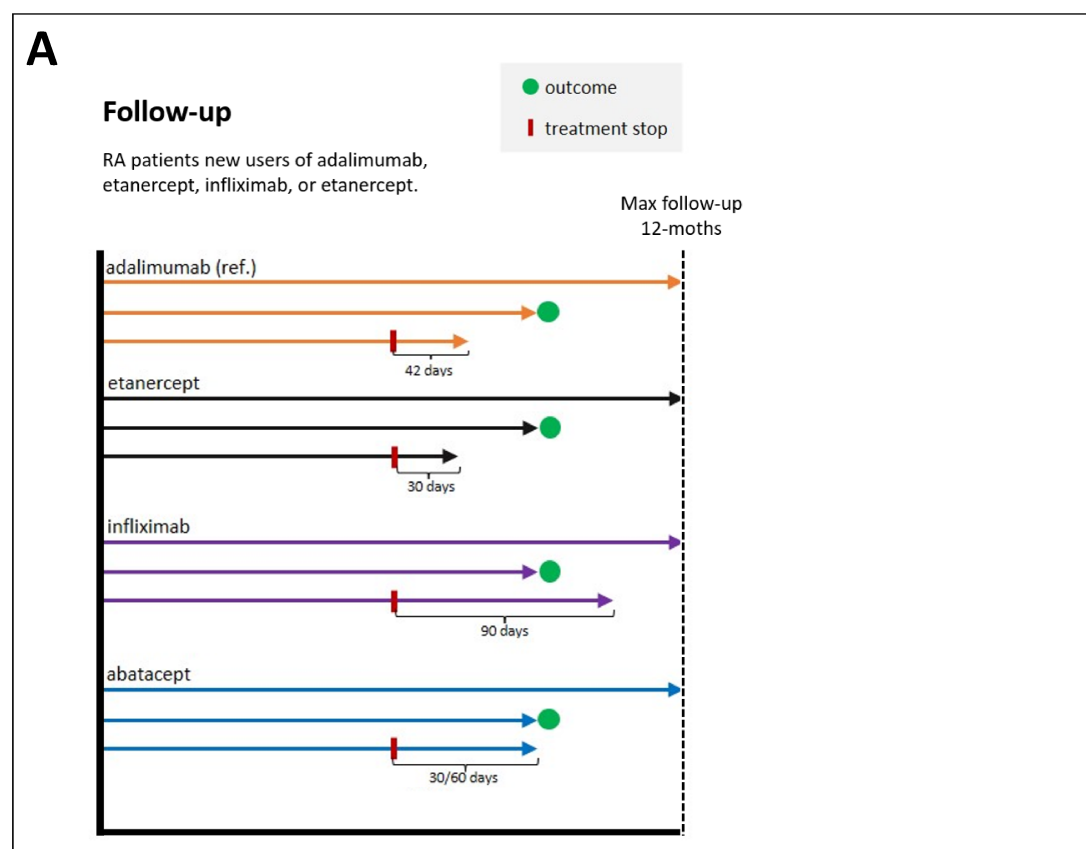


Supplemental Material

Comparative effectiveness of biologics in patients with rheumatoid arthritis stratified by body mass: a cohort study in a Swiss registry

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B	Dosing interval + 1 month:	Arnold et al. 2021¹	Chosen time
Adalimumab	7 or 14 days + 1 month = 44 days	42 days	42 days
Etanercept	3.5 or 7 days + 1 month = 37 days	30 days	30 days
Infliximab	56 days + 1 month = 86 days	90 days	90 days
Abatacept s.c.	7 days + 1 month = 37 days	30 days	30 days
Abatacept i.v.	4 weeks + 1 month = 60 days	60 days	60 days

Notes on administration regimen (adult RA patients):

- Adalimumab: 40mg s.c. every 2 weeks 40mg. If monotherapy, possibly 40mg once a week or 80mg every two weeks.²
- Etanercept: 25mg s.c. twice per week or 50mg once per week.³
- Infliximab: 3mg/kg i.v. at 0, 2, and 6 weeks, and subsequently every 8 weeks. If inadequate response, possibility to increase dose gradually by 1.5mg/kg until a maximum of 7.5 mg/kg every 8 weeks, or alternatively 3mg7kg every 4 weeks.⁴
- Abatacept s.c.: 125mg once per week. (Possibly initially start with i.v.).⁵
- Abatacept i.v.: 500-1000mg (depending on body weight) i.v. at 0, 2 and 4 weeks, and subsequently every 4 weeks. ⁵

References:

- Arnold S, Jaeger VK, Scherer A, Ciurea A, Walker UA, Kyburz D. Discontinuation of biologic DMARDs in a real-world population of patients with rheumatoid arthritis in remission: outcome and risk factors. *Rheumatology (Oxford)* 2021; ; keab343.
- Adalimumab - Humira - compendium.ch. <https://compendium.ch/product/1401359-humira-inj-los-20-mg-0-2ml> (accessed Nov 22, 2021).
- Etanercept - Enbrel - compendium.ch. <https://compendium.ch/product/1067426-enbrel-inj-los-25-mg-0-5ml> (accessed Nov 22, 2021).
- Infliximab - Remicade - compendium.ch. <https://compendium.ch/product/81983-remicade-trockensub-100-mg> (accessed Nov 22, 2021).
- Abatacept - Orencia - compendium.ch. <https://compendium.ch/product/1206897-orencia-inj-los-125-mg-ml-fertigspritze> (accessed Nov 22, 2021).

