Table 1. Point prevalence of rheumatoid arthritis in Denmark in year 2000, 2009, 2011 and 2018 using four different case definitions

		2000		2009		2011		2018	
		Seropositive	Seronegative	Seropositive	Seronegative	Seropositive	Seronegative	Seropositive	Seronegative
Criteria A	N	3029	2741	7474	7127	8712	8121	12437	11662
	Population	3964040		4166298		4202891		4269677	
	PP, % (95%CI)	0.08 (0.08 to 0.08)	0.07 (0.07 to 0.07)	0.18 (0.18 to 0.19)	0.17 (0.17 to 0.18)	0.21 (0.20 to 0.21)	0.19 (0.19 to 0.20)	0.27 (0.27 to 0.28)	0.26 (0.25 to 0.26)
Criteria B	N	7507	4893	11565	9033	12710	10011	16334	13340
	PP, % (95%CI)	0.20 (0.19 to 0.20)	0.13 (0.12 to 0.13)	0.28 (0.28 to 0.29)	0.22 (0.21 to 0.22)	0.30 (0.30 to 0.31)	0.24 (0.23 to 0.24)	0.36 (0.35 to 0.36)	0.29 (0.29 to 0.30)
Criteria C	N	6701	4570	11174	9125	12417	10149	15881	13712
	PP, % (95%CI)	0.18 (0.17 to 0.18)	0.12 (0.12 to 0.12)	0.27 (0.27 to 0.28)	0.22 (0.22 to 0.23)	0.29 (0.29 to 0.30)	0.24 (0.24 to 0.25)	0.35 (0.34 to 0.35)	0.30 (0.30 to 0.31)
Criteria D	N	2724	2390	6612	5984	7695	6759	10830	9452
	PP, % (95%CI)	0.07 (0.07 to 0.07)	0.06 (0.06 to 0.07)	0.16 (0.16 to 0.16)	0.15 (0.14 to 0.15)	0.18 (0.18 to 0.19)	0.16 (0.16 to 0.17)	0.24 (0.23 to 0.24)	0.21 (0.20 to 0.21)

PP = Point prevalence

Conclusion: In Denmark, the IR and PP estimates were higher for seropositive compared to seronegative RA during the study period. However, when applying stricter case criteria for RA (Criteria A and D) the differences in IR and PP estimates were smaller, than when using less strict criteria (Criteria B and C). The findings of such small differences between seropositive and seronegative IRs warrant further investigation.

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POS0026

ASSOCIATION BETWEEN RA DISEASE ACTIVITY AND TOOTH LOSS: RESULTS OF TWO NATIONAL COHORTS

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Background: Cross-sectional studies suggest an association between the presence of tooth loss and/or periodontitis, cytokine levels and disease activity in patients with rheumatoid arthritis (RA) (1).

Objectives: To analyze the association between tooth loss and disease activity/inflammatory activity in patients with early arthritis and established RA.

Methods: Two data sources were used for analysis. Participants of the early arthritis cohort study CAPEA, conducted between 2010 and 2013, reported their number of teeth present at baseline and were followed over 2 years. Tooth loss categories were defined according to the number of teeth present, as follows: 0, 1-19, 19-27, and all 28 teeth. Disease activity/inflammatory activity data, such as disease activity scores (DAS28-ESR) and disease activity parameters, including swollen joint count (SJC) and inflammatory markers, i.e. erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), were collected longitudinally at baseline, 3, 6, 12, 18, and 24 months. We used linear mixed regression models (with negative binomial distribution for SJC) to estimate the association between tooth loss and disease activity scores, SJC and inflammatory markers (ESR, CRP), over time. We also investigated the association between tooth loss and disease activity/inflammatory markers in patients with established RA, using cross-sectional data from the German National database (NDB) collected between 2015 and 2018. All models were adjusted for age, sex, smoking (ever vs. never), rheumatoid factor and education level, defined as years in education. Models with the NDB data were additionally adjusted for disease duration, missing data were imputed using multiple imputation. In all models, number of teeth was entered as a continuous variable.

