Methods: The switch plan occurred between April-December 2019. 403 patients (R;189, G;176, D; 38) were eligible for switch. Patients were informed of the plan in advance via a patient information leaflet/hospital clinic visits. Switch refusals, withheld treatments and cancellations were documented and patients were advised to contact the hospital pharmacy/clinical teams if they encountered any concerns, adverse effects or lack of efficacy post switch. The clinician would then advise on subsequent management.

Results: During April-December 2019, 264/403 patients had been successfully switched (R;122, G;109, D;33). 33/403 patients switched back to the originator biologic (R;22, G;10; D;1). Of the 22 rheumatology switch back patients; 6 patients reported injection site pain and variably headache, fatigue, disease relapse, gastrointestinal (GI) upset, erythema; 10=reported lack of efficacy and variably influenza-type symptoms, relapse in associated psoriasis, difficulty in walking/sleeping, hair loss, excessive perspiration, facial cellulitis, foot drop and GI upset; 1=blepharitis;1=latex allergy before injection; 3=later declined switch; 1=damaged two devices and did not wish to continue biosimilar. Of the 10 gastroenterology switch back patients; 1=injection site pain; 2=lack of efficacy; 1=developed needle phobia; 1=latex allergy before injection; 1=switch detrimental to health; 2=unstable disease; 1=insomnia; 1=pregnancy. The 1 dermatology switch back patient reported injection site pain and bleeding.

38/403 patients refused the switch and remained on the originator biologic (R;11, G;27, D;0). 29/403 patients had treatment cancellations and were switched to an alternative biologic (R;17, G;9, D;3). 32/403 patients stopped treatment (R;13, G;19, D;0). Treatment was withheld for 7/403 patients (R;4, G;2, D;1).

Conclusion: The UHCW adalimumab biosimilar switch plan succeeded in switching a total of 66% of patients; thus an annual cost saving of £73,020. Injection site pain, most likely due to the biosimilar citrate content, and lack of efficacy according to patient perception and subsequent clinical review, were the most predominant causative themes for switch backs. Gastroenterology patients accounted for 71% (27/38) of the total switch refusals. Additional data regarding patient refusals, identifies future opportunities to improve patient counselling and drive further cost savings.

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AB1344-HPR

POOLED ANALYSIS OF ASSOCIATION BETWEEN ABATACEPT OR OTHER TARGET DISEASE-MODIFYING ANTI-RHEUMATIC DRUGS (tDMARD) AND TYPE 2 DIABETES MELLITUS (T2DM)-RELATED HEALTHCARE RESOURCE UTILIZATION (HCRU) AND COSTS IN TNFI-NAÏVE RHEUMATOID ARTHRITIS (RA) PATIENTS WITH T2DM

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Background: Limited information is available on the impact of target disease-modifying anti-rheumatic drugs (tDMARD) on patients with rheumatoid arthritis (RA) and type 2 diabetes mellitus (T2DM).

Objectives: The objective was to compare T2DM-related healthcare resource utilization (HCRU) and cost for TNF inhibitors (TNFi)-naïve patients pooled from two commercial databases with RA and T2DM receiving abatacept, other non-TNFi, or TNFi.

Methods: A retrospective, observational study was conducted with MarketScan and PharMetrics (January 2008-September 2018). The study population included TNFi-naïve adult patients with RA and T2DM newly initiating abatacept, TNFi (adalimumab, certolizumab pegol, etanercept, golimumab, infliximab) or other non-TNFi (tocilizumab, anakinra, sarilumab, rituximab, tofacitinib). Date of tDMARD initiation was the index date. Patients had ≥2 RA diagnoses separated by ≥7 days, ≥1 T2DM diagnosis, and had ≥12 months of pre-index continuous enrollment. Follow-up ended at the end of patient insurance enrollment, study period or index treatment. T2DM-related HCRU and costs including inpatient stay, outpatient visits, ER visits, and pharmacy use were measured on a per-patient-per-month (PPPM) basis (2018 USD). Patients treated with abatacept were matched to TNFi and non-TNFi cohorts separately by propensity score adjusted with patients baseline comorbidities, HCRU, and costs.

Results: A total of 16,236 patients meeting criteria were identified. Most patients were female (74.3%), and the overall average age of 55.4 years (Table 1). After matching, 850 pairs of abatacept vs non-TNFi patients, and 1,096 pairs of abatacept vs TNFi patients were included in the adjusted results. Patients initiating

abatacept had \$144 lower adjusted T2DM-related costs as compared to non-TNFi and \$79 lower costs than TNFi cohorts (Table 2).