Supplemental Figure S1 Schematic representation of the follow-up (A) and rationale for the decision on drug-specific extended time-windows included as follow-up after record of treatment stop (B). The predefined time included as follow-up after record of treatment stop was drug dependent and it was based on previous literature (Arnold et al. 2021) and on our own calculations using the dosing interval as a proxy of half-life and adding 1-month to keep consistency with the 1-month gap allowed as treatment continuation. Abbreviations: RA rheumatoid arthritis; Max maximum;s.c. subcutaneous; i.v. intravenous; mg milligram(s); kg kilogram(s). See references in the section B of the figure.

Supplemental Table S1 Variables included in the multiple imputation. Multiple imputation was done separately for each cohort (obese, overweight, normal weight) and its respective outcome.

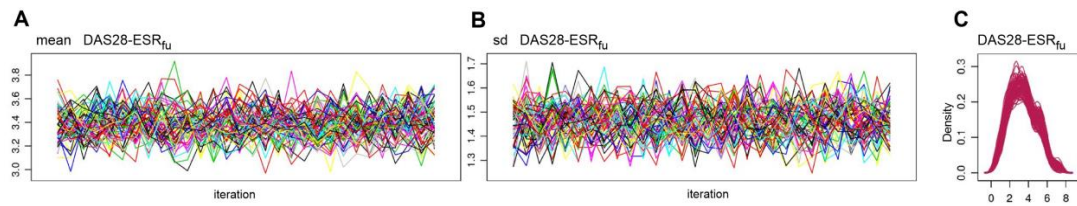
Variable	Included for DAS28	Included for RADAI-5	Included for individual	Predicted	Predictor	Method	Levels
Baseline variables:							
Biologic agent	yes	yes	yes	-	yes	-	adalimumab; etanercept; infliximab; abatacept.
Sex	yes	yes	yes	-	yes	-	female; male.
Age	yes	yes	yes	-	yes	-	-
BMI kg/m ²	yes	yes	yes	-	yes	-	-
Smoker ever before	yes	yes	yes	-	yes	-	yes; no.
Disease duration, years	yes	yes	yes	yes	yes	pmm	-
Year of index date	yes	yes	yes	-	yes	-	-
csDMARD at index	yes	yes	yes	-	yes	-	yes; no.
Prednisone at index	yes	yes	yes	-	yes	-	yes; no.
Seropositivity	yes	yes	yes	yes	yes	logreg	yes; no.
ESR	yes	yes	yes	yes	yes	pmm	-
CRP	-	-	yes	yes	yes	pmm	-
SJC28	yes	yes	yes	yes	yes	pmm	-
TJC28	yes	yes	yes	yes	yes	pmm	-
DAS28-ESR	yes	yes	yes	yes	yes ^a	passive imputation ^b	-
RADAI-5	yes	yes	yes	yes	yes	pmm	-
HAQ	yes	yes	yes	yes	yes	pmm	-
Follow-up variables:							
Treatment duration (time to stop or censor)	yes	yes	yes	-	yes	-	-
Treatment stop, or censor	yes	yes	yes	-	yes	-	censor; stop.
Reason for treatment stop (or switch)	yes	yes	yes	yes	yes	polyreg	adverse event; not effective; remission; other; stop/censor >3years.
DAS28-ESR _{fu}	yes	-	-	yes	yes	pmm	-
RADAI-5 _{fu}	-	yes	-	yes	yes	pmm	-
ESR _{fu}	-	-	yes	yes	yes	pmm	-
CRP _{fu}	-	-	yes	yes	yes	pmm	-
TJC28 _{fu}	-	-	yes	yes	yes	pmm	-
SJC28 _{fu}	-	-	yes	yes	yes	pmm	-
Outcome DAS28-remission	yes	-	-	yes	-	passive imputation [ESR _{fu} <2.6 → yes]	yes; no.
Outcome DAS28-LDA	yes	-	-	yes	-	passive imputation [ESR _{fu} <3.2 → yes]	yes; no.
Outcome RADAI-5	-	yes	-	yes	-	passive imputation [RADAI _{fu} ≤1.4 → yes]	yes; no.
Outcome ΔESR	-	-	yes	yes	-	passive imputation [ESR _{fu} - ESR _{baseline}]	-
Outcome ΔCPR	-	-	yes	yes	-	passive imputation [CRP _{fu} - CRP _{baseline}]	-
Outcome ΔTJC28	-	-	yes	yes	-	passive imputation [TJC28 _{fu} - TJC28 _{baseline}]	-
Outcome ΔSJC28	-	-	yes	yes	-	passive imputation [SJC28 _{fu} - SJC28 _{baseline}]	-

When unspecified, variables correspond to baseline data. Otherwise, it is specified as fu (follow-up) or outcome.