Results: Of a total of 1,124 CAPEA participants included, those with higher tooth loss were older, more often smokers, had a lower level of education, higher inflammatory markers and higher disease activity scores at baseline (Table 1). Inflammatory markers decreased comparably across all categories of tooth loss over time (Figure 1), in particular CRP. Tooth loss was not significantly associated with CRP or SJC alone. Glucocorticoid use was higher among those with more tooth loss, however dose reduction was similar across tooth loss categories. Among 7,179 NDB participants, adjusted disease activity scores and inflammatory markers were higher across tooth loss categories (DAS28 no teeth: 2.7, all teeth: 2.4; ESR no teeth: 23mm/h, all teeth: 17mm/h). SJC was not relevantly associated with tooth loss (no teeth: 1.2, all teeth: 1.2). Mean disease duration in the NDB sample was 13 years.

Table 1. Early arthritis cohort (CAPEA) baseline characteristics, stratified by number of teeth

	Number of teeth present				Total	n
	0	1-19	20-27	All 28		
N	89	315	452	268	1,124	1,124
Female, %	57	65	64	69	65	1,124
Age (years), mean	69	64	54	45	56	1,124
ESR (mm), mean	42	38	28	24	31	1,074
CRP (mg/l), mean	25	24	15	15	19	1,069
SJC, mean	6.1	6.9	5.6	5.2	5.9	1,120
DAS28-ESR, mean	5.5	5.2	4.7	4.5	4.9	983
RF positive, %	63	53	52	54	54	1,124
Education, %						1,020
<=8 years	80	58	35	21	42	
9-10 years	16	30	43	46	38	
11-13 years	4	12	22	33	20	
Smoking (ever), %	73	64	61	56	61	1,102

ESR: erythrocyte sedimentation rate, CRP: C-reactive protein, DAS28: disease activity score, RF: rheumatoid factor, SJC: swollen joint count

Figure 1. Disease activity parameters during the 24-months follow-up, stratified by the number of teeth at baseline: results from mixed models, adjusted for age, sex, smoking and education level.

Conclusion: While we observed a significant association between tooth loss and disease activity and inflammation markers in both early arthritis and established RA, our longitudinal results suggest that tooth loss has no influence on response to therapy.

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POS0027

SECULAR TRENDS IN BASELINE CHARACTERISTICS, TREATMENT RETENTION AND RESPONSE RATES IN 27189 BIO-NAÏVE AXIAL SPONDYLOARTHRITIS PATIENTS INITIATING TNFI – RESULTS FROM THE EUROSPA COLLABORATION

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Background: Knowledge of changes over time in baseline characteristics and tumor necrosis factor inhibitor (TNFi) response in bio-naïve axial spondyloarthritis (axSpA) patients treated in routine care is limited.

Objectives: To investigate secular trends in baseline characteristics and retention, remission and response rates in axSpA patients initiating a first TNFi.

Methods: Prospectively collected data on bio-naïve axSpA patients starting TNFi in routine care from 15 European countries were pooled. According to year of TNFi initiation, three groups were defined a priori based on bDMARD availability: Group A (1999–2008), Group B (2009–2014) and Group C (2015–2018). Retention rates (Kaplan-Meier), crude and LUNDEX adjusted¹ remission (Ankylosing Spondylitis Disease Activity Score (ASDAS) <1.3, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) <20) and response (ASDAS Major and Clinically Important Improvement (MI/CII), BASDAI 50) rates were assessed at 6, 12 and 24 months. No statistical comparisons were made.

Results: In total, 27189 axSpA patients were included (5945, 11255 and 9989 in groups A, B and C).

At baseline, patients in group A were older, had longer disease duration and a larger proportion of male and HLA-B27 positive patients compared to B and C, whereas disease activity was similar across groups.

