be addressed by clinical teams to improve adherence and clinical outcomes.

Table 1. Multivariate analysis. Factors associated to non-adherence behaviors of patients with rheumatic diseases.

	OR (95% CI)	p-value
Age (1-year increment)	1.00 (0.98 – 1.02)	0.984
Gender (female versus male)	1.04 (0.57 – 1.90)	0.892
Need of taking medication 3-4 times per day (versus 1-2 times per day)	1.40 (0.74 – 2.66)	0.306
Number of different medicines (1-unit increment)	1.00 (0.89 – 1.14)	0.967
IEXPAC overall score (1-unit increment)	1.04 (0.90 – 1.21)	0.581
BMQ overall score (1-unit increment)	0.95 (0.91 – 1.00)	0.052

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THU0624

UNDERSTANDING ETHNIC DIFFERENCES IN THE UTILIZATION OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS FOR OSTEOARTHRITIS

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Background: The prevalence of arthritis-attributable activity limitation, work limitation and severe pain are significantly higher among Hispanics than among non-Hispanic Whites (NHWs) in the US. While Hispanics are less likely to report regular use of nonsteroidal anti-inflammatory drugs (NSAIDs), reasons for this decreased NSAID use are unknown. It is also unclear whether there are ethnic differences in the use of both over-the-counter (OTC) and prescription NSAIDs.

Objectives: To determine: 1) if there are ethnic differences in the use of OTC and prescription oral NSAIDs for knee/hip osteoarthritis (OA); 2) if there are differences in familiarity with and perceptions of efficacy and risk of NSAIDs between Hispanics and NHWs; and 3) if patient attitudes/beliefs about NSAIDs mediate observed ethnic differences in the use of NSAIDs for OA.

Methods: Participants ≥ 50 years of age with chronic frequent pain due to knee/hip OA completed structured interviews. Data on sociodemographic characteristics, clinical information, actual use of oral NSAIDs for OA treatment (last 6 months), and familiarity with NSAIDs (3 items, yes/no response) were collected. Perceptions of efficacy (4 items) and risk (3 items) of NSAIDs were evaluated using five-category ordinal response scale questions. Responses were averaged, with higher values indicating higher perception of efficacy/risk. Fisher's exact or Wilcoxon-Mann-Whitney tests were conducted to determine if knowledge and perceptions about NSAIDs differed by ethnicity. Multivariable logistic regression models were built to determine if ethnic differences in NSAID use were mediated by knowledge and perceptions about the medication.

Results: Among knee/hip OA patients, Hispanics (n=130), in comparison to NHWs (n=204), were younger (mean age 61.8 vs. 65.7) and less likely to have an annual income of $\geq \$40K$ (21.6% vs. 56.5%). Hispanics, compared to NHWs, had lower odds of using an OTC NSAID (OR 0.57, 95% CI 0.36-0.90) but greater odds of using a prescription NSAID (OR 1.66, 95% CI 1.04-2.64) for OA. Hispanics, compared to NHWs, were also less likely to ever hear about OTC and prescription oral NSAID to treat OA or have a good understanding of either oral NSAID type as a treatment for OA (Table 1). Mean [SD] perceived efficacy of OTC and prescription oral NSAIDs were slightly lower among Hispanics than NHWs (2.91 [0.98] vs. 3.12 [0.88], p=0.0565; 3.03 [1.02] vs. 3.34 [0.87], p=0.0047; respectively). Mean [SD] perceived risk of prescription NSAIDs was lower among Hispanics than NHWs (2.44 [1.03] vs. 2.82 [1.01], p=0.0012). After adjustment for all familiarity with OTC NSAIDs questions, and perceived efficacy and risk of OTC oral NSAIDs scores, the association between OTC NSAID use and ethnicity was attenuated and no longer significant (OR 1.01, 95%CI 0.54-1.89). After adjustment for familiarity with and perceptions of efficacy and risk of prescription NSAIDs, the

association between prescription NSAID use and ethnicity remained significant (OR 2.62, 95%CI 1.51-4.54).

