C-reactive protein median was 45 mg/l.

Feet and hands radiographies were performed for seventeen patients. Five patients had carpalitis and two patients had tarsitis. Two patients had unilateral sacroiliitis.

Hand and wrist US were performed for twelve patients. Ten patients had joint damage. We found 7 radiocarpal and intercarpal synovitis, including 5 with a positive power Doppler (PD) signal, in 5 patients. US showed one distal radio-ulnar synovitis with no PD signal. Four patients had metacarpophalangeal synovitis including 3 with a positive PD signal. Proximal inter-phalangeal synovitis with no PD signal was found for one patient. There was no involvement of distal interphalangeal joint. Four patients had unilateral tenosynovitis including 2 with a positive PD signal. Feet US were done for ten patients. US showed joint damage for six patients. Three patients had metatarsophalangeal synovitis including one with a positive PD signal. Ankle synovitis with no PD signal was found for two patients. US showed one tarsal synovitis with a positive PD signal. Two patients had tenosynovitis including one with a positive PD signal.

US showed joint abnormalities in 6 patients with normal X-rays.

Hands joints MRI were performed for three patients. Carpalitis was found for one patient. One patient had radio-ulnar synovitis with tenosynovitis. One patient had radio-ulnar synovitis with metacarpophalangeal synovitis. Six patients had one or two erosions on feet or hands: 2 on radiographs, 3 on US and 3 on MRI (including one shown by US).

Conclusion: Clinical and radiological (radiograph and US) joints manifestation in WD affect large joints. However, small joints can also be affected. Axial involvement is rare. WD can affect both joints and tendons. Erosions are rare and never exceed 2 per patient in our series. US can show joint damage whereas radiograph is normal. US should be systematic for patient with WD in order to improve knowledge about this disease and to distinguish it from autoimmune arthritis.

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SAT0454 RHEUMATIC FEVER IN A TERTIARY MEDICAL CENTER – 25 YEARS OF FOLLOW-UP

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Background: Rheumatic Fever (RF) occurs after a pharyngeal infection caused by group A-B-hemolytic streptococci, and is often classified as a connective tissue disease. RF mostly affect children and it's diagnosis is determined using the Jones criteria.

The incidence of **rheumatic fever** and **carditis** in relation to the number of hospitalized patients

Its principal clinical significance is causing carditis at the acute phase of the disease, and valvular impairment, leading to a significant hemodynamic disturbance, as a late sequela.

Despite being a completely preventable disease, Rheumatic fever continues to be the most common cause of acquired heart disease among children in developing countries. In developed countries, a sharp decline in ARF was seen in the last decades.

Objectives: To examine the number of cases of Rheumatic fever in Schneider Children's medical center, and to find whether it has declined during the years of its existence. In addition, to characterize the patient population during that period, determine the clinical characteristics of ARF, It's risk factors and assess the course of the disease and it's treatment. In addition, we will address the relapse rates, with an emphasis on cardiac relapses, with a correlation to preventive treatment.

Methods: A retrospective cohort study was conducted, by collecting data from medical records of patients with rheumatic fever who were admitted to the Schneider Medical Center from 1993 to 2017. A database was built based on these medical records in order to assess the incidence of rheumatic fever and rheumatic heart disease, and the relapse rates, by use of descriptive and survival analysis.

Results: A 402 cases with relevant diagnostic codes were examined during the follow-up period, of which 307 patients met the inclusion criteria. During the acute phase, 197 of the patients (64%) presented with arthritis, 159 patients (52%) with carditis, 47 patients (15%) with chorea, 16 patients (5.2%) with erythema marginatum, and 2 patients (0.7%) with subcutaneous nodules. Carditis was found in higher rates among Jewish patients than among Arabs. 31 patients (19.5%) developed severe carditis, 21 patients (13.2%) of whom developed heart failure signs, 5 were hospitalized in intensive care, and one died. There was a decrease in incidence of rheumatic fever and rheumatic heart disease during the study period. Thirty-two patients (12% of all patients with rheumatic fever) developed a relapse of the disease and 11 of whom (4 percent of all patients) developed a cardiac relapse.

Median follow-up time was 49 months, and relapse rate was 13.9% after 5 years of follow-up. 15% of the patients who received oral prophylaxis experienced relapse, compared to 9% of those who received intramuscular injection therapy.

