

ONLINE SUPPLEMENTARY MATERIAL

Supplementary Table 1. MEDLINE Search Strategy

1. exp arthritis, rheumatoid/
2. ((rheumatoid or reumatoid or revmatoid or rheumatic or reumatic or revmatic or rheumat* or reumat* or revmarthrit*) adj3 (arthrit* or artrit* or diseas* or condition* or nodule*)).tw.
3. or/1-2
4. qualitative stud*.tw.
5. exp Qualitative Research/
6. survey*.tw.
7. exp Data Collection/
8. questionnaire*.tw.
9. focus group*.tw.
10. conjoint analysis.tw.
11. discrete choice experiment*.tw.
12. rating task*.tw.
13. ranking task*.tw.
14. choice experiment*.tw.
15. decision aid*.tw.
16. risk attitude*.tw.
17. risk aversion.tw.
18. discrete choice*.tw.
19. standard gamble.tw.
20. willingness to pay.tw.
21. willingness-to-pay.tw.
22. decision support technique*.tw.
23. decision support system*.tw.
24. decision making.tw.
25. time trade*.tw.
26. exp Questionnaires/
27. trade off*.tw.
28. stated preference*.tw.
29. contingent valuation.tw.
30. choice experiment.tw.
31. or/4-30
32. exp Consumer Satisfaction/
33. exp Consumer Participation/
34. exp Patient Satisfaction/
35. patient perspective*.tw.
36. exp "Attitude of Health Personnel"/
37. exp Health Knowledge, Attitudes, Practice/
38. exp "Delivery of Health Care"/
39. patient compliance.tw.
40. patient participation.tw.
41. patient satisfaction.tw.
42. treatment refusal.tw.
43. patient preference*.tw.
44. patient opinion*.tw.
45. patient belief*.tw.
46. patient concern*.tw.
47. patient perspective*.tw.
48. patient choice*.tw.

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49. patient value*.tw.

50. patient priorit*.tw.

51. exp Health Priorities/

52. patient perception*.tw.

53. choice behavio*.tw.

54. patient consensus.tw.

55. exp Consensus/

56. (dissent and dispute*).tw.

57. uncertain*.tw.

58. (utility or utilities).ti,ab.

59. discrete choice*.tw.

60. ((patient\$ or participant\$) adj3 (participation or satisfaction or perspective\$ or compliance or preference\$ or opinion\$ or belief\$ or concern\$ or choice\$ or value\$ or priorit\$ or perception\$ or request\$)).tw.

61. or/32-60

62. 3 and 31 and 61

63. exp animals/ not humans.sh.

64. 62 not 63

Supplementary Table 2. Study quality assessment.

Study ID	Was the patient population representative of patients with RA? (external validity)	Did the task(s) appropriately represent the choice being evaluated? (quality of construct representation)	Did participants understand the tasks as intended? (construct-irrelevant variance)	Was the data complete and analyzed appropriately? (quality of reporting and analysis)	Other	Overall study quality
Alten 2016(54)	High	High	Moderate	High	No difference	High
Augustovski 2013(40)	High	Medium	High	High	Strengthen	High
Bacalao 2017(60)	Medium	High	High	High	No difference	High
Bolge 2016(30)	Low	Medium	Low	High	No difference	Low
Buitinga 2012(36)	Medium	High	High	High	No difference	High
Chiou 2005(18)	Medium	Medium	Moderate	High	No difference	Medium
Constantinescu 2009(16, 42)	High	Medium	Moderate	High	No difference	Medium
Da Silva 2010(33)	High	High	High	High	No difference	High
Desplats 2017(62)	High	Medium	Moderate	High	No difference	Medium
Ferraz 1994(19)	Low	Low	Low	High	No difference	Low
Fraenkel 2002(26, 27)	Medium	Medium	Moderate	High	No difference	Medium
Fraenkel 2004(17)	Medium	Medium	Moderate	High	No difference	Medium
Fraenkel 2015(41)	High	Medium	Moderate	High	No difference	High
Fraenkel 2016(37)	Low	High	High	High	No difference	Medium
Fraenkel 2017(52)	Medium	Medium	Moderate	Medium	No difference	Medium
Goekoop-Ruiterman 2007(15)	High	Medium	Moderate	High	No difference	Medium
Hazlewood 2016(14, 55)	High	Medium	High	High	Strengthen	High
Heiberg 2002(34)	Medium	High	High	High	No difference	High
Ho 1998(28)	Medium	Low	Low	Low	Weaken	Low
Husni 2017(53)	Medium	Medium	Moderate	High	No difference	Medium
Huynh 2014(63)	Medium	High	High	High	No difference	Medium
Louder 2016(56)	Low	Medium	High	High	Weaken	Low
Martin 2017(64)	Medium	Medium	Moderate	Medium	No difference	Medium
Navarro-Millan 2016(31)	Medium	High	High	High	No difference	Medium