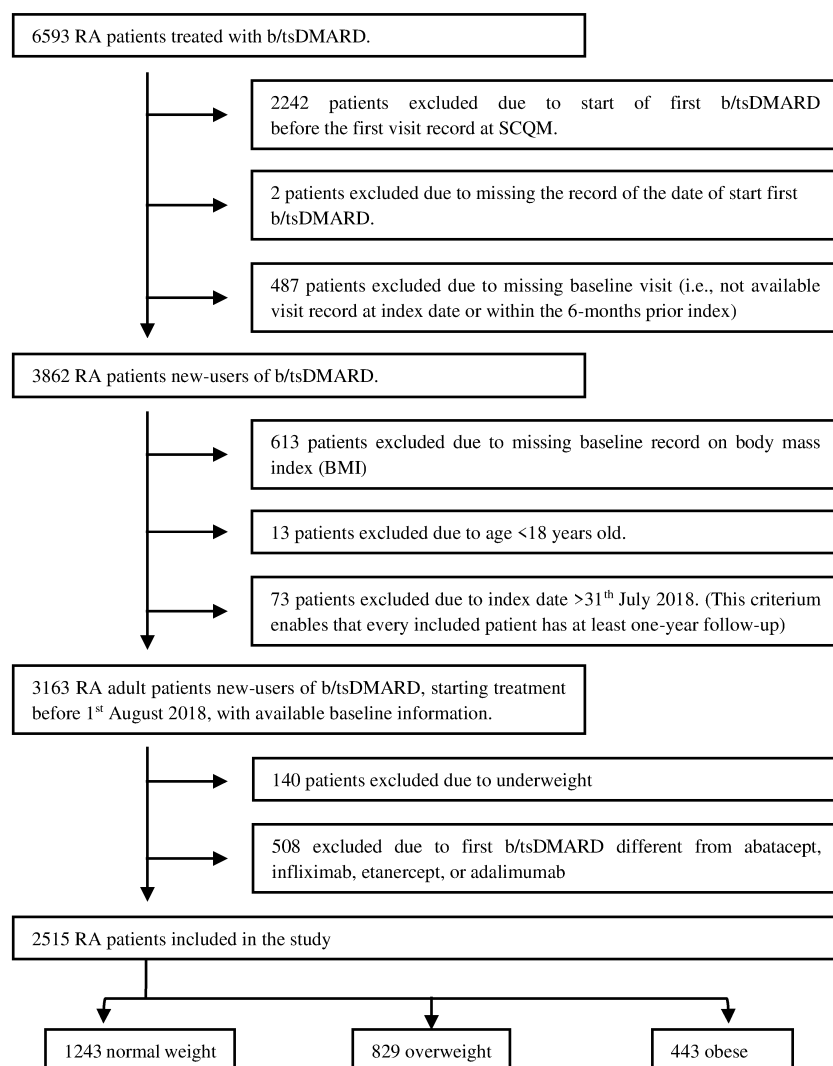
^a Baseline DAS28 not used as predictor for baseline ESR, TJC28, and SJC28.

^b Baseline DAS28 passive imputation: $DAS28ESR = (0.56 \times \sqrt{tjc28} + 0.28 \times \sqrt{sjc28} + 0.7 \times \ln(ESR)) \times 1.08 + 0.16$

Abbreviations: DAS28 28-joint Disease Activity Score; RADAI-5 Rheumatoid Arthritis Disease Activity Index-Five; BMI body mass index; csDMARD conventional synthetic disease modifying anti-rheumatic drug; ESR erythrocyte sedimentation rate; fu follow-up; logreg logistic regression; pmm predictive mean matching.



Supplemental Figure S2 Visualization of the coverage of the multiple imputation by chain equations (MICE) or confounder-adjusted response rate with attrition correction (CARRAC) of DAS28-ESR for the outcome DAS28-remission in the obese cohort with a maximum follow-up of 12-months, particularly the variation of the mean (A) and standard deviation (B) of the DAS28-ESR at follow-up. On the right (C), density plot depicting the distribution of the DAS28-ESR at follow-up. In C, the distribution in the original data set is depicted with a blue line, and distribution in each imputed dataset is depicted with a red line per dataset (Blue line not visible, covered by the red lines). Abbreviations: sd standard deviation; DAS28 28-joint Disease Activity Score; ESR erythrocyte sedimentation rate; fu follow-up.



Supplemental Figure S3 Flow chart of the inclusion and exclusion criteria. Abbreviations: RA rheumatoid arthritis; b/tsDMARD biologic or targeted synthetic disease modifying anti-rheumatic drug; SCQM Swiss Quality Management of Rheumatic Diseases; BMI body mass index.

Supplemental Table S3 Obese cohort, patient characteristics at baseline, stratified by first b/tsDMARD adalimumab, etanercept, infliximab, and abatacept.

