
Spondyloartritis	40.9 (19.5)	40.3 (21.4)	-26.2 (23.3)	-25.0 (25.2)	1.2 (-4.4,6.8)
Psoriatic arthritis	42.3 (23.1)	42.9 (19.7)	-23.3 (27.7)	-28.9 (22.2)	-5.3 (-14.6,4.0)
Ulcerative colitis	59.7 (19.6)	58.8 (20.5)	-40.5 (25.3)	-34.5 (30.3)	5.6 (-3.9,15.2)
Crohn's disease	53.1 (17.4)	53.3 (18.9)	-25.6 (24.4)	-25.9 (34.4)	0.8 (-9.4,10.9)
Psoriasis	43.5 (25.3)	50.7 (15.6)	-28.6 (25.7)	-34.0 (16.9)	0.8 (-12.6,14.3)
Patient's global assessment of disease activity (VAS 0-100)					
Rheumatoid arthritis	51.9 (24.8)	51.9 (24.9)	-22.6 (21.1)	-20.1 (29.7)	3.0 (-6.2,12.2)
Spondyloartritis	61.1 (20.0)	57.3 (18.4)	-32.5 (31.8)	-24.2 (23.6)	6.1 (-2.0,14.1)
Psoriatic arthritis	52.5 (19.3)	60.4 (20.7)	-18.6 (29.2)	-28.1 (25.1)	-2.3 (-14.0,9.5)
Ulcerative colitis	67.6 (21.6)	61.9 (23.8)	-44.7 (27.5)	-34.4 (28.9)	5.5 (-4.5,15.4)
Crohn's disease	62.1 (22.3)	51.4 (23.7)	-27.1 (28.3)	-16.0 (31.4)	0.6 (-11.7,12.9)
Psoriasis	57.0 (34.4)	61.9 (23.4)	-29.3 (37.4)	-25.4 (25.5)	5.0 (-10.6,20.6)
Erythrocyte sedimentation rate, mm/h					
Rheumatoid arthritis	15.0 (9.0-27.0)	14.5 (6.0-24.0)	-9.1 (12.3)	-6.3 (11.3)	1.8 (-2.7,6.2)
Spondyloartritis	17.0 (6.0-35.0)	14.5 (6.0-27.0)	-14.5 (23.0)	-10.4 (17.5)	0.4 (-3.5,4.3)
Psoriatic arthritis	14.5 (7.0-23.0)	15.0 (6.0-27.0)	-2.9 (24.8)	-7.7 (17.1)	-5.1 (-11.8,1.6)
Ulcerative colitis	11.0 (4.0-20.0)	11.0 (3.0-21.0)	-6.8 (16.4)	-4.3 (9.6)	0.8 (-3.5,5.1)
Crohn's disease	15.0 (9.0-27.0)	14.5 (6.0-24.0)	-9.1 (12.3)	-6.3 (11.3)	1.8 (-2.7,6.2)
Psoriasis	5.5 (3.0-9.0)	2.0 (1.0-3.0)	5.0 (9.3)	0.6 (1.5)	-0.7 (-5.0,3.6)
C-reactive protein, mg/L					
Rheumatoid arthritis	4.0 (2.0-7.0)	4.0 (1.0-9.0)	0.2 (11.4)	-2.4 (7.8)	-2.1 (-4.6,0.3)
Spondyloartritis	5.0 (2.0-16.0)	5.5 (2.0-16.0)	-10.1 (25.4)	-8.5 (15.3)	1.2 (-1.4,3.8)
Psoriatic arthritis	3.5 (2.0-11.5)	6.5 (1.0-24.0)	-6.5 (13.8)	-10.7 (14.5)	-2.6 (-6.4,1.2)
Ulcerative colitis	4.0 (1.0-24.0)	4.0 (1.0-20.0)	-8.2 (31.1)	-6.9 (13.8)	-3.4 (-8.5,1.7)
Crohn's disease	12.0 (7.0-17.0)	7.0 (1.0-16.5)	-9.1 (13.7)	-1.3 (18.6)	4.0 (-1.2,9.3)
Psoriasis	1.0 (1.0-2.0)	1.0 (1.0-3.0)	0.8 (3.6)	-1.0 (1.6)	-1.7 (-4.8,1.3)

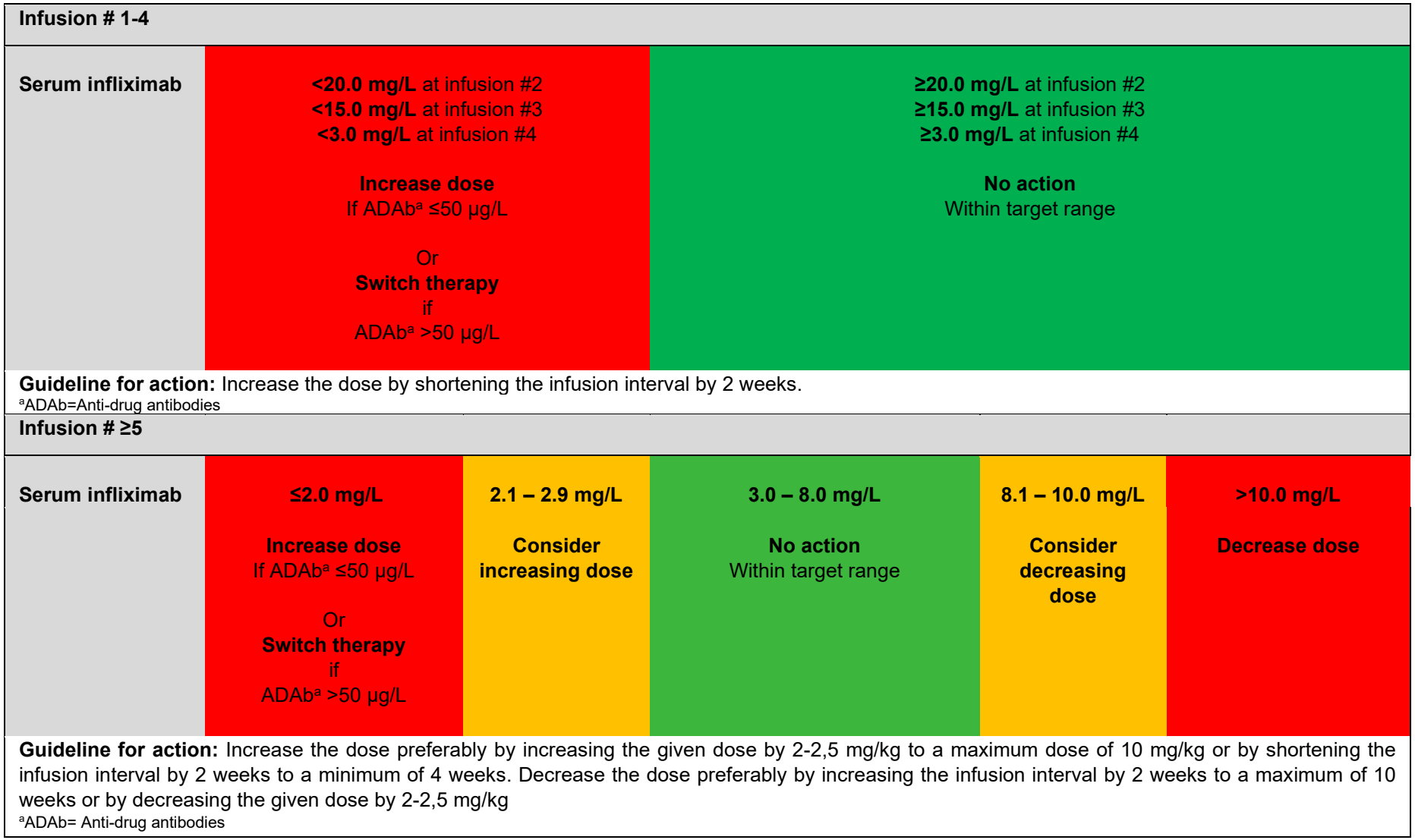
Data are mean (SD) at baseline and mean (SD) change (follow-up minus baseline) from baseline. Difference is adjusted treatment difference at week 30 with 95% confidence interval. Difference is adjusted treatment difference at study end. Details regarding the assessments are given in eTable 3.
Abbreviations: CI, Confidence interval; VAS, Visual analogue scale.