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Nolla 2016(57)	Medium	Medium	Moderate	High	No difference	Medium
O'Brien 1990(29)	Low	Medium	Moderate	High	No difference	Low
Ozdemir 2009(59)	Medium	Low	High	High	No difference	Medium
Poulos 2014(58)	Low	Medium	High	High	No difference	Medium
Sanderson 2010(35)	High	High	High	High	No difference	High
Scarpato 2010(32)	High	High	High	High	No difference	High
Skjoldborg 2009(39)	Medium	Low	Low	High	Strengthen	Medium
Slothuus 2000(23, 24)	Medium	Medium	High	High	Strengthen	Medium
Suarez-Almazor 2001(20)	Medium	High	High	High	Strengthen	High
Tuominen 2011(25)	High	Medium	Moderate	Medium	Weaken	Medium
Van Overbeeke 2017(38)	Low	High	Moderate	High	No difference	Medium
van Tuyl 2017(61)	High	High	High	High	No difference	High

Supplementary Table 3. Relative importance of treatment attributes from Discrete Choice Experiment studies.

Study ID	Attributes	Levels (best to worst, from left to right)	Relative Importance	Summary
Fraenkel 2017(52)	Cost	Easy, somewhat, hard to afford	24.7	No benefits considered. Of the AE, bothersome side effects more important than rare or very rare AE.
	Bothersome side effects	0 to 30%	20.7	
	Very rare side effects	GI tear, neuro disease like MS, permanent eye problems, life-threatening brain infection	13.7	
	Onset of action	2 to 12 weeks	11.5	
	Serious infection	1 to 5%	11.0	
	Route of administration	Oral, SC, IV	10.7	
	Time on the market	27 to 3 years	7.8	
Husni 2017(53)	Improvement in physical function	0 to 60%	21.4	Treatment benefits most important
	Reduction in pain	0 to 75%	20.7	
	Reduction in number of swollen joints	0 to 75%	12.3	
	Route	Oral, SC, IV	10.6	
	Risk of cancer	0 to 2%	9.5	
	Monthly co-pay	\$0 to \$100	9.4	
	Dose frequency	Monthly, Q2W, daily	6.7	
	Abnormal lab results	10 to 30%	5.2	
Risk of serious infection	0 to 4%	4.3		
Alten 2016(54)	Route of administration	Oral, SC, IV	31.6	Practical aspects of dosing (route of administration with order from best to worst: oral>SC>IV) more important than side effects (benefits not considered)
	Combination therapy with MTX	No, Yes	22.8	
	Frequency	Q12M to BID	19.2	
	Possible side effects	allergy, infection, abnormal labs	17.5	
	Onset of benefit	1 to 3 months	9.0	
Hazlewood 2016(14)	Major symptom improvement	70 to 30%	30.2	Treatment benefits most important (symptom improvement, avoiding joint damage). Patients wanted to avoid IV therapy, but other dosing options less important.
	Serious joint damage	2 to 30%	23.2	
	Dosing	SC vs IV (plus weekly pills)	10.9	
		Daily pills vs 5 non-IV options	7.3	
	Infection, possible risk of cancer	No, Yes	11.5	
	Stopping due to side effect	2 to 20%	7.3	