Table 1. Patient Characteristics

	Abatacept n=1,134	Non-TNFi n=1,353	TNFi n=13,749	Total N=16,236
Age, mean years (SD)	58.5 (11.3)	57.7 (11.2)	54.9 (10.6)	55.41 (10.7)
Gender, female, n (%)	936 (82.5)	993 (73.4)	10,142 (73.8)	12,071 (74.3)
CCI, mean (SD)	2.2 (1.4)	2.3 (1.4)	1.8 (1.1)	1.89 (1.14)
DCSI, n (%)				
Cardiovascular	361 (31.8)	406 (30.0)	2,500 (18.2)	3,267 (20.1)
Neuropathy	294 (25.9)	374 (27.6)	3,161 (23.0)	3,829 (23.6)
Nephropathy	146 (12.9)	193 (14.3)	1,151 (8.4)	1,490 (9.2)
PVD	131 (11.6)	155 (11.5)	874 (6.4)	1,160 (7.1)
Retinopathy	103 (9.1)	119 (8.8)	922 (6.7)	1,144 (7.0)
Cerebrovascular	74 (6.5)	102 (7.5)	620 (4.5)	796 (4.9)
Metabolic	9 (0.8)	20 (1.5)	141 (1.0)	170 (1.0)

CCI: Charlson comorbidity index; DCSI: diabetes complications severity index; PVD: peripheral vascular disease.

Table 2. Adjusted T2DM-related HCRU and Costs after Propensity Score Matching

	Abatacept n=850	Non-TNFi n=850	Diff (ABA- Non- TNF)	Abatacept n=1,096	TNFi n=1,096	Diff (ABA- TNF)
T2DM-related HCRU (per 1000 Patients per Month)						
Number of Hospitalizations	13.9	20.4	-6.5*	12.6	14.9	-2.3*
Number of ER Visits	22.0	16.1	5.9*	18.4	16.3	2.0*
Number of Outpatient Visits	311	334.8	-23.7*	299.3	286.9	12.4
T2DM-related Costs (PPPM \$)						
Inpatient Costs	507	535	-28	413	475	-62
ER Costs	27	17	10*	22	25	-3
Outpatient Costs	190	323	-133	186	170	16*
Pharmacy Costs	107	100	7*	97	128	-31
Total Costs	831	975	-144	719	798	-79*

*P<0.05

Conclusion: TNFi-naïve RA patients with T2DM newly initiating abatacept had lower adjusted rates of T2DM-related hospitalizations compared to patients who initiated a non-TNFi or a TNFi. Total costs were lower among patients initiating abatacept vs. patients who initiated a non-TNFi or a TNFi. Findings suggest that initial abatacept among TNFi-naïve patients may be able to reduce healthcare utilization arising from T2DM complications and reduce T2DM-related costs in RA patients.

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AB1345-HPR

THE MULTIDISCIPLINARY FOOT CLINIC: A SERVICE EVALUATION PROJECT

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Background: Patients with rheumatological foot disease are an overlooked population, and it was noted locally that these patients received a fragmented service; attending multiple appointments for the management of one clinical issue. This led to delays in treatment; significant inter-departmental correspondence and variations in the peri-operative management of disease modifying anti-rheumatic drug (DMARD) and biologic therapies. To remedy this a foot multidisciplinary (MDT) clinic was established, including input from rheumatology, orthopaedic surgery, specialist rheumatology podiatry and physiotherapy. The outcomes from the foot MDT clinic have been analysed in this service evaluation project.

Objectives: To evaluate the outcomes of the multidisciplinary foot MDT clinic, with particular reference to concordance to the British Rheumatology Society (BSR) guidelines on peri-operative medicine guidelines.

Methods: Data was collected retrospectively across all clinics from January 2017 to February 2019. Clinic letters were obtained, and data was collected using a standardised data collection sheet. Data was collected on patient demographics, rheumatological diagnoses, treatment outcomes from the foot MDT,

appropriateness of peri-operative plan and post-operative complications. No data was available on these outcomes prior to the advent of the foot MDT clinic. **Results:** Data from 12 clinics was analysed (n=40). Patients had a median age of 66 years (IQR 27.5 years); 65% of patients were female and 35% of patients were male. The commonest rheumatological foot disease seen was rheumatoid arthritis (67%), followed by psoriatic arthritis (15%). All patients were treated with biologic or non-biologic DMARDs. Treatment outcomes were as follows: 27.5% were offered surgical treatment; 10% were offered intra-articular (IA) injections under ultrasound guidance; 10% were offered IA injections under general anaesthetic; 25% underwent specialist rheumatology podiatry, and the remaining 30% elected for a conservative approach after careful consideration of treatment options. Of those who were offered surgical treatment, 72% of patients were provided with a peri-operative plan which accorded with British Rheumatology Society (BSR) guidelines. Of those whom underwent surgery, one patient's surgical treatment was complicated by a post-operative infection; however, the peri-operative DMARD/biologic plan was not felt to be contributing factor.