eTable 9. Infliximab Discontinuation

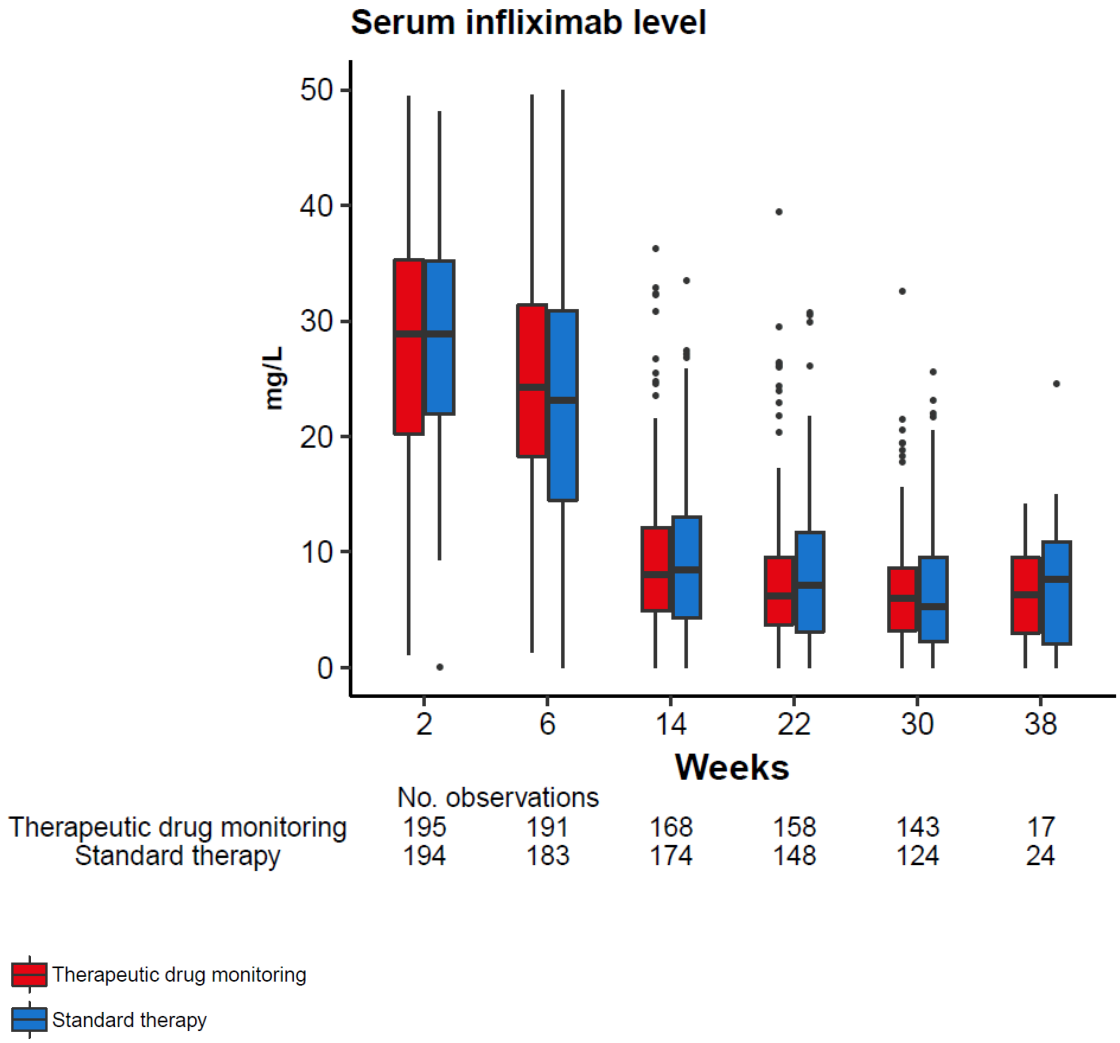
	Therapeutic drug monitoring (n=198)	**Standard therapy** (n=200)
Infliximab discontinuation	59 (30)	43 (22)
Discontinuation due to adverse events	11 (6)	16 (8)
Discontinuation according to algorithm (Anti-drug antibody formation)	19 (10)	-
Discontinuation due to no improvement at week 14	9 (5)	9 (5)
Discontinuation due to loss of response	11 (6)	11 (6)
Discontinuation due to intercurrent disease	6 (3)	3 (2)
Other	3 (2)	4 (2)

Data are No. (%).

