defined according to first RA visit, using a 7-year wash-out period. Incident rates (IRs) of AML for RA and general population cohorts, as well as incident rate ratios (IRRs), with 95% confidence intervals (CI) were calculated per calendar years of incidence. Multivariable Cox Proportional Hazard models with left truncation were used to estimate risk of AML in RA relative to general population while controlling for potential confounders, with contribution of person time of follow-up starting from index date (second RA visit) to avoid immortal time bias and censoring at ten years from incident year, or last health care utilization. To examine whether secular trends differed in RA relative to general population, an interaction term was tested between the RA indicator and year of RA incidence. To account for non-linear effect of cohort year, we compared cox regression models with linear, quadratic, and flexible spline forms of the cohort-year effects and the model with the best AIC was used to interpret the data.

Results: 23,237 RA individuals (66.4% female; mean [SD] age 58[16.88] years) and 46,474 controls experienced 1,133 and 1,646 incident AML, respectively. Cox Proportion model with the lowest AIC best fit the data. Risk of AML was significantly higher in RA vs. general population [aHR (95% CI): 1.21(1.10, 1.32); $p < 0.001$]. A significant decline was observed in risk of AML over calendar year of incidence in both RA [0.94(0.92, 0.97); $p < 0.0001$] and controls [0.93(0.91, 0.95); $p < 0.0001$]. The decline in AML risk did not differ significantly in RA vs. general population [interaction $p = 0.555$].

Conclusion: Our finding suggests that the risk of AML has significantly decreased over time in RA and general population cohorts. However, the declining trend was not significantly different in RA compared to the general population.

Abstract THU0112 – Figure 1

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THU0113

RHEUMATOID ARTHRITIS ASSOCIATED INTERSTITIAL LUNG DISEASE, CLINICAL CHARACTERISTICS AND PREDICTORS OF MORTALITY

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Background: Interstitial lung disease (ILD) is a serious extraarticular manifestation of rheumatoid arthritis (RA) associated with excess mortality. No evidence-based approach to therapy for RA-ILD exists, but ongoing studies investigate the role of antifibrotic therapies for progressive fibrosing ILD, including progressive fibrosing RA-ILD.

Objectives: The aim of the present study was to investigate the frequency of progressive fibrosing ILD, the clinical characteristics and mortality of RA-ILD in a well-characterised, population-based cohort.

Methods: We identified patients with RA-ILD diagnosed and followed at the ILD referral center in Aarhus, Denmark between 2004 and 2016.

Adjusted hazard rate ratios for death were estimated using Cox regression models. The presence of progressive fibrosing ILD was assessed using recently proposed definitions of relative forced vital capacity (FVC) decline $\geq 10\%$, relative diffusion capacity of the lung for carbon monoxide (DLco) decline $\geq 15\%$ or worsening symptoms or a worsening radiological appearance accompanied by a $\geq 5 < 10\%$ relative decrease in FVC.

Results: We identified 102 patients with RA-ILD. Mean follow-up was 3.8 years and median survival was 7.1 years. Thirty-eight patients died during follow-up, and the majority of deaths were from respiratory causes. Predictors of mortality in a multivariate model were DLco and high titers of IgM rheumatoid factor, but not the presence of a UIP-pattern on high resolution computed tomography. Fifty-three patients (52%) had progressive fibrosing ILD.

	Progressive fibrosing RA-ILD n=53	Stable RA-ILD n=49	p-value	Typical UIP n=42	Probable UIP n=13	NSIP n=43	p-value**
Age (SD)	68.8 (9.6)	67.6 (11.7)	0.86	70.2 (9.7)	69.2 (7.3)	66.2 (12.1)	0.17
Female gender%	51	57	0.53	50	54	53	0.80
FVC (SD)	87.3 (24.7)	91.7 (24.2)	0.35	86.5 (25.1)	91.8 (30.6)	92.2 (21.7)	0.39
DLco	53.9 (17.9)	55.8 (14.6)	0.57	52.7 (15.9)	55.4 (21.7)	55.7 (14.5)	0.49
High titer of IgM RF n%*	36 (68)	28 (57)	0.16	33(79)	9 (69)	22 (51)	0.013*

* $> 3 \times$ upper limit of normal

** typical and probable UIP vs NSIP

Clinical characteristics for progressive fibrosing RA-ILD and stable RA-ILD at the time of the ILD diagnosis and stratified by HRCT pattern.