Conclusion: Among patients with knee or hip OA, Hispanics were less likely than NHWs to utilize an OTC oral NSAID as treatment for arthritis. They were also less familiar with the use of NSAIDs for OA treatment and less likely to believe in their efficacy. Patient familiarity and perceptions of OTC oral NSAIDs may mediate ethnic differences in the use of NSAIDs for knee/hip OA.

Table 1. Familiarity with NSAIDs

	Hispanics (n = 130)	NHWs (n = 204)	p-value*
OTC NSAIDs, n (%)			
Heard About It	100 (78.13)	192 (95.05)	< .0001
Family/Friends Received It	67 (52.76)	127 (62.25)	0.1080
Have Good Understanding	79 (63.20)	168 (83.58)	< .0001
Prescription NSAIDs, n (%)			
Heard About It	92 (74.80%)	173 (85.22)	0.0274
Family/Friends Received It	56 (45.16%)	107 (52.45)	0.2120
Have Good Understanding	78 (62.90%)	148 (74.00)	0.0462

*Fisher's exact

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THU0625

CAN WE IMPROVE INPATIENT REFERRALS TO RHEUMATOLOGY IN A TEACHING HOSPITAL IN THE UK?

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Background: Inpatient referrals to rheumatology vary nationally from paper/electronic methods to phone conversations with the rheumatology registrar. In our Trust, which includes two large teaching hospitals in the UK, rheumatology referrals were hand written, faxed to secretaries and then given to the rheumatology registrar. This method was time consuming and referrals often lacked vital information. The referrer would also not know when the registrar had received the referral. A quality improvement project (QIP) in another UK hospital has shown an electronic referral system to be more efficient and safer for patients [1].

Objectives: This QIP aimed to evaluate the current system for inpatient referrals to two rheumatology departments within one large UK NHS trust and to identify aspects for improvement.

Methods: Two hundred and ten inpatient rheumatology referrals received between January 2018 - January 2019 were analysed retrospectively for inclusion of important information such as, patient location and referrer's contact details.

Results: The review of current referrals identified several areas for improvement. The results are summarised in Table 1. The reasons for referrals ranged from swollen, painful joints to new rashes and medication reviews.

Table 1. Inclusion of important items in inpatient rheumatology referrals

Item	Inclusion of item in referral n (%)		
	Wythenshawe Hospital (n=105)	Manchester Royal Infirmary (n=105)	Combined (n=210)
Date of referral	78 (74)	95 (90)	173 (82)
Time of referral	26 (25)	7 (7)	33 (16)
Name of referrer	102 (97)	92 (88)	194 (92)
Referrer's contact details	38 (36)	13 (12)	51 (24)
Patient's name, hospital number	104(99)	102 (97)	206 (98)
Patient location	95 (90)	101 (96)	196 (93)
Past medical history	62 (59)	75 (75)	137 (65)

A process mapping session was undertaken to identify how the referral system could be improved. An electronic referral system, via the local electronic patient record (EPR), was created. As well as ensuring that there is an audit trail and referrals are received in a timely manner, referrers are provided with a proforma to direct them to supply the

relevant information. There is also functionality for the rheumatology team to reply to the referral with advice, which creates a new permanent document in the patient's EPR. The Orthopaedic team, who are the first point of call for hot joints in our Trust, were consulted to ensure that there were not any unintended consequences as a result of this change. The form included the following sentence to avoid delays in patient care for septic arthritis: 'patients with suspected septic arthritis should be referred to Orthopaedics by ringing the on-call registrar'.