eFigure 1. Treatment Algorithm in the Therapeutic Drug Monitoring Group

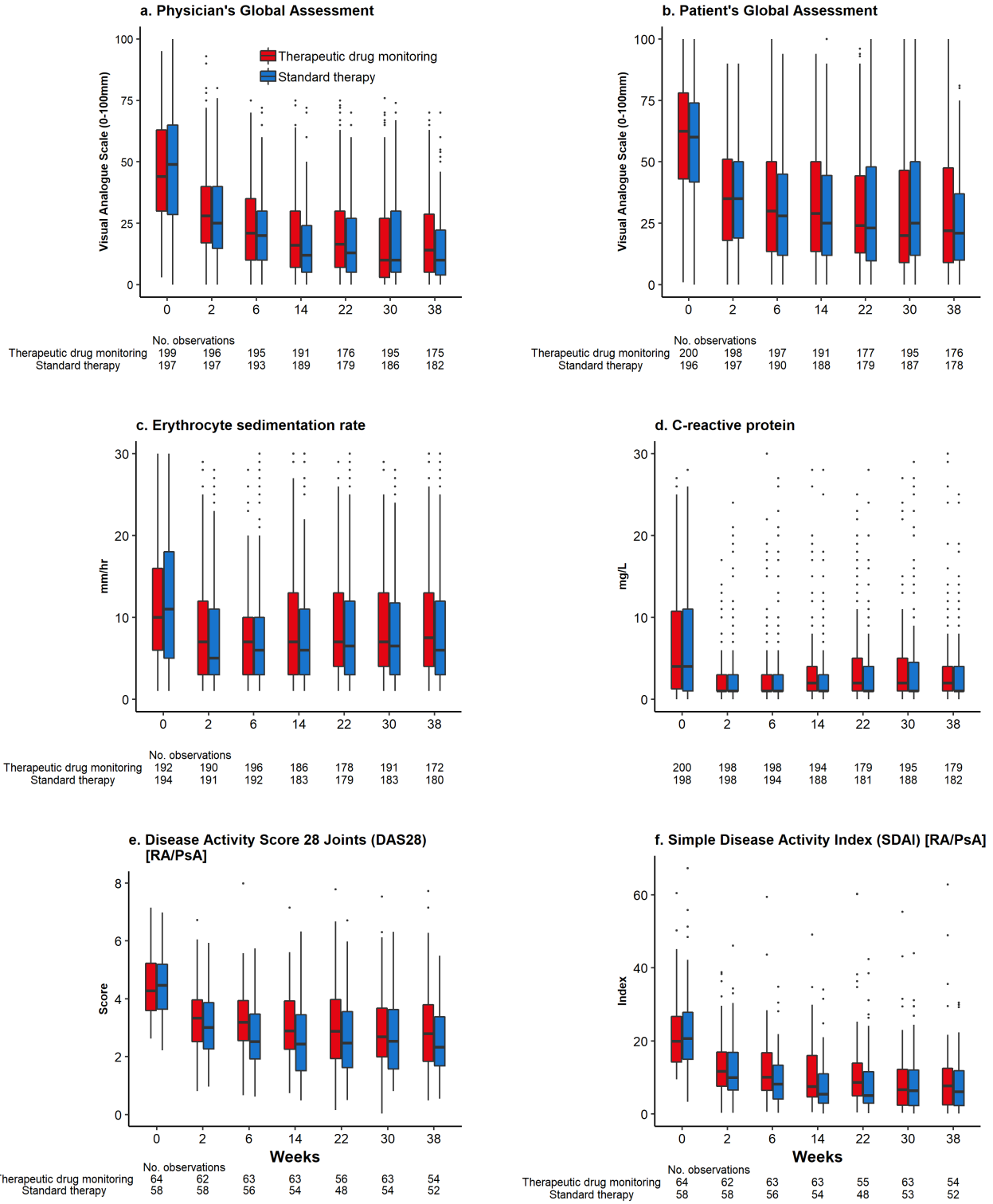


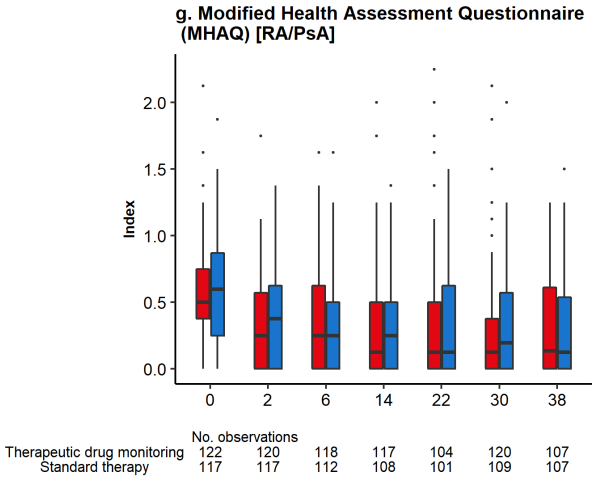
eFigure 2. Serum Infliximab Level

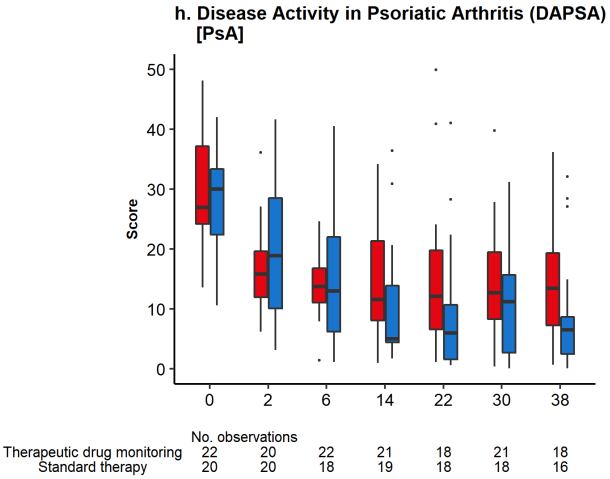


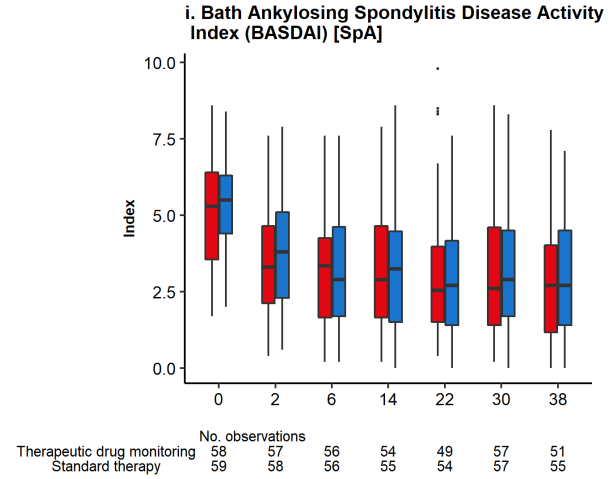
Red color denotes the therapeutic drug monitoring group, blue color denotes the standard therapy group. Boxes mark first and third quartiles (IQR), the band inside the box is the second quartile (the median), while the whiskers indicate the highest and lowest values within 1.5 x the interquartile range. Dots denote individual patients (outliers).

