functionality are measured with VAS pain scale, WOMAC, Lysholm and SF 36 score. The agreement between two methods was evaluated with Bland-Altman analysis.

Results: We found a statistically significant low level of rank correlation between CR and US measurements of mean cartilage thickness; ρ (rho) values between modalities were low (0.263 and 0.273 depending on side (right/left), $p=0.005$ and $p=0.007$ respectively). In Bland – Altman analysis, US measurement showed bad agreement with CR. Presence or absence of US features of OA (effusion, synovial hypertrophy, osteophytes and popliteal cysts) didn't influence on cartilage thickness assessed by US ($p>0.05$). For US assessment, we found correlation only between cartilage thickness and VAS pain scale (ρ (rho) -0.281, $p=0.004$). We didn't find any statistically significant correlation between CR thickness measures and pain/functionality/HRQoL scores ($p>0.05$).

Conclusion: These results suggest that ultrasound may be a useful clinical tool to assess relative cartilage thickness. However, the absolute validity of the ultrasound measure is called into question due to the larger CR-based thickness measures and low level of agreement according to Bland-Altman analysis. The use of ultrasound as a complementary imaging tool along with CR may enable more accurate and cost-effective detection, prognosis and follow-up of knee osteoarthritis in routine clinical practice.

References:

- [1] Mehta N, Duryea J, Badger GJ, et al. Comparison of 2 Radiographic Techniques for Measurement of Tibiofemoral Joint Space Width. *Orthop J Sports Med.* 2017;5:2325967117728675.
- [2] Schmitz RJ, Wang HM, Polprasert DR, Kraft RA, Pietrosimone BG. Evaluation of knee cartilage thickness: A comparison between ultrasound and magnetic resonance imaging methods. *Knee.* 2017;24:217–223.
- [3] Podlipská J, Guermazi A, Lehenkari P, et al. Comparison of Diagnostic Performance of Semi-Quantitative Knee Ultrasound and Knee Radiography with MRI: Oulu Knee Osteoarthritis Study. *Sci Rep.* 2016;6:22365
- [4] Razek AA, El-Basyouni SR. Ultrasound of knee osteoarthritis: interobserver agreement and correlation with Western Ontario and McMaster Universities Osteoarthritis. *Clin Rheumatol.* 2016;35:997–1001.
- [5] Oo WM, Bo MT. Role of Ultrasonography in Knee Osteoarthritis. *J Clin Rheumatol.* 2016;22:324–329.

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Epidemiology, risk factors for disease or disease progression

SAT0573

TUBERCULOSIS INFECTION IN MOROCCAN PATIENTS WITH RHEUMATIC DISEASES UNDER BIOLOGIC THERAPY: A MULTICENTER NATIONAL STUDY

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Background: Tuberculosis (TB) is a major health problem worldwide, occurring mainly in low income countries. Therefore, screening for latent TB infection (LTBI) before initiating biologic therapy is mandated by current guidelines.

Objectives: The aim of this study was to evaluate the prevalence of tuberculosis infection (TB) in Moroccan patients with rheumatic diseases under biologic therapy, and to describe the demographic characteristics of these patients as well as to explore potential risk factors.

Methods: This fourteen-year nationally representative multicenter study enrolled Moroccan patients with rheumatic diseases who had been treated with biologic therapy. Patient medical records were reviewed retrospectively for demographic characteristics, underlying rheumatic diseases, associated co-morbidities, and TB related data.

Results: In total, 1407 eligible patients were studied; 31 cases with active TB were identified at an estimated prevalence rate of 2.3%. The mean age was 42.9±12 years and 75.8% were males. Ankylosing spondylitis (AS) accounted for 84.8% of active TB cases and the majority of cases (31/33) occurred among anti TNF- α users. A total of 8 out of 33 patients were positive at initial Latent TB infection (LTBI) screening by tuberculin skin test (TST) and/ or interferon gamma release assay (IGRA). Consumption of unpasteurized dairy products (odds ratio [OR], 34,841; 95% CI, 3,1-389,7; $p=0.04$), diabetes (OR, 38,468; 95% CI, 1,6-878,3; $p=0.022$), smoking (OR, 3,941; 95% CI, 1-159,9; $p=0.047$) and long biologic therapy duration (OR, 1,991; 95% CI, 1,4-16,3; $p=0.001$) were identified as risk factors for developing active TB.