Obese n	Adalimumab		p value	Infliximab		Abatacept	
	178	150		73	p value	42	p value
Women (%)	130 (73.0)	124 (82.7)	0.052	56 (76.7)	0.656	27 (64.3)	0.348
Age index (mean (SD))	56.60 (11.99)	56.98 (11.63)	0.777	55.86 (10.77)	0.644	59.27 (10.00)	0.183
RA duration, years (mean (SD))	6.72 (8.67)	7.75 (8.45)	0.285	7.92 (8.61)	0.331	5.80 (7.42)	0.531
missing/unknown	5 (2.8)	7 (4.7)		4 (5.5)		0 (0)	
Year of index date (mean (SD))	2007.85 (3.79)	2007.53 (4.56)	0.487	2005.68 (4.02)	<0.001	2013.19 (2.52)	<0.001
BMI kg/m ² (mean (SD))	33.90 (3.86)	33.79 (3.85)	0.794	33.65 (3.09)	0.621	33.91 (3.99)	0.987
High educational level (%)	11 (6.2)	<5	NA	<5	NA	<5	NA
missing/unknown	58 (32.6)	57 (38.0)		27 (37.0)		13 (31.0)	
Ever smoker (%)	49 (27.5)	41 (27.3)	1.000	11 (15.1)	0.053	22 (52.4)	0.004
csDMARD at index date (%)	134 (75.3)	96 (64.0)	0.036	60 (82.2)	0.307	33 (78.6)	0.804
Prednisone at index date (%)	66 (37.1)	60 (40.0)	0.669	41 (56.2)	0.008	18 (42.9)	0.605
Seropositive (%)	129 (72.5)	102 (68.0)	0.691	56 (76.7)	0.537	32 (76.2)	0.765
missing/unknown	20 (11.2)	21 (14.0)		8 (11.0)		1 (2.4)	
ESR (mean (SD))	24.22 (18.46)	23.73 (16.09)	0.809	29.43 (18.87)	0.053	22.00 (18.05)	0.518
missing/unknown	14 (7.9)	18 (12.0)		5 (6.8)		7 (16.7)	
CRP (mean (SD))	1.44 (1.20)	1.37 (1.42)	0.765	1.38 (1.08)	0.842	1.06 (0.97)	0.106
missing/unknown	105 (59.0)	88 (58.7)		54 (74.0)		6 (14.3)	
Tender joint counts 28 (mean (SD))	7.25 (6.92)	7.86 (6.75)	0.432	8.14 (7.20)	0.367	7.19 (6.66)	0.963
missing/unknown	8 (4.5)	11 (7.3)		2 (2.7)		5 (11.9)	
Swollen joint counts 28 (mean (SD))	6.75 (5.72)	6.63 (5.79)	0.865	7.38 (6.37)	0.449	5.73 (4.85)	0.317
missing/unknown	9 (5.1)	11 (7.3)		2 (2.7)		5 (11.9)	
Physician global disease activity (mean (SD))	4.94 (1.85)	4.93 (1.95)	0.950	5.29 (2.13)	0.344	4.09 (1.99)	0.024
missing/unknown	70 (39.33)	68 (45.33)		35 (47.95)		9 (21.43)	
DAS28-ESR (mean (SD))	4.40 (1.42)	4.54 (1.32)	0.406	4.72 (1.40)	0.118	4.18 (1.46)	0.399
missing/unknown	15 (8.43)	18 (12)		5 (6.85)		8 (19.05)	
DAS28-CRP (mean (SD))	4.45 (1.15)	4.36 (1.08)	0.648	3.78 (1.10)	0.026	4.06 (1.22)	0.113
missing/unknown	105 (58.99)	88 (58.67)		54 (73.97)		7 (16.67)	
RADAI-5 (mean (SD))	4.91 (2.04)	5.33 (2.18)	0.107	5.15 (2.12)	0.425	4.35 (2.36)	0.209
missing/unknown	28 (15.73)	35 (23.33)		8 (10.96)		16 (38.1)	
HAQ (mean (SD))	1.21 (0.74)	1.32 (0.73)	0.235	1.38 (0.77)	0.115	0.95 (0.70)	0.093
missing/unknown	23 (12.92)	30 (20)		6 (8.22)		15 (35.71)	
Osteoporosis	24 (13.5)	23 (15.3)	0.750	11 (15.1)	0.898	4 (9.5)	0.663
Fibromyalgia	<5	8 (5.3)	NA	<5	NA	<5	NA
Other rheumatological disease	61 (34.3)	62 (41.3)	0.229	25 (34.2)	1.000	8 (19.0)	0.084
Psoriasis	<5	<5	NA	<5	NA	<5	NA
Hyperlipidemia	15 (8.4)	11 (7.3)	0.873	5 (6.8)	0.871	10 (23.8)	0.011
Cardiac/cardiovascular event/disease	84 (47.2)	84 (56.0)	0.139	32 (43.8)	0.730	30 (71.4)	0.008
Cancer	7 (3.9)	<5	NA	<5	NA	<5	NA
Depression/anxiety	25 (14.0)	31 (20.7)	0.150	12 (16.4)	0.772	7 (16.7)	0.849
Diabetes	17 (9.6)	23 (15.3)	0.154	9 (12.3)	0.669	8 (19.0)	0.140
Fractures, surgeries, musculoskeletal system	15 (8.4)	8 (5.3)	0.381	7 (9.6)	0.960	<5	NA

Values are the number and column percentage, unless otherwise specified. Significance tests compare each drug of interest to Adalimumab, using chi-squared test for categorical variables, and t-test for continuous variables. For these tests, missing values did not function as a grouping variable.

Abbreviations: SD standard deviation; RA rheumatoid arthritis; BMI body mass index; csDMARD conventional synthetic disease modifying anti-rheumatic drug; ESR erythrocyte sedimentation rate; CRP C-reactive protein; DAS28-ESR 28-joint Disease Activity Score using erythrocyte sedimentation rate; DAS28-CRP 28-joint Disease Activity Score using C-reactive protein; RADAI-5 Rheumatoid Arthritis Disease Activity Index-Five; HAQ Health Assessment Questionnaire; NA not applicable.

Additional information on seropositivity and comorbidities: Seropositivity was calculated using both rheumatoid factor (RF) and anti-cyclic citrullinated peptide (anti-CCP) antibodies. Osteoporosis includes osteoporosis record or medication with bisphosphonates, denosumab, or teriparatide; Other rheumatological disease includes gout, lupus, osteoarthritis, Sjogren syndrome, degenerative spine disease, degenerative spondylopathy, other connective tissue disease, other rheumatological disease; Cardiac/cardiovascular event/disease includes myocardial infarction, heart infarct, heart failure, heart insufficiency, cardiac insufficiency, coronary heart disease, coronary cardiac disease, heart problem, heart disease, angina pectoris, rhythm disorder, artery intervention, stroke transient ischemic attack, cerebrovascular disease, deep venous thrombosis, peripheral vascular disease, pulmonary embolism, blood thinners, hypertension, hypotension, other cardiovascular disease, and medication with platelet aggregation inhibitors, antihypertensives, or statins; Depression/anxiety includes record of the disease or medication with antidepressants.

Supplemental Table S4 Overweight cohort, patient characteristics at baseline, stratified by first b/tsDMARD adalimumab, etanercept, infliximab, and abatacept.