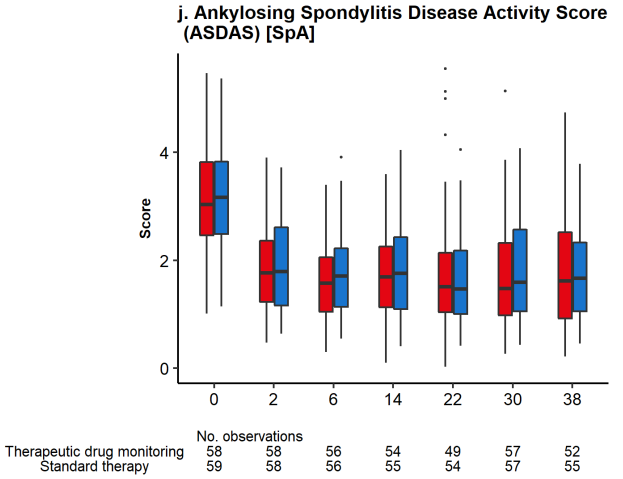
eFigure 3. Secondary Efficacy Outcomes (Box and Whiskers Plots)

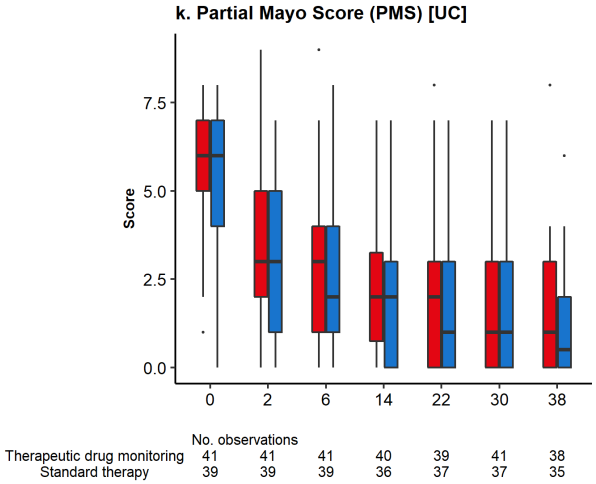


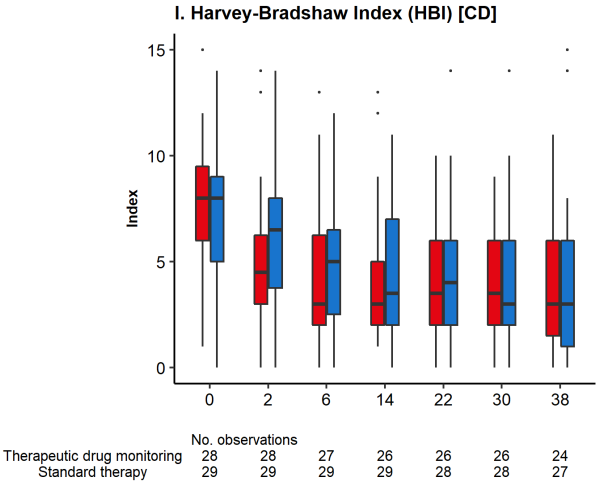


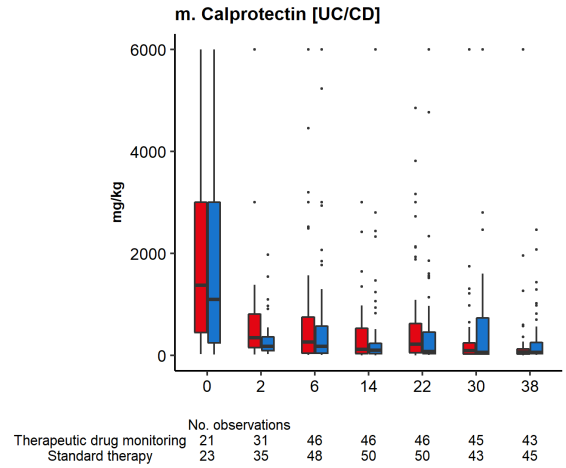


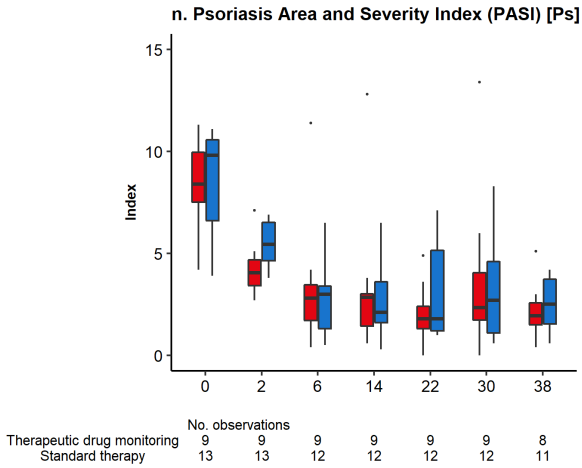


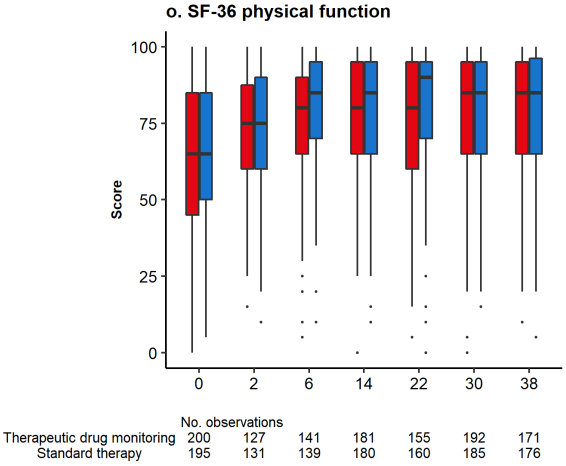


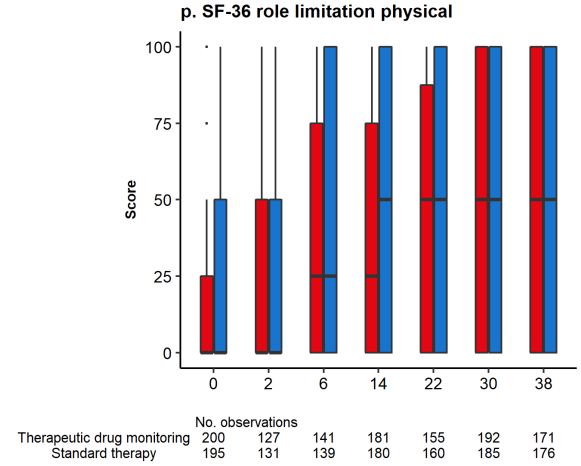


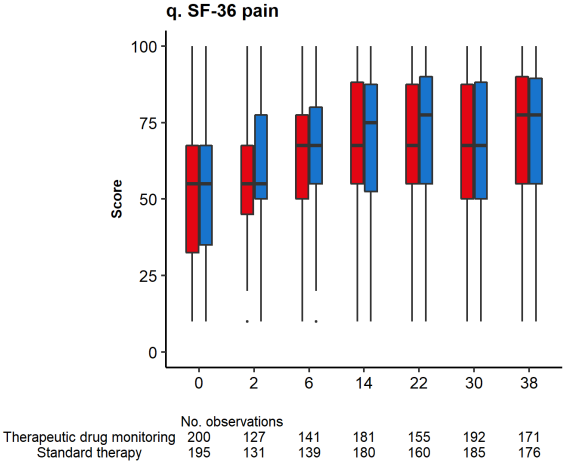


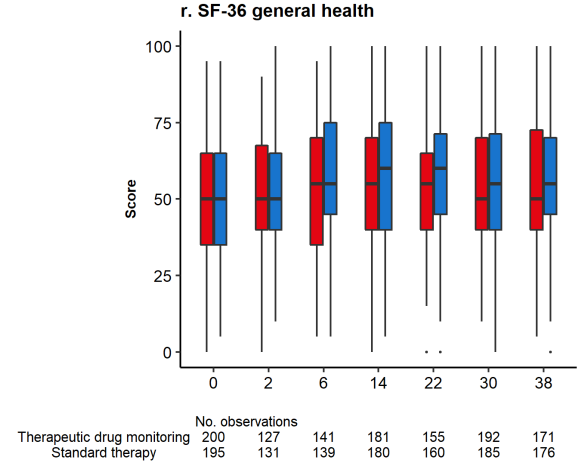