Conclusion: The current method of paper rheumatology referrals was inefficient and referrals often lacked vital information. The new electronic system will ensure relevant items are included in the referral and that there is a clear audit trail of the referral process. Referrals will be re-evaluated again in three months to assess the impact of this change on outcomes including time to rheumatology review and inpatient bed stay. In the second round of this project we plan to include an education component onto the rheumatology referral form. For example, if gout is suspected, the referrer will be linked to guidelines and patient information sheets to assist best management whilst awaiting review. We would encourage others to consider their referral systems- could you improve yours?

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THU0626

SOCIAL NETWORKS AS A SOURCE OF INFORMATION FOR PATIENTS WITH RHEUMATIC DISEASES

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Background: Internet is an informative source for patients with different diseases. False information in social networks about health issues is a growing problem. Rheumatology is no stranger to this problem and there is a lot of false information regarding rheumatic diseases.

Objectives: To show objective data on misinformation published in social networks available to spanish-speaking rheumatic patients

Methods: We create accounts on Facebook (FB) and Google unique for this work. Multimedia was included in Spanish, with a convenience sampling according to the deployment of the platform (FB) or in descending order for reproductions on YouTube (YT). Two independent reviewers extracted information on online time, number of reproductions and characteristics of the most popular videos. Videos consulted on 10-11-18.

Results: With the search term "rheumatoid arthritis" (RA), the most reproduced video is titled "celery green juice for arthritis" (6.4 million reproductions). Of the first 50 videos with more reproductions, 39 are of natural or home remedies such as vinegar, "moringa", etc., and 35 videos indicate in their content, that they can cure RA. With the term "lupus", the most reproduced video is titled "God's tea, cure chronic tiredness, thyroid, arthritis, lupus and vertigo" (1.4 million reproductions). Of the first 50 videos with more reproductions, 31 correspond to natural or home remedies such as celery, thyme, diets among others and 29 videos indicate that they can cure lupus. With the term "fibromyalgia", the most reproduced video is entitled "I am 61 years old and this cured my arthritis, vertigo, fibromyalgia, lupus, chronic fatigue and the thyroid" (1.1 million reproductions). Of the 50 first videos with more reproductions, 40 are of natural or home remedies such as thyme, tea, among others and 33 videos indicate that they can cure the disease. With the data of the videos uploaded online in October 2018, 50 videos were chosen in YT and FB. There was no correlation between online time and the number of views on any platform. In FB, 56% of the videos contained false information, with no difference in online time in both groups (16 [12-22] vs 18 [13-25], $p = 0.3$). In YT, only 38% was considered false information, without differences between groups in online time (19 [11-26] vs 22 [12-24]).

Youtube	Total	Trustworthy	False	P value ^c
n (%)	50	31 (62)	19 (38)	-
Time on line ^{a, b}	21 (11-25)	19 (11-26)	22 (12-24)	0,76
# Reproductions ^b	40,5 (15,2-295,5)	25 (11-180)	239 (38-1082)	0,018
Most played video	"Rheumatoid arthritis: biological treatment changed my life"		"Green celery juice for arthritis"	-
Time on line	7 years		5 years	
# Reproductions	1 million		6.4 millions	

^a Days; ^b median with interquartile range; ^c Mann-Whitney

Facebook	Total	Trustworthy	False	P value ^c
n (%)	50	22 (44)	28 (56)	-
Time on line ^{a, b}	17,5 (13-24)	16 (12 – 22,2)	18 (13 –24,7)	0,3
# Reproductions ^b	444 (47,5-1889)	1050 (308- 2077)	89,5 (4,7- 1204)	0,012
Most played video	"This woman lives with Rheumatoid Arthritis"		"Why remove gluten and dairy products in cases of rheumatoid arthritis?"	-
Time on line	19 days		11 days	
# Reproductions	295 679		22 874	

^a Days; ^b median with interquartile range; ^c Mann-Whitney

Conclusion: YT and FB are social networks with a high content of false information. The majority of available videos promise to cure different rheumatic diseases (even several simultaneously). This is the first work of a line of research that seeks to highlight the high degree of misinformation. We will continue to analyze other diseases and social networks, to make publications and communications in different media and to alert local regulatory entities.