Conclusion: Progressive fibrosing RA-ILD was common and the associated mortality was high. IgM rheumatoid factor and DLco were independent predictors of mortality.

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THU0114

MITIGATING MEDICATION RISK AVERSION IN THE CONFIDENT TREATMENT DECISIONS FOR LIVING WITH RHEUMATOID ARTHRITIS TRIAL

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Background: Controlling disease activity in RA using a treat-to-target (T2T) strategy can optimize clinical and patient-important outcomes. Yet, many patients are not familiar with T2T and report medication risk aversion as a major barrier to changing therapy.

Objectives: To develop and evaluate an educational, direct-to-patient video intervention aimed at improving willingness of patients to appropriately escalate treatment in RA.

Methods: We conducted a controlled, randomized trial of our intervention among US patients with self-reported RA enrolled in the ArthritisPower patient registry. We recruited participants by email, and surveyed their satisfaction with disease control, values about RA medications, decisional conflict and willingness to change treatment if/when recommended by their rheumatologist. Intervention group participants were invited to view up to 6 videos (3 required) relevant to T2T; those in the control group viewed 2 vaccination-related videos unrelated to T2T as an "attention control". The primary outcome, collected using surveys, was patient-reported willingness to change RA treatment, measured by the choice predisposition scale (0-10, anchors: "Not willing at all"; "Extremely willing") that reflected preference for RA treatment change. We compared the difference in pre-post differences in willingness to change RA treatment between the two groups using t-test.

Results: We invited 1264 RA patients by email. We reached our enrollment goal in 8 weeks. Study participants (N=208) were 90% Caucasian, 90% women, with mean (SD) age 50 (11) years, in good health (51%); 52% reported familiarity with T2T. A majority (89%) reported having values that favored RA medications. We observed no differences in baseline sociodemographics, patient global assessment of disease activity, health

literacy, willingness to change treatment, or decisional conflict. We found a significant improvement in pre-post willingness to change treatment in intervention vs. control participants (0.5 vs 0.01, $p=0.01$). We calculated an effect size (Glass's delta) for the intervention of 0.48 (i.e. moderate). Moreover, decisional conflict about treatment change decreased; there was no significant difference in pre-post differences in decision conflict between groups.

Conclusion: This randomized trial testing a novel patient-directed intervention advocating for T2T strategy implementation in RA care increased self-reported willingness to change RA treatment. Further studies are needed to evaluate if this effect is sustained over time and if it translates into actionable behavior change.

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THU0115

IS INCIDENT RHEUMATOID ARTHRITIS INTERSTITIAL LUNG DISEASE ASSOCIATED WITH METHOTREXATE TREATMENT? RESULTS FROM A MULTIVARIATE ANALYSIS IN THE ERAS AND ERAN INCEPTION COHORTS:

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Background: Rheumatoid arthritis interstitial lung disease (RA-ILD) is a rare but significant manifestation of RA, with high mortality. Methotrexate (MTX) is known to cause hypersensitivity pneumonitis, but its effect on the onset of RA-ILD is less clear.

Objectives: To assess predictive factors for rheumatoid arthritis interstitial lung disease (RA-ILD) in two early RA inception cohorts with a focus on MTX exposure.

Methods: Patients with new diagnosis of RA recruited to the early RA study (ERAS) and the early RA network (ERAN). Standardised data including demographics, drug therapies and clinical outcomes including the presence of RA-ILD were collected at baseline, within 3-6 months, at 12 months and annually for up to 25 years thereafter. Primary outcome was the association of MTX exposure with incident RA-ILD. Secondary outcomes were the association of demographic, comorbid and RA specific factors on incident RA-ILD using univariate and multivariate analyses and the association of MTX exposure on time to RA-ILD diagnosis using time to event Cox proportional hazards analysis.