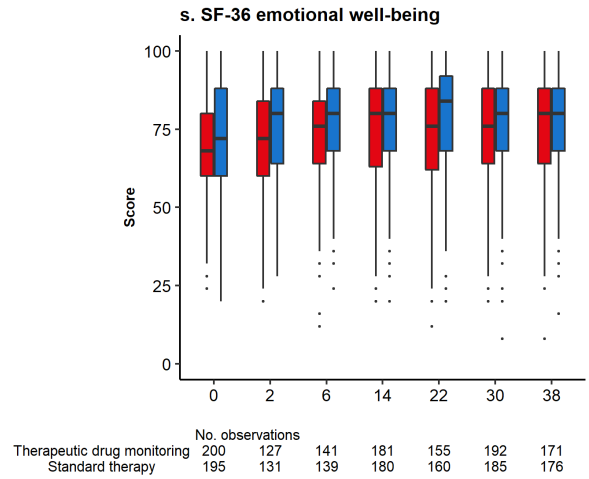


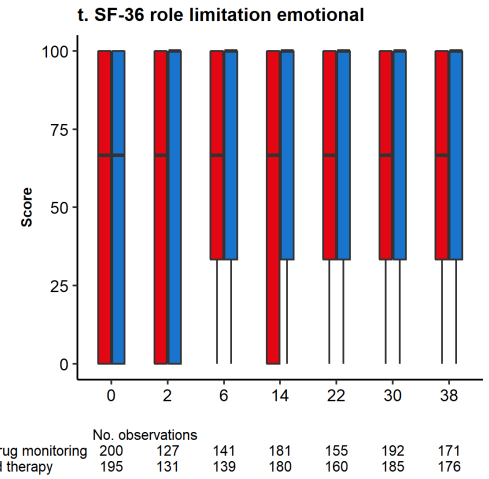


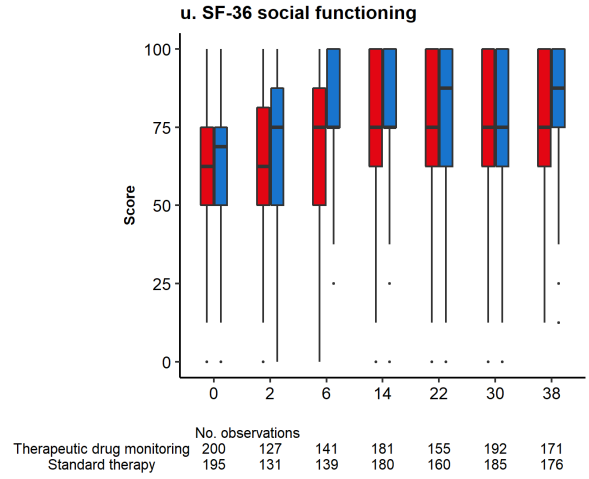


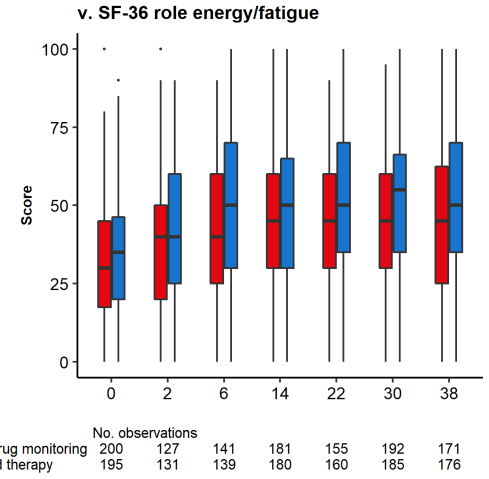


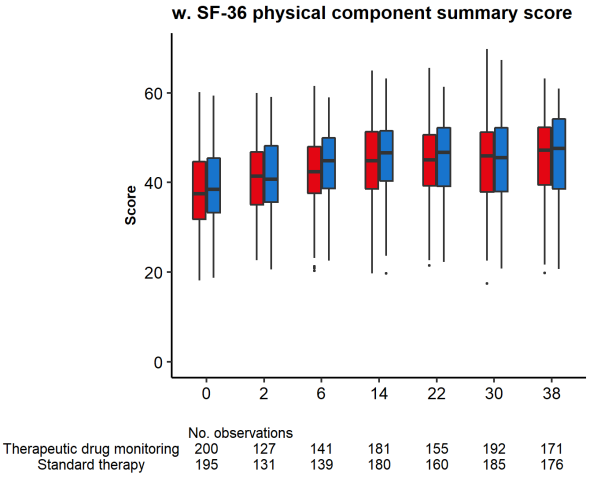


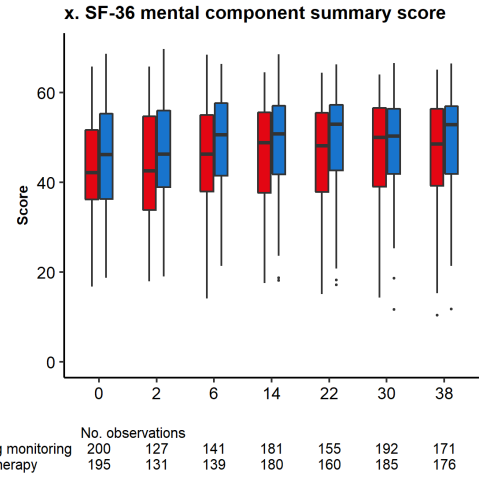


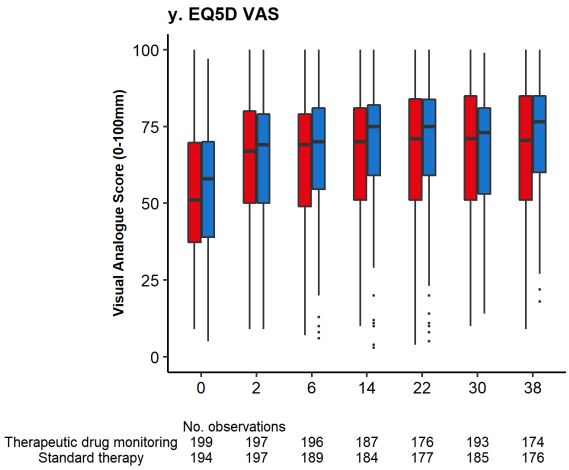


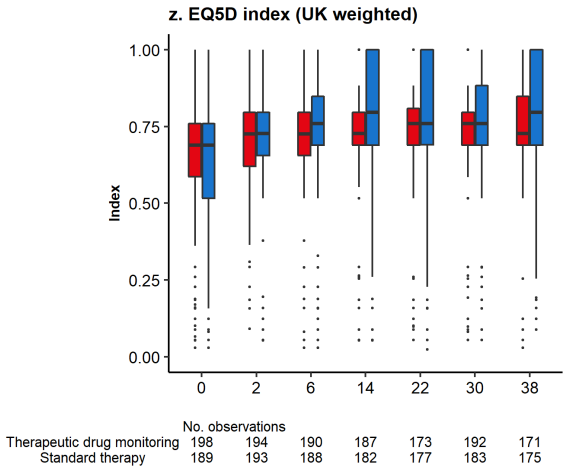


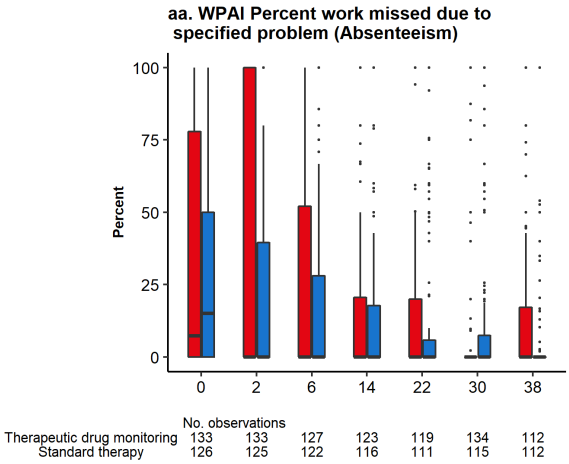


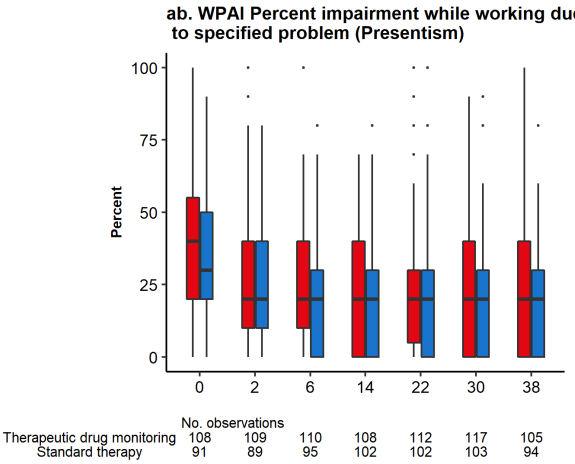