Conclusion: Moroccan patients with rheumatic diseases under anti TNF- α agents are at an increased TB risk especially when risk factors are present. Strict initial screening and regular monitoring of LTBI is recommended for patients living in high TB prevalence areas.

Table 1. Risk factors by univariate and multivariate logistic regression.

Disclosure of Interests: None declared

Variables	Univariate analysis			Multivariate analysis		
	Odds Ratio	95% CI	p value	Odds Ratio	95% CI	p value
Age	0,999	0,97-1,028	0,929			
Sexe	0,973	0,388-2,443	0,954			
Marital status :						
▪ Married	0,593	0,259-1,357	0,216			
▪ Single	1,685	0,737-3,855	0,216			
Residence :						
▪ Urban	0,778	0,189-3,199	0,728			
▪ Rural	1,286	0,313-5,288	0,728			
Level of education :						
▪ Illiterate	1,313	0,547-3,150	0,542			
▪ Primary	2,370	0,797-7,047	0,121			
▪ Secondary	0,918	0,314-2,683	0,875			
▪ Tertiary	1,123	0,345-3,649	0,847			
Consumption of unpasteurized dairy products	3,571	1,531-8,330	0,03	34,841	3,1-389,7	0,04
Diabetes	5,145	1,140-23,211	0,033	38,468	1,6-878,3	0,022
Smoking	3,667	1,311-10,253	0,013	3,941	1-159,9	0,047
Type of rheumatic disease :						
▪ Ankylosing spondylitis	0,276	0,07-0,781	0,15			
▪ Rheumatoid arthritis	0	-	0,999			
Biologic therapy :						
▪ Adalimumab	1,151	0,511-2,593	0,734			
▪ Infliximab	1,340	0,583-3,079	0,491			
▪ Etanercept	2,29	0,675-7,804	0,183			
▪ Rituximab	0,272	0,033-2,210	0,223			
▪ Tocilizumab	0,223	0,033-2,210	0,223			
▪ Golimumab	0,979	0,098-9,751	0,986			
▪ Secukinumab	0	-	0,999			
Duration of exposure to bDMARD (months)	1,462	1,261-1,695	<0,001	1,991	1,4-16,3	0,001

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SAT0574

RISK FACTORS ASSOCIATED WITH OPIOID USE AMONG WORKER'S COMPENSATION: A LITERATURE REVIEW

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Background: To increase recovery and return to work after an occupational accident or injury, a worker's compensation claim provides individualised management plan involving multiple kinds of treatment. These plans can consist of the prescription of opioids to reduce inflammation, provide pain relief and increase functionality within a short period of time to aid return to work. Recently, there have been growing concerns about the misuse of opioids in managing pain symptoms by both the insurance industry and the general community. Studies from North America have indicated the prescription and management of opioid consumption among workers compensation claimants can cause more harm to functionality and reduce recovery to return to work, often leading to misuse, dependency or overdosing (Dembe, Wickizer, Sieck, Partridge & Balchick (2012)).

Objectives: The aims of this abstract are to provide a comprehensive literature review of the studies that have examined: 1) the prevalence of opioid use among worker compensations claimants and, 2) identify predictors of long-term opioid use among the workers compensation claimants.

Methods: A search strategy, with terms associated with "worker compensation," "opioids" "prevalence" and/or "risk factors" were used to search through relevant databases such as CINAHL, Cochrane, Embase, MEDLINE, PsycINFO, Scopus and Web of Science from database inception to January 2020. Duplicates were excluded. Two researchers retrieved, screened for eligibility and reviewed the results accordingly using a staged approach. Systematic review registration number PROSPERO registry number: CRD42013004137.