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THU0627

VACCINATIONS IN PATIENTS WITH AUTOIMMUNE INFLAMMATORY RHEUMATIC DISEASES: STILL ROOM FOR IMPROVEMENT

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Background: Patients with autoimmune inflammatory rheumatic diseases (AIIRD) have an increased risk for acquiring infections. Vaccines were developed to diminish the prevalence of vaccine-preventable infections. The EULAR recommendations for vaccination in adult patients with AIIRD emphasise the importance of assessing the vaccination status of patients with AIIRD.

Objectives: To determine the vaccination status of patients with AIIRD, the reason for non-vaccination and the proportion of patients that are vaccinated according to the EULAR recommendations.

Methods: The single-centre cross-sectional COLOSseUM study was conducted in a tertiary referral centre. Between August and December 2018, all consecutive patients with AIIRD including Rheumatoid Arthritis (RA), Psoriatic Arthritis (PsA), Ankylosing Spondylitis (AS) and Juvenile Idiopathic Arthritis (JIA) who visited the outpatient clinic were included. The vaccination status (influenza winter season 2017-2018, pneumococcal, tetanus toxoid and hepatitis B vaccine) and history of varicella zoster virus infection was determined using a one-page questionnaire which was completed by the treating rheumatologist after discussion with the patient.

The patients' reason for non-vaccination was registered if applicable. Patients were classified as vaccinated according to the EULAR recommendations if they had a yearly influenza, an every-five-year pneumococcal and a decennial tetanus toxoid vaccine, the latter as recommended in the general population.

Table 1: The vaccination status of AIIRD patients

	All AIIRD patients (n=633)	RA (n=489)	PsA (n=73)	AS (n=58)	JIA (n=13)
Influenza vaccine n(%)					
Yes	438 (69.2)	360 (73.6)	45 (61.6)	28 (48.3)	5 (38.5)
No	195 (30.8)	129 (26.4)	28 (38.4)	30 (51.7)	8 (61.5)
Unk	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Pneumococcal vaccine n(%)					
Yes	203 (32.1)	174 (35.6)	19 (26.0)	10 (17.2)	0 (0)
No	352 (55.6)	259 (53.0)	45 (61.6)	39 (67.2)	9 (69.2)
Unk	78 (12.3)	56 (11.5)	9 (12.3)	9 (15.5)	4 (30.8)
Tetanus toxoid vaccine n(%)					
Yes	348 (55.0)	265 (54.2)	41 (56.2)	33 (56.9)	9 (69.2)
No	174 (27.5)	139 (28.4)	21 (28.8)	12 (20.7)	2 (15.4)
Unk	111 (17.5)	85 (17.4)	11 (15.1)	13 (22.4)	2 (15.4)
Compliant with EULAR recommendations n(%)					
Yes	117 (18.5)	100 (20.4)	9 (12.3)	8 (13.8)	0 (0)
No	429 (67.8)	318 (65.0)	55 (75.3)	45 (77.6)	11 (84.6)
Unk	87 (13.7)	71 (14.5)	9 (12.3)	5 (8.6)	2 (15.4)
Hepatitis B vaccine n(%)					
Yes	193 (30.5)	138 (28.2)	20 (27.4)	28 (48.3)	7 (53.8)
No	339 (53.6)	289 (59.1)	31 (42.5)	15 (25.9)	4 (30.8)
Unk	101 (16.0)	62 (12.7)	22 (30.1)	15 (25.9)	2 (15.4)
History of Varicella zoster virus n(%)					
Yes	447 (70.6)	355 (72.6)	47 (64.4)	34 (58.6)	11 (84.6)
No	58 (9.2)	46 (9.4)	3 (4.1)	8 (13.8)	1 (7.7)
Unk	128 (20.2)	88 (18.0)	23 (31.5)	16 (27.6)	1 (7.7)