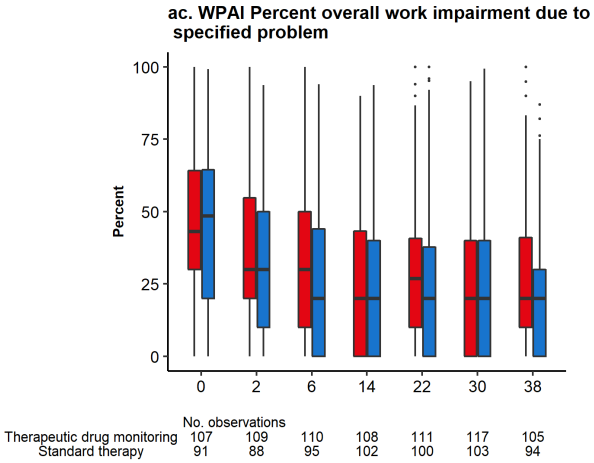


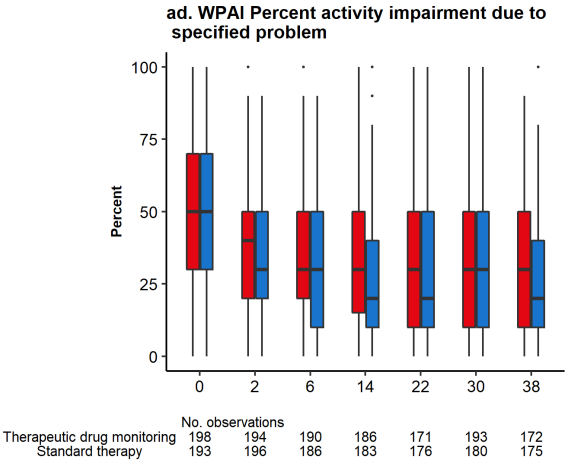


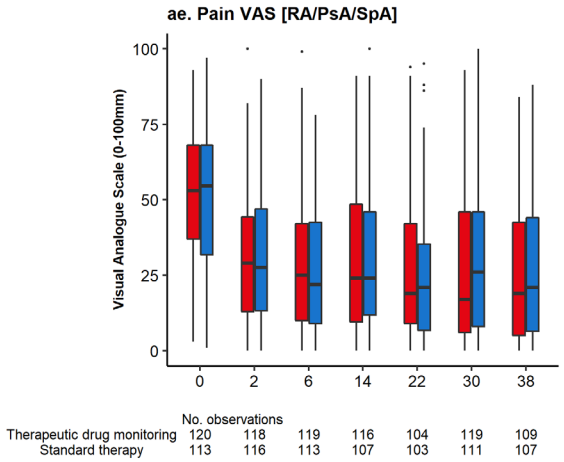


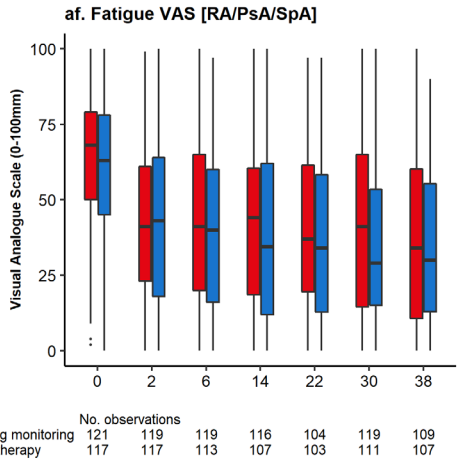


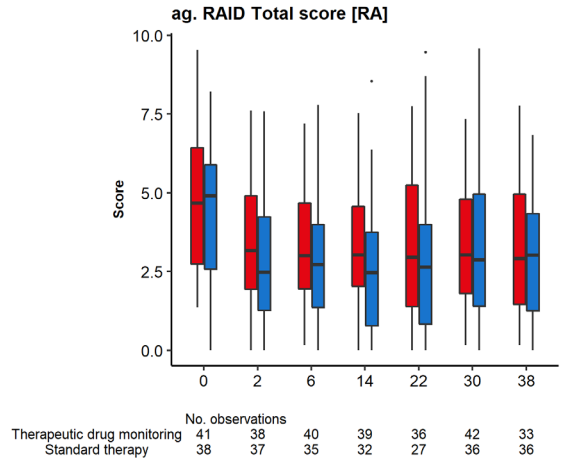


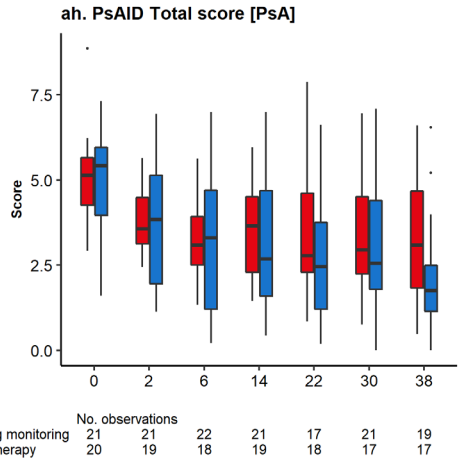


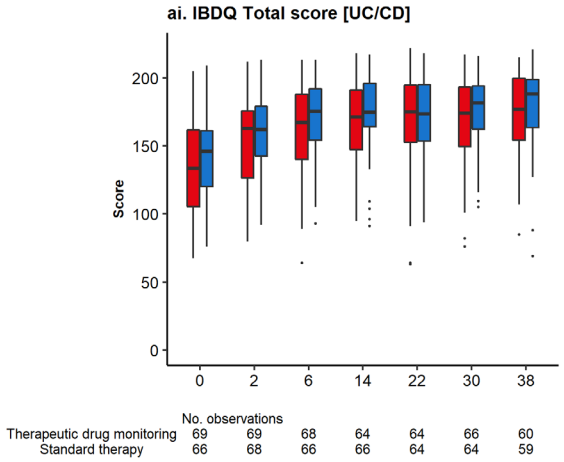


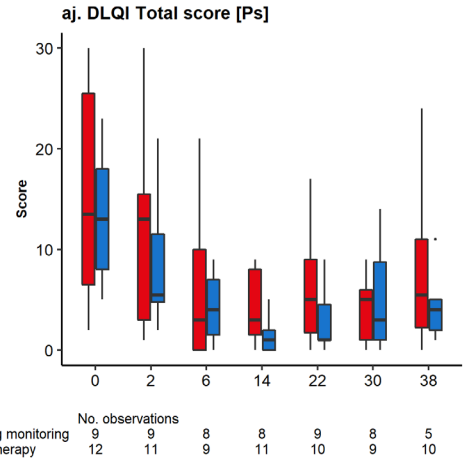


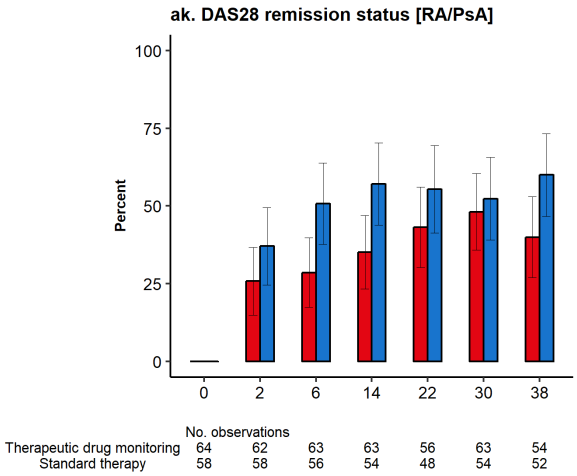






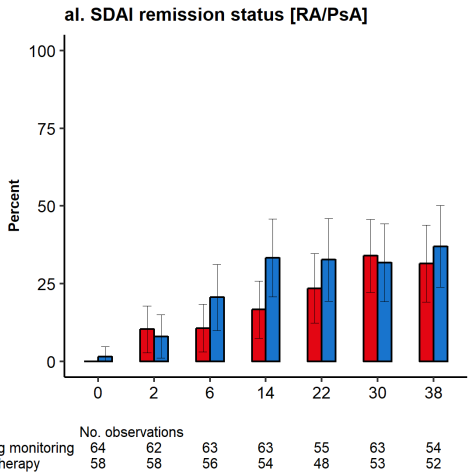