Results: The search yielded 2857 records. After the initial screening, 125 full-text articles were assessed by two independent reviewers. The inclusion criteria were met by nine studies 1-9. All studies conducted retrospective cohort studies using workers compensation claimant's data, ranging from 54,931, to 100,357 reports, either over a short 12-month period to over 11 years, with no reporting of response rate or recruitment rates. All studies examined the association of being exposure to opioids from the date of the workers injury(7), ranging from 30 to 730 days or from 0 days to 4 or more years 1-9. Carnide et al (2018)2 was the only study to investigate opioid exposure before and after injury as a predictor of future long term use. Among those who examined work-opioid related factors (4) found workers compensation reports with work disability for more than 14 days where more likely to become a long term opioid uses (OR: 2.17 [95% CI:1.52–3.10])1. Kraut et al7 on the other hand, found being a worker's compensation claimant increased the risk of being prescribed ≥ 120 morphine equivalents (ME)

per day (ME/D) (OR: 2.06 [95% CI: 1.58 - 2.69]), than those who were not in workers compensation program. Another study found, initial days of supply of opioids from 5 to 20 or more days was strongly associated with long term use of opioids (OR: 28.94 [95%CI, 23.44-35.72])⁵. While a study by Heins et al (2015)⁶ examined receiving opioids within the first month, people with back injuries were less likely to become a long-term opioid user (OR: 0.67 [95% CI: 0.59 - 0.76]), while those with shoulder injury were at risk (OR: 1.29 [95% CI: 1.06 - 1.58]).

Conclusion: There are a number of reliable prevalence studies among workers compensation settings indicating opioid use is below 20 percent however, there remains inconsistencies when examining predictors of long term or persistent opioid use. After reviewing the literature, a validity of studies will be conducted and graded by two authors independently using a standardised checklist to complete a systematic review for publication which will assist with managing opioid use among work compensation claimants and managers.

Disclosure of Interests: None declared

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SAT0575

POSITIVE QUANTIFERON-TB GOLD TEST AND SEROCONVERSION OF QUANTIFERON-TB GOLD TEST IS ASSOCIATED WITH INCREASED RISK OF THE DEVELOPMENT OF ACTIVE TUBERCULOSIS IN PATIENTS WITH ANKYLOSING SPONDYLITIS: RESULTS FROM A REAL-WORLD DATA OVER 20 YEARS

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Background: With the promising efficacy and the prevalent use of anti-tumor necrosis factor- α (TNF) agents in managing AS, the risk for reactivation of latent tuberculosis infection (LTBI) still is a concern. Although guidelines include the screening and treatment of LTBI prior to the initiation of anti-TNF agent by QuantiFERON-TB Gold (QFT-G) or tuberculin test, there is a lack of evidence whether treatment of LTBI before initiation of anti-TNF agent may reduce the risk of reactivation to the same as LTBI patient without anti-TNF agent or anti-TNF agent users without LTBI. Furthermore, evidence on the need for follow-up testing and the association between seroconversion and the development of active tuberculosis is also limited.

Objectives: This study aims to investigate the real-world impact of QFT-G test on the development of active tuberculosis in patients with AS.

Methods: This retrospective study investigated 2,930 patients who had a diagnosis of AS and conducted QFT-G testing during the period of March 1998 to June 2019. 191 patients with history of treatment for LTBI or acute tuberculosis prior to the first QFT-G test and 157 patients whose hospital visits or prescription was less than 3 were excluded. Observational period was defined from the first QFT-G test to the last hospital visit or development of active tuberculosis. The screening for development of active tuberculosis was conducted by reviewing the diagnosis, prescription of anti-tuberculosis medication, chest images and electronic medical record. Treatment of LTBI was defined when a patient was prescribed isoniazid for at least 220 for 12 months, rifampin for at least 90 days for 6 months, or concurrently prescribed isoniazid and rifampin for at least 70 days for 4 months. Wilcoxon rank-sum test, chi-square test and cox-proportional hazard analysis were performed.