Overweight n	Adalimumab 336	Etanercept 296	p value	Infliximab 150	p value	Abatacept 47	p value
Women (%)	215 (64.0)	203 (68.6)	0.257	91 (60.7)	0.549	30 (63.8)	1.000
Age index (mean (SD))	57.28 (12.52)	57.81 (12.32)	0.589	56.87 (11.35)	0.734	62.99 (10.81)	0.003
RA duration, years (mean (SD))	7.10 (7.76)	8.45 (9.21)	0.050	7.66 (8.08)	0.477	6.60 (8.45)	0.690
missing/unknown	12 (3.57)	7 (2.36)		4 (2.67)		3 (6.38)	
Year of index date (mean (SD))	2007.68 (3.56)	2006.72 (5.02)	0.005	2005.93 (4.69)	<0.001	2012.32 (2.60)	<0.001
BMI kg/m ² (mean (SD))	27.16 (1.35)	27.21 (1.33)	0.643	27.13 (1.37)	0.829	27.19 (1.41)	0.885
High educational level (%)	29 (8.6)	21 (7.1)	0.833	12 (8.0)	0.892	6 (12.8)	0.629
missing/unknown	98 (29.2)	106 (35.8)		41 (27.3)		11 (23.4)	
Ever smoker (%)	94 (28.0)	76 (25.7)	0.575	43 (28.7)	0.962	22 (46.8)	0.014
csDMARD at index date (%)	226 (67.3)	189 (63.9)	0.414	126 (84.0)	<0.001	34 (72.3)	0.595
Prednisone at index date (%)	134 (39.9)	133 (44.9)	0.229	84 (56.0)	0.001	13 (27.7)	0.146
Seropositive (%)	244 (72.6)	211 (71.3)	0.679	119 (79.3)	0.731	37 (78.7)	0.697
missing/unknown	47 (14.0)	41 (13.9)		12 (8.0)		5 (10.6)	
ESR (mean (SD))	24.82 (19.57)	25.87 (22.59)	0.555	25.44 (21.41)	0.766	28.92 (18.07)	0.221
missing/unknown	39 (11.61)	21 (7.09)		9 (6)		9 (19.15)	
CRP (mean (SD))	2.12 (3.25)	1.71 (3.10)	0.315	1.18 (1.68)	0.057	1.30 (1.48)	0.121
missing/unknown	208 (61.9)	181 (61.15)		101 (67.33)		6 (12.77)	
Tender joint counts 28 (mean (SD))	7.55 (6.90)	7.95 (7.69)	0.507	7.14 (6.85)	0.552	6.00 (5.88)	0.161
missing/unknown	33 (9.82)	12 (4.05)		5 (3.33)		4 (8.51)	
Swollen joint counts 28 (mean (SD))	6.90 (5.51)	6.68 (5.93)	0.639	7.92 (5.98)	0.077	5.82 (5.18)	0.219
missing/unknown	33 (9.82)	12 (4.05)		5 (3.33)		3 (6.38)	
Physician global disease activity (mean (SD))	4.92 (2.27)	4.90 (2.14)	0.907	5.56 (2.04)	0.033	4.28 (1.89)	0.091
missing/unknown	136 (40.48)	140 (47.3)		73 (48.67)		7 (14.89)	
DAS28-ESR (mean (SD))	4.47 (1.34)	4.42 (1.50)	0.690	4.42 (1.48)	0.747	4.49 (1.15)	0.933
missing/unknown	41 (12.2)	21 (7.09)		9 (6)		9 (19.15)	
DAS28-CRP (mean (SD))	4.28 (1.20)	4.19 (1.31)	0.584	4.01 (1.27)	0.189	3.98 (1.07)	0.161
missing/unknown	209 (62.2)	181 (61.15)		101 (67.33)		7 (14.89)	
RADAI-5 (mean (SD))	4.84 (2.08)	5.01 (2.17)	0.358	4.98 (2.18)	0.528	4.87 (2.35)	0.935
missing/unknown	73 (21.7)	44 (14.9)		24 (16)		16 (34)	
HAQ (mean (SD))	1.08 (0.70)	1.13 (0.74)	0.408	1.24 (0.72)	0.030	0.94 (0.69)	0.272
missing/unknown	63 (18.75)	38 (12.84)		14 (9.33)		14 (29.79)	
Osteoporosis	59 (17.6)	61 (20.6)	0.382	33 (22.0)	0.303	11 (23.4)	0.442
Fibromyalgia	<5	9 (3.0)	NA	5 (3.3)	0.004	<5	NA
Other rheumatological disease	101 (30.1)	97 (32.8)	0.517	45 (30.0)	1.000	13 (27.7)	0.868
Psoriasis	<5	<5	NA	<5	NA	<5	NA
Hyperlipidemia	16 (4.8)	25 (8.4)	0.086	8 (5.3)	0.967	7 (14.9)	0.016
Cardiac/cardiovascular event/disease	123 (36.6)	117 (39.5)	0.501	58 (38.7)	0.740	21 (44.7)	0.363
Cancer	6 (1.8)	13 (4.4)	0.093	<5	NA	<5	NA
Depression/anxiety	31 (9.2)	42 (14.2)	0.068	27 (18.0)	0.009	<5	NA
Diabetes	26 (7.7)	19 (6.4)	0.625	8 (5.3)	0.443	8 (17.0)	0.068
Fractures, surgeries, musculoskeletal system	26 (7.7)	34 (11.5)	0.142	13 (8.7)	0.867	<5	NA

Values are the number and column percentage, unless otherwise specified. Significance tests compare each drug of interest to Adalimumab, using chi-squared test for categorical variables, and t-test for continuous variables. For these tests, missing values did not function as a grouping variable.

Abbreviations: SD standard deviation; RA rheumatoid arthritis; BMI body mass index; csDMARD conventional synthetic disease modifying anti-rheumatic drug; ESR erythrocyte sedimentation rate; CRP C-reactive protein; DAS28-ESR 28-joint Disease Activity Score using erythrocyte sedimentation rate; DAS28-CRP 28-joint Disease Activity Score using C-reactive protein; RADAI-5 Rheumatoid Arthritis Disease Activity Index-Five; HAQ Health Assessment Questionnaire; NA not applicable.

For additional information on seropositivity and comorbidities see footnote in Supplemental Table S3.