Conclusion: The foot MDT clinic provides a comprehensive review of rheumatological foot conditions, with readily available access to a full range of treatment options. Co-location of all relevant professionals allows for real-time interdepartmental communication; shared decision making between clinicians and patients; avoids multiple appointments; reduces uncertainty with peri-operative planning as well as providing a cost-effective and efficacious service. Discrepancies in the peri-operative plan for medicines arose when the treating orthopaedic surgeon was not present in clinic. In these cases, the plan for surgical treatment was made outside of this clinic, without input from the treating rheumatologist. To improve concordance with BSR peri-operative medicine guidelines, it is recommended that all treatment decisions are made during the clinic, allowing input from all relevant partners. Informal feedback from patients commended the foot MDT, this shall be formalised through further qualitative data.

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AB1346-HPR

REAL-WORLD EFFECTIVENESS AND PERCEIVED USEFULNESS OF SYMPTOM CHECKERS IN RHEUMATOLOGY: INTERIM REPORT FROM THE PROSPECTIVE MULTICENTER BETTER STUDY

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Background: Symptom checkers (SC) promise to reduce diagnostic delay, misdiagnosis and effectively guide patients through healthcare systems. They are increasingly used, however little evidence exists about their real-life effectiveness.

Objectives: The aim of this study was to evaluate the diagnostic accuracy, usage time, usability and perceived usefulness of two promising SC, ADA (www.ada.com) and Rheport (www.rheport.de). Furthermore, symptom duration and previous symptom checking was recorded.

Methods: Cross-sectional interim clinical data from the first of three recruiting centers from the prospective, real-world, multicenter BETTER-study (DKRS DRKS00017642) was used. Patients newly presenting to a secondary rheumatology outpatient clinic between September and December 2019 completed the ADA and Rheport SC. The time and answers were recorded and compared to the patient's actual diagnosis. ADA provides up to 5 disease suggestions, Rheport calculates a risk score for rheumatic musculoskeletal diseases (RMDs) (≥ 1 =RMD). For both SC the sensitivity, specificity was calculated regarding RMDs. Furthermore, patients completed a survey evaluating the SC usability using the system usability scale (SUS), perceived usefulness, previous symptom checking and symptom duration.

Results: Of the 129 consecutive patients approached, 97 agreed to participate. 38% (37/97) of the presenting patients presented with an RMD (Figure 1). Mean symptom duration was 146 weeks and a mean number of 10 physician contacts occurred previously, to evaluate current symptoms. 56% (54/96) had previously checked their symptoms on the internet using search engines, spending a mean of 6 hours. Rheport showed a sensitivity of 49% (18/37) and specificity of 58% (35/60) concerning RMDs. ADA's top 1 and top 5 disease suggestions concerning RMD showed a sensitivity of 43% (16/37) and 54% (20/37) and a specificity

of 58% (35/60) and 52% (31/60), respectively. ADA listed the correct diagnosis of the patients with RMDs first or within the first 5 disease suggestions in 19% (7/37) and 30% (11/37), respectively. The average perceived usefulness for checking symptoms using ADA, internet search engines and Rheport was 3.0, 3.5 and 3.1 on a visual analog scale from 1-5 (5=very useful). 61% (59/96) and 64% (61/96) would recommend using ADA and Rheport, respectively. The mean SUS score of ADA and Rheport was 72/100 and 73/100. The mean usage time for ADA and Rheport was 8 and 9 minutes, respectively.

Conclusion: This is the first prospective, real-world, multicenter study evaluating the diagnostic accuracy and other features of two currently used SC in rheumatology. These interim results suggest that diagnostic accuracy is limited, however SC are well accepted among patients and in some cases, correct diagnosis can be provided out of the pocket within few minutes, saving valuable time.

Figure:

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AB1347-HPR

DIGITAL SOLUTIONS TO AID SELF-MANAGEMENT: DEVELOPING A RHEUMATOLOGY APP FOR USE BY ANY PATIENT ATTENDING OUR DEPARTMENT

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Background: Managing complex rheumatological conditions requires information about the disease itself, treatments regimes and side effects. This is particularly important for those with a new diagnosis.