The rate of recurrence among all patients with rheumatic fever was 2.8% after 2 years of follow-up, and about 7% after 8 years of follow-up. 10 (90.9%) of the 11 patients with cardiac recurrence were present with carditis during the initial disease, with 7 of them (63.6% of patients with cardiac recurrence) having isolated carditis and 3 of them had a combined involvement of arthritis and carditis (27.3% of Cardiac relapses). Only in one case (9.1% of patients with cardiac recurrence) was an isolated occurrence of arthritis in the initial presentation.

It was found that chorea is more common among females.

Conclusion: Despite the reduction in incidence of rheumatic fever and rheumatic heart disease during the study period, the disease remains a significant cause of general and cardiac morbidity among children despite being completely preventable, therefore, It should remain in the mind of every doctor, pediatricians in particular.

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SAT0455 A QUALITY IMPROVEMENT INTERVENTION TO INCREASE INFLUENZA AND PNEUMOCOCCAL VACCINATION RATES IN IMMUNOSUPPRESSED INFLAMMATORY ARTHRITIS PATIENTS

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Background: Disease-related immune dysfunction and medications cause immunosuppression in inflammatory arthritis (IA)(1). EULAR and Centers for Disease Control (CDC) recommend influenza and 23-valent pneumococcal polysaccharide (PPSV23) vaccination. Previous studies show sub-optimal coverage.

Objectives: To increase influenza (annual) and PPSV23 (5 yearly) vaccination in immunosuppressed IA patients through a multifaceted quality improvement intervention.

Methods: Between April and September 2017, IA patients completed an anonymous paper 23 question worksheet recording demographics, medical history, medications, vaccination knowledge, status and barriers. All patients on oral steroids, bDMARDs or immunosuppressant cDMARDs were included.

Simultaneously, we introduced staff education sessions, point-of-care paper "Arthritis and Infection Worksheets" and "Vaccination Advice Letters". In 2018, the clinic was re-assessed.

Results: 163 patients met inclusion criteria in 2017 and 262 in 2018. Patients were typical of an IA clinic (74% women, 45.4% ≥60 years old, 72.7% had RA, 61.1% on cDMARDs, 53.6% on methotrexate, 46.6% on bDMARDs, 23.1% on cDMARD plus bDMARD).

In 2017, 104 (65.4%) knew of the increased infectious risk of IA. In 2018, 168 (65.6%) were aware. Awareness of infection risk with medications increased from 111 (69.8%) to 172 (66.9%).

Table 1 shows vaccination rates. PPSV23 rates increased from 41.0% to 47.2% (P value=0.29, Pearson Chi squared), and influenza from 61.8% to 62.1% (P value=0.95, Pearson Chi squared).

Table 1. Vaccination Rates

Vaccination awareness was higher for influenza (Table 2). Most patients were informed of requirements and vaccinated by general practitioners (GPs), with <5% of patients vaccinated in hospital. In 2017, the most common reason for non-vaccination was lack of awareness. This decreased post intervention. 70% of patients had smart phone access. 78% were willing to use this for vaccination reminders.

Table 2. Vaccination awareness, provision and reasons for non-compliance

	Influenza		PPSV23	
	2017	2018	2017	2018
Aware required	128 (80.0%)	212 (81.9%)	60 (38.0%)	118 (46.8%)
Aware of frequency	133 (99.3%)	219 (99.1%)	59 (75.6%)	98 (65.8%)
Source of awareness				
GP	29 (23.0%)	44 (21.5%)	15 (23.1%)	27 (21.8%)
Hospital	0	12 (5.9%)	0	8 (6.5%)
Clinical Nurse Specialist	0	8 (3.9%)	0	1 (0.8%)
Public Health/Ward Nurse	6 (4.8%)	9 (4.4%)	1 (1.5%)	1 (0.8%)
Radio	5 (4.0%)	6 (2.9%)	0	0
Television				
Site of last vaccine	93 (78.8%)	149 (77.2%)	53 (89.8%)	98 (90.7%)
GP	7 (5.9%)	14 (7.3%)	0	0
Work	6 (5.1%)	3 (6.7%)	0	1 (0.9%)
Pharmacy	6 (5.1%)	10 (5.2%)	1 (1.7%)	3 (2.8%)
Public Health Nurse	4 (3.4%)	5 (2.6%)	3 (5.1%)	4 (3.7%)
Hospital	2 (1.7%)	2 (1.0%)	2 (3.4%)	3 (2.8%)
Other				
Non-compliance reasons	18 (36.7%)	26 (34.2%)	69 (82.1%)	94 (76.4%)
Unaware	12 (24.5%)	18 (23.7%)	7 (8.3%)	10 (8.1%)
Fear of side effects	6 (12.2%)	10 (13.2%)	0	1 (0.8%)
Too busy	2 (4.1%)	2 (2.6%)	0 (0%)	1 (0.8%)
Cost	13 (26.5%)	22 (28.9%)	8 (9.5%)	17 (13.8%)
Other				