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	Possible rare lung or liver reaction	No, Yes	6.0	
	Limit alcohol	No, Yes	2.4	
	Regular eye exams	No, Yes	1.2	
Louder 2016(56)	Route	SC vs IV	18.9	Dosing considerations more important than side effects and benefits (across the marginal range of benefits considered).
		Oral vs SC	15.2	
	Frequency	Q8W to twice daily	16.4	
	Serious side effects	4% to 8%	12.0	
	Monthly co-pay	\$25 to \$75 USD	10.1	
	Take with another DMARD	No, Yes	9.8	
	Reduction in joint pain/swelling	58% to 50%	8.9	
	Improvement in function	36% to 32%	8.8	
Nolla 2016(57)	Pain relief/ functional improvement	Yes, None	37.5	Benefits most important, although magnitude of benefit not well defined in survey.
	Risk of AE	Low, High	24.3	
	Route	SC vs IV	21.0	
	Duration of effect	4 to 1 weeks	17.2	
Poulos 2014(58)	Immediate serious reaction	1% to 25%	34.6	Serious infusion reactions most important across a very wide range levels (1 to 25%). Benefits more important than other considerations. Route (sc versus IV) least important.
	Medication working well	75% to 40%	24.2	
	Frequency	4 per year to Q2W	20.1	
	Time for infusion	0 (home) to 4 hours	13.0	
	Immediate mild reaction	1% to 25%	6.2	
	Route	SC vs IV	1.9	
Augustovski 2013(40)	Monthly co-pay	\$0 to \$1500 USD	21.9	Frequency and AE more important than benefit, but benefit considered relatively small. Patients wanted to avoid IV therapy, but little difference between SC and oral. Costs considered were over a wide range, as goal was to estimate willingness to pay.
	Generalized AE	0 to 30%	18.3	
	Frequency	Q10M to daily	16.9	
	Improvement in patient global	-40 to -20 mm on VAS	12.4	
	Route	SC vs IV	11.4	
		Oral vs SC	<0.1	
	Local AE	0 to 40%	10.9	
Constantinescu 2009*(16, 42)	Serious infection	1 to 5%	8.2	Overall, treatment benefits more important than dosing and most AEs, except a 'possible increased risk of cancer, which was of similar importance.
	Remission	45 to 15%	13.4	
	No joint damage on x-rays	80 to 30%	12.6	
	Symptom improvement	70 to 40%	12.2	
	Rare, but serious AE (various: cancer, neurologic disease, TB, lung injury)	None to increased	6.5 (TB) to 11.9 (cancer)	
	Route	Oral, SC, IV	9.0	

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	Injection reaction	0 to 30%	7.4	
	Reversible AE	0 to 10%	6.6	
Ozdemir 2009(59)**	Monthly co-pay	\$50 to \$1000	44.4	Benefits more important than harms and dosing, although wide range of levels for benefits considered. Costs considered were over a wide range, as goal was to estimate willingness to pay.
	Medication works well	100% to 25%	23.0	
	Dosing	5 sc and IV options	10.5	
	Serious infection	0% to 5%	9.1	
	Onset of effect	1 to 10 weeks	6.8	
	Duration of injection site irritation	15 min to 3 hrs	6.2	
Skjoldborg 2009(39)	Monthly co-pay	0 to 5000 DKK (\$841 USD***)	78.8	Of benefits, reducing fatigue most important (twice as important as a large change in pain), but similar to slightly higher risk minor infection, suggesting patients quite risk averse.
	Feeling of being tired	Reduced, unchanged	8.8	
	Slightly higher risk minor infection	No, Yes	8.3	
	Pain level	0 to 10	3.6	
	Number swollen joints	0 to 25	0.3	
	Duration morning stiffness	0 to 120 min	<0.1	
Fraenkel 2004(17)	Less common, but serious AE (various: kidney, liver, cancer, lung)	None to increased	6.6 (kidney) to 7.8 (lung)	Common, reversible AE and less common but serious AE more important than treatment benefits.
	Common, but reversible AE (various: alopecia, oral ulcers, nausea, injection reaction, rash, diarrhea)	None to increased	5.0 (alopecia) to 7.6 (diarrhea)	
	Route	Oral vs SC vs IM	6.5	
	Drug onset	2 to 8 weeks	5.9	
	Monthly co-pay	Free to \$30	5.8	
	Physician experience	Available >20 years, new	5.4	
	Chance of benefit	45 to 75% improvement	4.6	
	Bone erosions	60% to 75% do <i>not</i> get	4.0	