Supplemental Table S5 Normal weight cohort, patient characteristics at baseline, stratified by first b/tsDMARD adalimumab, etanercept, infliximab, and abatacept.

Normal weight	Adalimumab		Etanercept		Infliximab		Abatacept	
	442	482	p value	259	p value	60	p value	
Women (%)	365 (82.6)	393 (81.5)	0.744	207 (79.9)	0.438	51 (85.0)	0.776	
Age index (mean (SD))	53.24 (13.78)	54.32 (14.68)	0.253	53.15 (14.28)	0.936	61.97 (14.34)	<0.001	
RA duration, years (mean (SD))	8.29 (9.16)	8.66 (8.96)	0.537	9.82 (9.32)	0.036	9.15 (10.51)	0.506	
missing/unknown	10 (2.26)	13 (2.7)		6 (2.32)		2 (3.33)		
Year of index date (mean (SD))	2007.33 (3.46)	2005.82 (4.90)	<0.001	2004.81 (4.04)	<0.001	2012.72 (2.68)	<0.001	
BMI kg/m ² (mean (SD))	22.17 (1.77)	22.07 (1.82)	0.413	22.17 (1.82)	0.973	22.43 (1.74)	0.278	
High educational level (%)	50 (11.3)	47 (9.8)	0.630	24 (9.3)	0.702	6 (10.0)	0.579	
missing/unknown	140 (31.7)	165 (34.2)		96 (37.1)		11 (18.3)		
Ever smoker (%)	122 (27.6)	119 (24.7)	0.351	55 (21.2)	0.075	18 (30.0)	0.814	
csDMARD at index date (%)	316 (71.5)	265 (55.0)	<0.001	208 (80.3)	0.012	38 (63.3)	0.250	
Prednisone at index date (%)	168 (38.0)	193 (40.0)	0.572	124 (47.9)	0.013	27 (45.0)	0.367	
Seropositive (%)	325 (73.5)	379 (78.6)	0.175	208 (80.3)	0.012	46 (76.7)	0.456	
missing/unknown	56 (12.7)	50 (10.4)		32 (12.4)		2 (3.3)		
ESR (mean (SD))	23.49 (20.10)	25.78 (23.17)	0.134	26.11 (24.61)	0.149	26.87 (22.18)	0.288	
missing/unknown	58 (13.12)	43 (8.92)		24 (9.27)		14 (23.33)		
CRP (mean (SD))	1.28 (1.57)	1.32 (1.61)	0.855	1.44 (1.98)	0.561	1.47 (1.92)	0.506	
missing/unknown	299 (67.65)	350 (72.61)		200 (77.22)		13 (21.67)		
Tender joint counts 28 (mean (SD))	6.70 (6.41)	6.69 (6.66)	0.989	6.59 (6.75)	0.837	6.44 (5.59)	0.783	
missing/unknown	40 (9.05)	26 (5.39)		18 (6.95)		8 (13.33)		
Swollen joint counts 28 (mean (SD))	6.56 (5.67)	6.83 (6.09)	0.506	8.42 (6.92)	<0.001	6.17 (5.31)	0.635	
missing/unknown	39 (8.82)	26 (5.39)		16 (6.18)		7 (11.67)		
Physician GDA (mean (SD))	4.98 (2.12)	5.14 (2.17)	0.397	5.23 (2.18)	0.269	4.40 (1.75)	0.101	
missing/unknown	200 (45.25)	230 (47.72)		131 (50.58)		18 (30)		
DAS28-ESR (mean (SD))	4.29 (1.40)	4.30 (1.43)	0.926	4.35 (1.57)	0.619	4.33 (1.18)	0.836	
missing/unknown	60 (13.57)	44 (9.13)		26 (10.04)		15 (25)		
DAS28-CRP (mean (SD))	4.11 (1.22)	4.14 (1.13)	0.827	3.98 (1.19)	0.483	4.02 (1.18)	0.650	
missing/unknown	301 (68.1)	351 (72.82)		202 (77.99)		14 (23.33)		
RADAI-5 (mean (SD))	4.61 (2.22)	4.69 (2.14)	0.61	4.59 (2.10)	0.888	4.34 (1.81)	0.434	
missing/unknown	88 (19.9)	63 (13.1)		45 (17.4)		16 (26.7)		
HAQ (mean (SD))	0.96 (0.70)	1.03 (0.72)	0.173	1.12 (0.72)	0.010	0.78 (0.64)	0.089	
missing/unknown	80 (18.1)	59 (12.24)		29 (11.2)		14 (23.33)		
Osteoporosis	88 (19.9)	101 (21.0)	0.755	61 (23.6)	0.297	23 (38.3)	0.002	
Fibromyalgia	<5	<5	NA	<5	NA	<5	NA	
Other rheumatological disease	99 (22.4)	118 (24.5)	0.504	70 (27.0)	0.197	16 (26.7)	0.566	
Psoriasis	5 (1.1)	<5	NA	<5	NA	<5	NA	
Hyperlipidemia	9 (2.0)	14 (2.9)	0.525	<5	NA	7 (11.7)	<0.001	
Cardiac/cardiovascular event/disease	78 (17.6)	115 (23.9)	0.025	56 (21.6)	0.233	31 (51.7)	<0.001	
Cancer	<5	9 (1.9)	0.337	6 (2.3)	0.234	<5	NA	
Depression/anxiety	30 (6.8)	46 (9.5)	0.160	30 (11.6)	0.040	6 (10.0)	0.523	
Diabetes	6 (1.4)	21 (4.4)	0.012	<5	NA	<5	NA	
Fractures, surgeries, musculoskeletal system	43 (9.7)	60 (12.4)	0.227	38 (14.7)	0.064	<5	NA	

Values are the number and column percentage, unless otherwise specified. Significance tests compare each drug of interest to Adalimumab, using chi-squared test for categorical variables, and t-test for continuous variables. For these tests, missing values did not function as a grouping variable.