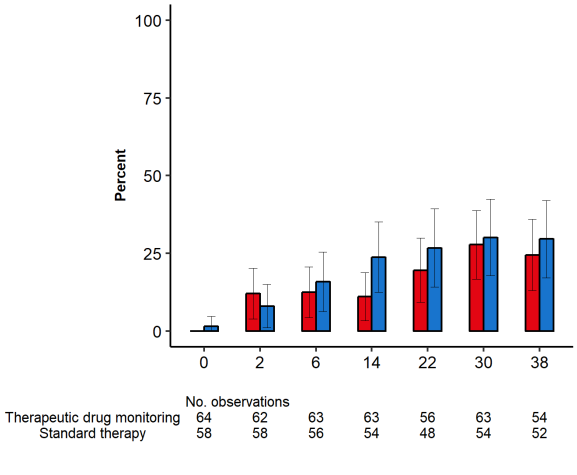
No. observations

Therapeutic drug monitoring	64	62	63	63	56	63	54
Standard therapy	58	58	56	54	48	54	52



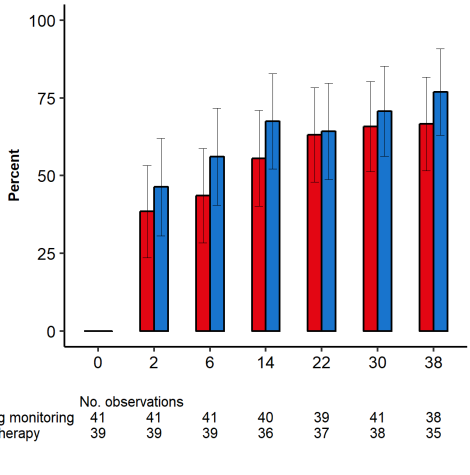
No. observations

Therapeutic drug monitoring	64	62	63	63	55	63	54
Standard therapy	58	58	56	54	48	53	52



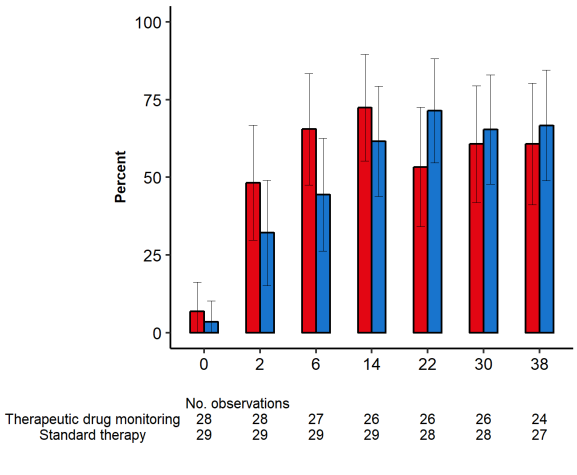
No. observations

Therapeutic drug monitoring	64	62	63	63	56	63	54
Standard therapy	58	58	56	54	48	54	52