AIIRD autoimmune inflammatory rheumatic diseases, RA Rheumatoid Arthritis, PsA Psoriatic Arthritis, AS Ankylosing Spondylitis, JIA Juvenile idiopathic arthritis, Unk unknown by patient

Results: The vaccination status of 633 consecutive patients was obtained. The group consisted of 489 (77.2%) patients with RA, 73 (11.5%) patients with PsA, 58 (9.2%) patients with AS and 13 (2.1%) patients with JIA with a mean $\pm$ standard deviation age of 59.8 ± 13.6 , 55.8 ± 13.5 , 45.2 ± 14.0 and 35.0 ± 13.9 respectively. Of all included patients with AIIRD, 69.2% were vaccinated for influenza, followed by vaccination rates of 55.0%, 32.1% and 30.5% for tetanus toxoid, pneumococcal and hepatitis B vaccination, respectively (Table 1). In addition, 70.6% of patients with AIIRD had a history of varicella zoster virus infection. Various reasons for non-vaccination were reported, of which 'No specific reason' was the most common, closely followed by non-awareness of the need for pneumococcal vaccination. The compliance with EULAR recommendations was 18.5%. Of the 429 patients with AIIRD not vaccinated according to the EULAR recommendations, 68 (15.9%) patients were not compliant with all three of the vaccines, 136 (31.7%) were not compliant with 2 vaccines (1: pneumococcal and 2: influenza or tetanus toxoid vaccine), 148 (34.5%) were not compliant with 1 vaccine (103 pneumococcal, 41 tetanus toxoid and 4 influenza vaccine) and 77 (17.9%) patients were unaware of their vaccination status for at least 1 vaccine.

Conclusion: In our patients with AIIRD, the highest vaccination rate for recommended vaccines was observed for influenza (nearly 70%). Not being vaccinated for pneumococcus was the main reason why patients did not comply with the EULAR recommendations. More attention is needed to determine and optimise the vaccination status of AIIRD patients and to increase the awareness regarding the pneumococcal vaccine.

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THU0628

IMMUNE-RELATED ADVERSE EVENTS INDUCED BY CANCER IMMUNOTHERAPIES. BIG DATA ANALYSIS OF 13,051 CASES (IMMUNOCANCER INTERNATIONAL REGISTRY)

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Background: The ImmunoCancer International Registry (ICIR) is a Big Data-Sharing multidisciplinary network composed by 39 specialists in Rheumatology, Internal Medicine, Immunology and Oncology from 18 countries focused on immune-related adverse events (irAEs) related to cancer immunotherapies (CIs).

Objectives: To analyse the worldwide scenario of irAEs associated with the use of CIs in this Century.

Methods: The first objective of the ICIR has been the development of a systematic literature review crossing CIs terms with immune diseases defined according to MedDRA V15.0.

Results: The cumulated number of cases per year of irAEs has increased exponentially, with 12,648 patients who developed 13,051 irAEs reported until Dec 31, 2018:

: Combined CIs were used in 1962 (16%) patients, checkpoint inhibitors in 7099 (66%, overwhelmingly CTLA4 and PD1 inhibitors) and Tyrosine Kinase inhibitors in 3327 (31%); ipilimumab, nivolumab and pembrolizumab were associated with nearly 60% of reported cases. Organ-specific classification of irAEs is summarized in the figure:

The Top10 irAEs included enterocolitis (18%), pneumonitis (12%), thyroiditis (11%), myocarditis (6%), myositis (5%), hypophysitis (5%), hepatitis (5%), neuropathy (4%), adrenal (3%) and joint involvement (3%). Most irAEs are organ-specific symptoms not fulfilled criteria of systemic/rheumatic diseases.

Conclusion: More than 13,000 cases of irAEs triggered by CIs have been reported, with the organ-specific autoimmune damage of the endocrine, digestive and pulmonary systems accounting for 70% of the total reported irAEs.