Results: A total of 2687 patients (median age 32.7 years, 78.4% male, anti-TNF agent user 16.7%) were included. Baseline QFT-G was positive in 426 (20.3%) patients, and 15 active tuberculosis was observed [Incidence rate 1.5/1000 person years (PY)]. Compared with baseline QFT-G (-) patients, baseline QFT-G (+) patients were older (41.2 years vs. 31.3 years, $p < 0.001$) and they were accompanied with more active tuberculosis (4.4/1000PY vs. 1.0/1000PY) despite the less usage of anti-TNF agents (38.5% vs 45.8%, $p = 0.006$). The observational period, sex, and medication utilization pattern except anti-TNF agent were similar between two groups. Multivariable analysis showed that QFT-G (+) test increases the risk of active tuberculosis more than 10 times [adjusted hazard ratio 17.0, 95% confidence interval (CI) 5.1-56.8, $p < 0.001$] after adjusting age, sex and the usage of anti-TNF agents.

Then we conducted subgroup analysis on 965 patients with baseline QFT-G (-) and follow-up QFT-G tests. Seroconversion was documented in 65 patients (6.7%). Active tuberculosis was observed in 4 patients, and seroconversion was occurred before the development of active tuberculosis in all patients. The incidence of active tuberculosis in seroconversion patients were 10.5/1000PY.

Conclusion: QFT-G (+) and QFT-G seroconversion is associated with increased risk of the development of active tuberculosis in patients with AS.

Figure 1. Overview of patient flow

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SAT0576

THE PREVALENCE OF RHEUMATOID ARTHRITIS: A SYSTEMATIC REVIEW OF POPULATION-BASED STUDIES.

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Background: Rheumatoid arthritis (RA) is a heterogeneous disease with unknown aetiology (1). The reported worldwide RA prevalence varies widely (2, 3), and it is unclear whether this is due to inconsistencies in defining populations or methodologies used to identify RA patients (3, 4). Accurate RA prevalence data are required to plan preventative, diagnostic, and management strategies to address raising health care service demands and costs associated with improved lifespan and level of disability (5, 6).

Objectives: To estimate the prevalence of RA from international population-based studies and investigate the influence of prevalence definition, data sources, classification criteria and geographical area on RA prevalence.

Methods: A systematic review of existing literature was performed using the Joanna Briggs Institute approach for the systematic review and Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. A search of ProQuest, MEDLINE, Web of Science, and EMBASE was undertaken to include population-based studies investigating RA prevalence between 1980 and 2019.

Results: Sixty published population-based studies met the inclusion criteria over the study period. The mean point-prevalence of RA was 0.56% (range 0.00% to 2.70%) between 1986 and 2014. The period-prevalence was 0.51% (range 0.05% to 1.9%) between 1955 and 2015. RA point- and period-prevalence was higher in urban settings than rural settings, (0.69% vs 0.48%) and (0.54% vs 0.25%), respectively. The mean point- and period-prevalence were 0.56% (SD=0.52) and 0.57% (SD=0.41) and were lower in sampling population studies than in larger population databases studies (0.60% (SD=0.27) and 0.44% (SD=0.26)). The highest period-prevalence of RA was observed in linked databases (0.80%, SD=0.1) where RA diagnosis was validated by rheumatologists.

Conclusion: The average point- and period-prevalence of RA were 51/10,000 and 56/10,000 respectively. The RA prevalence was higher in urban areas than rural areas, suggesting an impact of environmental differences. Population database studies were more consistent than sampling studies, and linked databases appeared to provide the best estimate of RA period-prevalence when rheumatologists clinically verified RA.

Table 1. The top five countries for the highest and lowest prevalence of RA in recent global estimate between 1980 and 2019.

Global prevalence of RA	Top five countries	Prevalence (%)
Highest	1-Cuba	2.70
	2-Finland	1.90
	3-Lesotho	1.80
	4-USA	1.07
	5-Lebanon	1.00
Lowest	1-Nigeria	0.00
	2-Taiwan	0.05
	Taiwan	0.10
	Taiwan	0.12
	3-Thailand	0.12
	4-India	0.15
	5-Philippines	0.17