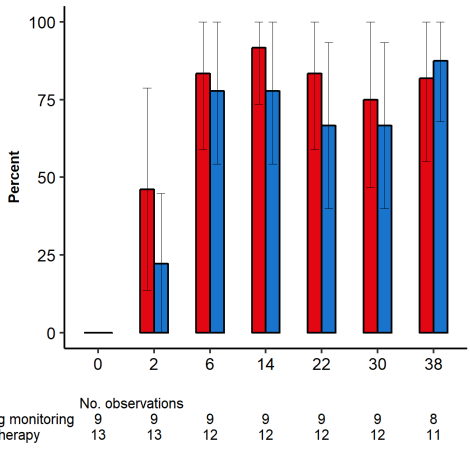
No. observations

Therapeutic drug monitoring	41	41	41	40	39	41	38
Standard therapy	39	39	39	36	37	38	35



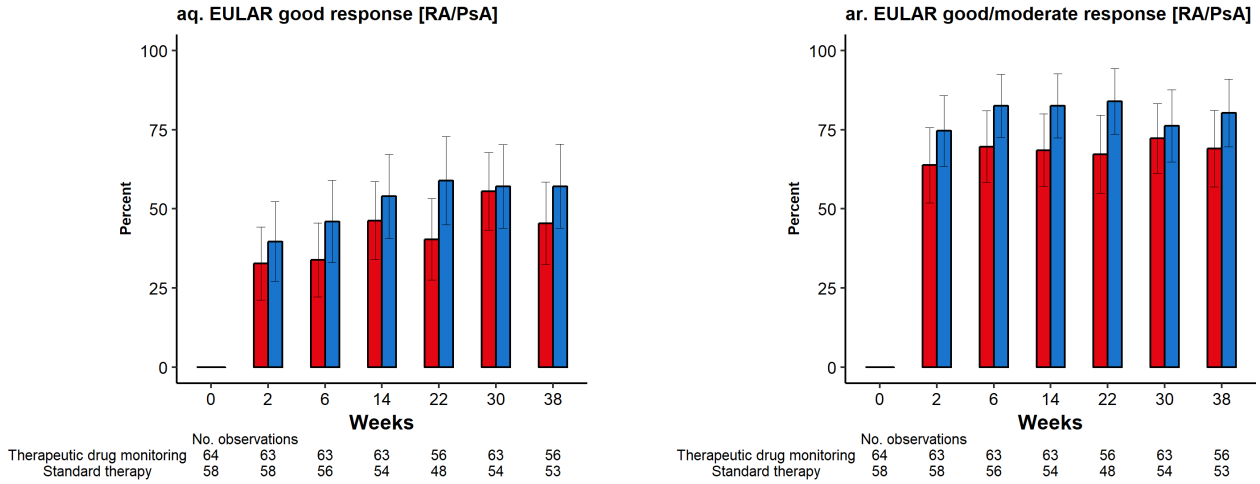
No. observations

Therapeutic drug monitoring	28	28	27	26	26	26	24
Standard therapy	29	29	29	29	28	28	27



No. observations

Therapeutic drug monitoring	9	9	9	9	9	9	8
Standard therapy	13	13	12	12	12	12	11



Red color denotes the therapeutic drug monitoring group, blue color denotes the standard therapy group. Boxes mark first and third quartiles (Interquartile range, IQR), the band inside the box is the second quartile (the median), while the whiskers indicate the highest and lowest values within 1.5 x the interquartile range. Dots denote individual patients (outliers).

a. Physician's global assessment of disease activity (Visual Analogue Scale (VAS) (0-100), b. Patient's global assessment of disease activity activity (VAS 0-100), c. Erythrocyte sedimentation rate, mm/h, d. C-reactive protein, mg/L, e. Disease Activity Score 28 joints (DAS28) assessed in RA and PsA, f. Simple Disease Activity Index (SDAI) assessed in RA and PsA, g. Modified Health Assessment Questionnaire (mHAQ) assessed in RA, PsA and SpA, h. Disease Activity in Psoriatic Arthritis (DAPSA) assessed in PsA, i. Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) assessed in SpA, j. Ankylosing Spondylitis Disease Activity Score (ASDAS) assessed in SpA, k. Partial Mayo Score assessed in UC, l. Harvey−Bradshaw Index (HBI) assessed in CD, m. Fecal Calprotectin mg/kg assessed in UC and CD, n. Psoriasis Area and Severity Index (PASI) assessed in Ps, o. Short Form Health Survey t-scores using Norwegian norms (SF-36) physical function, p. SF−36 role limitation physical, q. SF−36 pain, r. SF−36 general health, s. SF−36 emotional well−being, t. SF−36 role limitation emotional, u. SF−36 social functioning, v. SF−36 role energy/fatigue, w. SF−36 physical component summary score, x. SF−36 mental component summary score, y. EuroQol questionnaire time trade-off United Kingdom weighted (EQ5D) visual analogue scale (VAS), z. EQ5D index aa. Work Productivity and Impairment questionnaire (WPAI) Percent work missed due to specified problem (Absenteeism), ab. WPAI Percent impairment while working due to specified problem (Presentism), ac. WPAI Percent overall work impairment due to specified problem, ad. WPAI Percent activity impairment due to specified problem, ae. Pain (VAS 0-100) assessed in RA, PsA and SpA, af. Fatigue (VAS 0-100) assessed in RA, PsA and SpA, ag. Rheumatoid Arthritis Impact of Disease total score (RAID) assessed in RA, ah. Psoriatic Arthritis Impact of Disease total score (PSAID) assessed in PsA, ai. Inflammatory Bowel Disease Questionnaire total score (IBDQ) in UC and CD, aj. Dermatology Life Quality Index total score (DLQI) in Ps and PsA, ak.Disease Activity Score 28 (DAS28) joints remission assessed in RA and PsA,
al. Simple Disease Activity Index (SDAI) remission status assessed in RA and PsA, am. ACR/EULAR remission status assessed in RA and PsA, an. Partial Mayo Score (PMS) remission status assessed in UC, ao. Harvey−Bradshaw Index (HBI) remission status assessed in CD, ap. Psoriasis Area and Severity Index (PASI) remission status assessed in Ps, aq.EULAR good response assessed in RA and PsA, ar. EULAR moderate response assessed in RA and PsA
Extended information regarding the endpoints is given in eTable 3 including range, anchors and clinical meaning.

Abbreviations: VAS, Visual analogue scale; RA, Rheumatoid arthritis; PsA, psoriatic arthritis; SpA, spondyloartritis; UC, ulcerative colitis; CD, Crohn disease, Ps, psoriasis.

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