Retention rates at 6, 12 and 24 months were highest in group A (88%/81%/71%) but differed little between B (84%/74%/64%) and C (85%/76%/67%).

In all groups, median ASDAS and BASDAI had decreased markedly at 6 months (Table 1). The ASDAS values at 12 and 24 months and BASDAI at 24 months were higher in group A compared with groups B and C. Similarly, crude remission and response rates were lowest in group A. After adjustments for drug retention (LUNDEX), remission and response rates showed less pronounced between-group differences regarding ASDAS measures and no relevant differences regarding BASDAI measures.

Conclusion: Nowadays, axSpA patients initiating TNFi are younger with shorter disease duration and more frequently female and HLA-B27 negative than previously, while baseline disease activity is unchanged. Drug retention rates have decreased, whereas crude remission and response rates have increased. This may indicate expanded indication but also a stable disease activity threshold for TNFi initiation over time, an increased focus on targeting disease remission and more available treatment options.

Table 1. Secular trends in baseline characteristics, treatment retention, remission and response rates in European axSpA patients initiating a 1st TNFi

Baseline characteristics	Group A (1999–2008)			Group B (2009–2014)			Group C (2015–2018)		
Age, years, median (IQR)	57 (49–66)			51 (42–60)			46 (37–56)		
Male, %	66			60			57		
HLA-B27, %	87			77			72		
Years since diagnosis, median (IQR)	5 (1–12)			2 (0–8)			2 (0–7)		
Smokers, %	23			24			25		
ASDAS, median (IQR)	3.5 (2.8–4.1)			3.4 (2.8–4.1)			3.5 (2.8–4.1)		
BASDAI, median, (IQR)	57 (42–71)			59 (43–72)			57 (41–71)		
TNFi drug, % (Adalimumab / Etanercept / Infliximab / Certolizumab / Golimumab)	22 / 35 / 43 / 0 / 0			37 / 21 / 20 / 4 / 18			27 / 28 / 24 / 8 / 13		
Follow up	6 months			12 months			24 months		
	Gr A	Gr B	Gr C	Gr A	Gr B	Gr C	Gr A	Gr B	Gr C
Retention rates, %, (95% CI)	88 (88–89)	84 (83–85)	85 (84–86)	81 (80–82)	74 (74–75)	76 (75–76)	71 (70–72)	64 (63–65)	67 (66–68)
ASDAS, median, (IQR)	1.8 (1.2–2.8)	1.9 (1.2–2.8)	1.8 (1.2–2.6)	1.9 (1.3–2.6)	1.7 (1.2–2.5)	1.6 (1.1–2.4)	1.9 (1.4–2.6)	1.7 (1.1–2.4)	1.5 (1.1–2.2)
ASDAS inactive disease, %, c/L	28 / 25	28 / 24	30 / 26	24 / 19	32 / 24	34 / 26	23 / 16	34 / 20	39 / 23
ASDAS CII, %, c/L	57 / 51	59 / 50	63 / 54	61 / 50	63 / 47	67 / 51	59 / 41	68 / 40	74 / 45
ASDAS MI, %, c/L	31 / 27	32 / 27	37 / 32	32 / 26	37 / 27	41 / 31	30 / 20	42 / 25	46 / 28
BASDAI, median, (IQR)	23 (10–40)	26 (11–48)	24 (10–44)	21 (10–38)	23 (10–42)	20 (8–39)	22 (9–40)	20 (8–39)	16 (6–35)
BASDAI remission, %, c/L	44 / 40	40 / 34	43 / 36	45 / 36	45 / 34	50 / 38	44 / 30	48 / 29	56 / 34
BASDAI 50 response, %, c/L	53 / 47	50 / 42	53 / 45	57 / 46	56 / 42	58 / 44	57 / 39	60 / 35	63 / 38

Gr, Group; c/L, crude/LUNDEX adjusted.