Results: Of 92 eligible ILD cases, 39 occurred in 1578 (2.5%) MTX exposed and 53 in 1114 (4.8%) non-MTX exposed cases. The primary analysis of incident RA-ILD cases only developing after any csDMARD treatment ($n=67$) showed MTX exposure not to be associated with incident RA-ILD (O.R. 0.85 CI 0.49, 1.49 $p=0.578$) and a non-significant trend for delayed ILD diagnosis (O.R. 0.54 CI 0.28, 1.06 $p=0.072$) (see Figure). In an extended analysis including all RA-ILD cases ($n=92$, including those present pre csDMARD exposure), MTX exposure was associated with a significantly reduced risk of incident RA-ILD (O.R. 0.48, CI 0.3, 0.79 $p=0.004$) and longer time to ILD diagnosis (O.R. 0.41, CI 0.23, 0.75 $p=0.004$). Other independent baseline associations with incident RA-ILD were higher age of RA onset, ever smoking, male gender, rheumatoid nodules and longer time from first RA symptom to first out-patient visit (see Table).

Table Multivariate logistic analysis showing co-variables independently associated with RA-ILD development

	Primary analysis, RA-ILD onset after any csDMARD exposure, $n=67$	Wald test	Extended cohort, including RA-ILD onset pre any csDMARD, $n=92$	Wald test
	O.R. (95% C.I.)	p value	O.R. (95% C.I.)	p value
Methotrexate exposure	0.85 (0.49, 1.49)	0.578	0.48 (0.3, 0.79)	0.004
Age RA onset	1.04 (1.02, 1.06)	<0.001	1.04 (1.02, 1.06)	<0.001

Smoking, ever, baseline	2.21 (1.21, 4.03)	0.01	1.91 (1.13, 3.25)	0.016
Male gender	1.44 (0.83, 2.48)	0.193	1.74 (1.05, 2.86)	0.03
RF positive, baseline	2.02 (1.07, 3.82)	0.029		n.s.
RA nodules, baseline		n.s.	2.19 (1.08, 4.41)	0.029
Onset - 1 st OPD	1.04 (1.00, 1.07)	0.027	1.03 (1.0, 1.07)	0.04
Baseline major co-morbidities	0.62 (0.40, 0.95)	0.027	0.67 (0.46, 0.98)	0.037
Baseline ESR	-	n.s.	1.01 (1.0, 1.02)	0.047

Abstract THU0115 – Figure 1. Cox proportional time to event analysis showing time of onset of RA-ILD from first joint symptoms of RA in MTX exposed and non-MTX exposed groups; primary analysis: cases with RA-ILD first recorded after any csDMARD exposure, $n=67$.

Conclusion: In ERAS/ERAN, incident RA-ILD is significantly associated with older age of RA onset, ever smoking, nodules, RF positivity, male gender, ESR, and a longer time from first RA symptoms to first secondary care visit. There is no association between MTX treatment and incident RA-ILD. MTX may have a protective role in delaying the onset of RA-ILD.

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THU0116

COMPARATIVE SAFETY OF BIOLOGIC DMARDS AND ABATACEPT IN RHEUMATOID ARTHRITIS WITH COPD: A REAL-WORLD POPULATION-BASED OBSERVATIONAL STUDY

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Background: The biologic DMARD abatacept has been associated with respiratory adverse events in patients with RA who have chronic obstructive pulmonary disease (COPD) in the ASSURE trial (NCT00048932), based on only 54 patients with RA and COPD.¹ A large observational study of patients with RA and COPD, involving over 1,800 patients using abatacept did not find an increased incidence of respiratory adverse events with abatacept compared with other biologic DMARDs.² It remains uncertain, however, whether this potential respiratory risk affects all biologic DMARDs, including abatacept, when compared with non-biologic DMARDs.

Objectives: To assess in a real-world observational setting whether patients with RA and COPD treated with biologic DMARDs, including abatacept, have an increased risk of serious respiratory adverse events compared with similar patients treated with non-biologic DMARDs.

Methods: The Truven MarketScan[®] Commercial and Supplemental Medicare databases were used to identify patients diagnosed with RA and COPD, treated with a biologic or non-biologic DMARD between January 2007 and December 2015. A prevalent new-user cohort design was used to match each new user of a biologic DMARD with a new user of a non-biologic DMARD on time-conditional propensity scores.³ Patients were followed up from new use until the end of enrolment or 31 December 2015. The Cox model was used to estimate the hazard ratios (HRs) of respiratory adverse events associated with biologic DMARDs compared