Conclusion: This study shows suboptimal vaccination awareness and uptake. Our interventions increased PPSV23 and influenza vaccination rates. There is debate about who is responsible for vaccinations. Guidelines advocate specialists sharing responsibility with GPs. 57% of rheumatologists considered GPs responsible (2). Perhaps, we should take a more active approach.

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SAT0456 SERO-REACTIVITY TO GALACTOSE-ALPHA-1,3-GALACTOSE AND CLINICAL PRESENTATIONS OF PATIENTS SEEN IN A RHEUMATOLOGY OUTPATIENT PRACTICE

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Background: Anaphylactic reactions to cetuximab, a monoclonal antibody used in cancer therapy, were recognized in 2007 as a regional complication related to recognition of a protein epitope by IgE. This protein epitope was defined as galactose-alpha-1,3-galactose (alpha-gal), which is found in non-primate mammalian tissue. Reactivity to this epitope was also found to occur after meat consumption with manifestations including anaphylaxis, urticaria, or angioedema. Further study showed that reactivity was induced by tick bites from the Lone Star tick. Similar cases of reaction to red meat have been described in Australia in 2006, and more recently in Japan and various European countries. In our Rheumatology practices where patients often raise concerns about possible tick-borne illnesses, we have observed patients presenting with symptoms related to consumption of mammalian meat, but generally less severe, and with IgE reactivity to alpha-gal.

Objectives: We have characterized the range of presenting symptoms in our alpha-gal positive patients, and their response to dietary modification.

Methods: Patients referred to this Rheumatology practice who had known exposure or risk factors for tick exposure were tested for IgE antibodies against galactose-alpha-1,3-galactose (alpha-gal) using a standardized test administered by Viacor-IBT, and also tested for typical Rheumatologic markers, as indicated by their symptoms. Alpha-gal IgE levels varied from 0.38 to >100 kU/L (normal <0.35 kU/L).

Results: 147 patients were identified as positive for alpha-gal, and were recommended to avoid mammalian meat. Followup testing and evaluation was achieved in 38 patients, along with documentation of symptoms for improvement or persistence.

Clinical manifestations, laboratory findings, and reasons for referral in symptomatic alpha-gal positive patients were diverse. Dermatologic manifestations occurred in 9 including urticarial vasculitis, serpiginous urticarial rash, purpuric rash, psoriasiform rash, nummular eczema, and subcutaneous nodules.

Arthritic manifestations varied and included monoarthritis (one patient, with negative Lyme PCR of fluid), oligoarthritis in 2 patients, inflammatory polyarthritis in 10 who did not meet criteria for a diagnosis of RA, and polyarthralgia in 22. 15 patients were diagnosed with Rheumatoid Arthritis, and 13 with Spondyloarthritis.

28 patients were referred with positive ANA tests. 25 were felt to be false positive ANAs who did not meet criteria for any connective tissue disease. Anticardiolipin antibodies were present in 4 patients.

Surprisingly only 11 patients had a history of severe reaction to mammalian meat, and only one had been previously diagnosed with mammalian meat allergy

Of the 38 patients seen in followup, 10 reported symptom improvement with mammalian meat restriction.

Conclusion: Alpha-gal reactivity from tick bites is more common than Lyme disease or other tick-borne disease in our catchment area. The patients rarely recall distinct exposure to a Lone Star tick.

Manifestations are protean, and do not correlate with alpha-gal IgE level. Some patients are shown to improve with restriction of dietary mammalian meat. Somewhat surprisingly, other patients prefer to tolerate intermittent mild symptoms to maintain current dietary patterns.