Abbreviations: SD standard deviation; RA rheumatoid arthritis; BMI body mass index; csDMARD conventional synthetic disease modifying anti-rheumatic drug; ESR erythrocyte sedimentation rate; CRP C-reactive protein; DAS28-ESR 28-joint Disease Activity Score using erythrocyte sedimentation rate; DAS28-CRP 28-joint Disease Activity Score using C-reactive protein; RADAI-5 Rheumatoid Arthritis Disease Activity Index-Five; HAQ Health Assessment Questionnaire; NA not applicable.

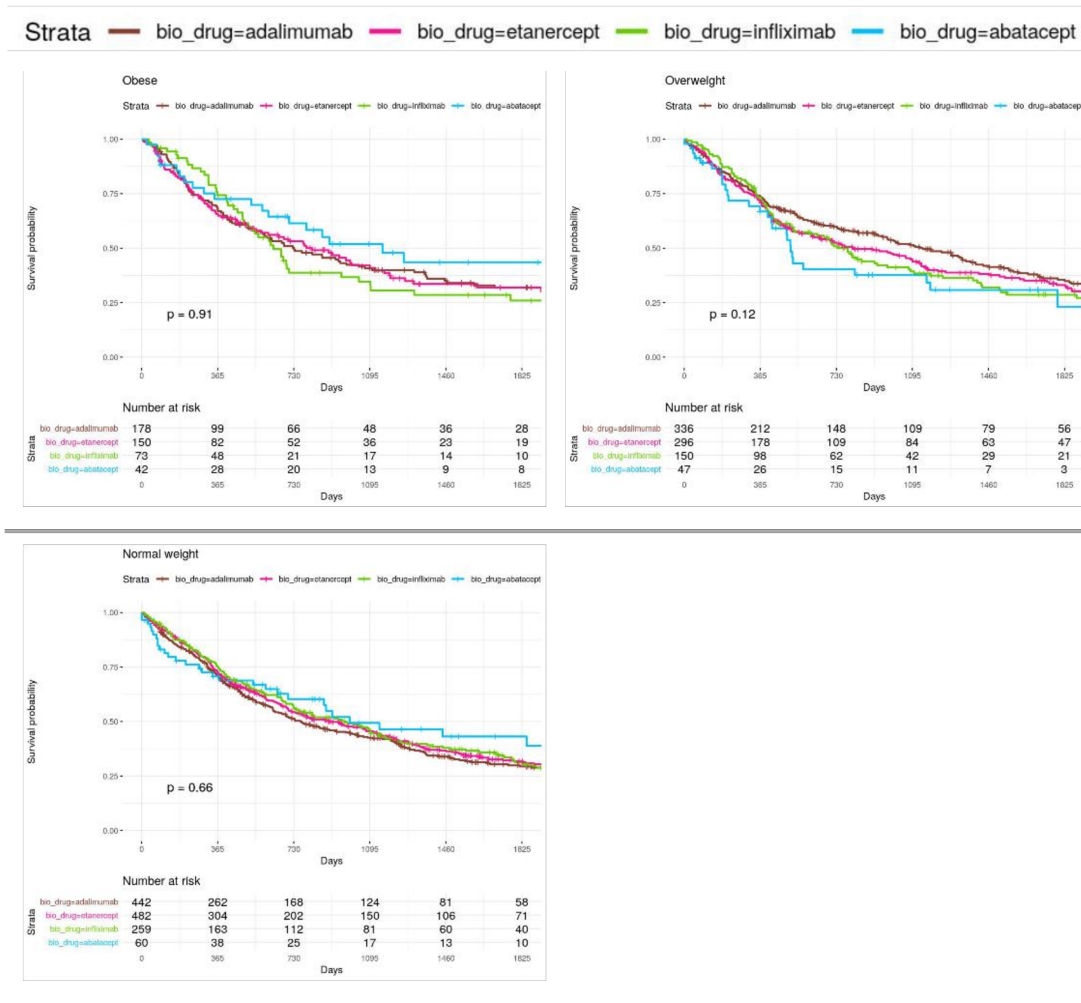
For additional information on seropositivity and comorbidities see footnote in Supplemental Table S3.

Supplemental Table S6 Sensitivity analyses excluding patients who miss information on outcome during follow-up (EPMOI, Excluding Patients Missing Outcome Information), per BMI cohort.

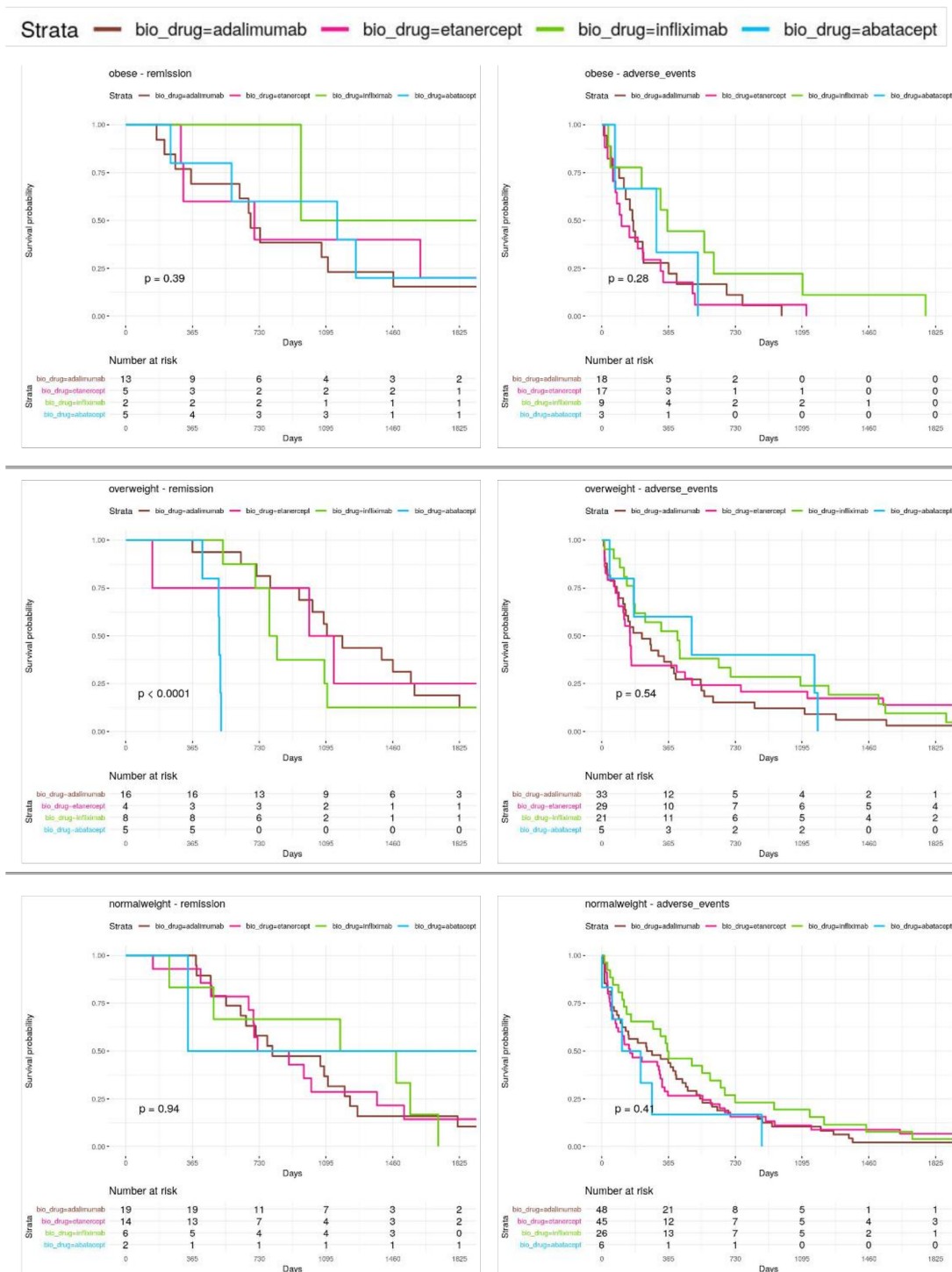
		Sensitivity analyses (EPMOI)		
		n all	n event	OR
Obese	DAS28-remission			
	adalimumab	71	25	1 (ref.)
	etanercept	64	21	1.01 (0.49-2.11)
	infliximab	32	7	0.49 (0.17-1.26)
	abatacept	18	6	0.91 (0.28-2.73)
	DAS28-LDA			
	adalimumab	71	37	1 (ref.)
	etanercept	64	32	0.95 (0.48-1.89)
	infliximab	32	15	0.85 (0.36-1.98)
	abatacept	18	8	0.68 (0.23-1.95)
	RADAI-5-remission			
	adalimumab	63	11	1 (ref.)
	etanercept	56	9	0.95 (0.35-2.53)
infliximab	28	5	1.01 (0.29-3.14)	
abatacept	20	<5	NA	
Overweight	DAS28-remission			
	adalimumab	147	55	1 (ref.)
	etanercept	136	44	0.83 (0.50-1.36)
	infliximab	81	33	1.15 (0.65-2.02)
	abatacept	23	8	1.18 (0.44-2.98)
	DAS28-LDA			
	adalimumab	147	84	1 (ref.)
	etanercept	136	62	0.63 (0.39-1.02)
	infliximab	81	44	0.89 (0.51-1.54)
	abatacept	23	13	1.15 (0.47-2.91)
	RADAI-5-remission			
	adalimumab	133	35	1 (ref.)
	etanercept	121	16	0.43 (0.22-0.82)
infliximab	80	18	0.82 (0.42-1.55)	
abatacept	13	<5	NA	
Normal weight	DAS28-remission			
	adalimumab	204	85	1 (ref.)
	etanercept	256	99	0.89 (0.61-1.31)
	infliximab	147	55	0.82 (0.52-1.28)
	abatacept	29	14	1.82 (0.81-4.10)
	DAS28-LDA			
	adalimumab	204	122	1 (ref.)
	etanercept	256	148	0.93 (0.63-1.37)
	infliximab	147	82	0.84 (0.54-1.30)
	abatacept	29	20	2.05 (0.89-5.04)
	RADAI-5-remission			
	adalimumab	186	49	1 (ref.)
	etanercept	243	69	1.15 (0.75-1.77)
infliximab	134	38	1.11 (0.67-1.83)	
abatacept	30	9	1.36 (0.55-3.13)	

OR odds ratio adjusted for sex and age.

Abbreviations: EPMOI Excluding Patients Missing Outcome Information; n number; ref reference; DAS28-remission 28-joint Disease Activity Score remission; RADAI-5 Rheumatoid Arthritis Disease Activity Index-Five; NA not applicable.



Supplemental Figure S4 Kaplan-Meier curves for drug survival in the BMI cohorts overall. Log-rank p value indicated in each graph, and frequency table described below each respective graph.



Supplemental Figure S5 Kaplan-Meier curves for drug survival in the BMI cohorts stratified by reason of treatment stop as adverse event(s) or re-mission as recorded by the clinician. Log-rank p value indicated in each graph, and frequency table described below each respective graph.