*Relative importance values are a weighted average of White and Black subgroups, which were reported separately in paper.

**Patient sample split into 2 groups, one of which received 'cheap-talk' text introducing the survey; these estimates from this sample are reported (n=233).

***conversion rate 2009: 1USD=5.95DKK

Supplementary Table 4. Association between patient characteristics and preferences.

The table summarizes the results of studies that examined a potential relationship between patient variables and preferences. The arrow indicates the direction of the effect, with a sideways arrow (↔) indicating the association was explored and found to not be statistically significant.

Characteristic	Direction of effect	Higher importance placed on				Risk tolerant: prefer more intensive Rx (higher benefit with higher AE)	Willingness to pay	
		Treatment benefits	Adverse events	Treatment costs	Route (SC > IV)		Benefits	Avoid side effects
Sociodemographics								
Age	Younger	↑↑↔ (17, 39, 40)	↔↔↔↔↔ (17, 26, 39, 40, 52)	↓↔↔↔ (17, 39, 40, 52)	↔↔↔↔↔ (17, 32, 40, 52, 63)	↔↔↔ (14, 41, 42)	↔ (59)	↓ (59)
Sex	Female	↔ (39)	↓↔↔ (26, 39, 52)	↑↔ (39)	↔↔ (32)	↔↔↔ (14, 41, 42)		
Marital status	Married		↔ (26)			↑↔ (41, 42)		
Number children	More	↔ (28)						
Smoking	Current	↔ (28)				↑ (14)		
Ethnicity	Black					↓↓ (41, 42)		
	Hispanic		↔ (52)	↔ (52)	↑ (52)	↔ (41)		
	Caucasian		↔ (52)	↔ (52)	↓ (52)			
Income	Higher	↔↔ (39, 40)	↔↔↔ (39, 40, 52)	↓↓↔ (39, 40, 52)	↔↔ (40, 52)	↑↑↔ (14, 41, 42)	↑ (59)	↑ (59)
Employment status	Employed	↑ (39)	↔↔↔ (26, 39)	↓↔ (39, 52)	↔ (52)	↑↔ (41, 42)		
Insurance coverage	Public (vs other)					↔ (42)		
Education	Higher		↔↔ (26, 52)	↔ (52)	↔↔ (26, 52)	↑↑↑ (14, 41, 42)	↔ (59)	↑ (59)
Subjective numeracy	Higher					↑ (41)		
RA disease status and history								
Disease duration	Shorter	↔↔ (28, 39)	↔ (39)	↔ (39)	↔ (32)	↔↔↔ (14, 41, 42)	↑ (24)	
Disease activity (global or composite measures)	Higher					↔↔ (14, 41)		
Arthritis-related health status	Better	↔ (17)	↔↔↔ (17, 26, 52)	↔↔ (17, 52)	↔↔ (17, 52)	↔ (42)		
Functional status	Greater disability	↔ (28)				↔ (42)		
Pain	Higher	↔↔ (28, 39)	↔ (39)	↔ (39)	↓ (32)		↑ (24)	
Fatigue	Higher	↔ (39)	↔ (39)	↔ (39)				
Swollen joints	More	↔ (39)	↔ (39)	↔ (39)				
Morning stiffness	Higher	↔ (39)	↔ (39)	↔ (39)			↑ (25)	
RA treatment history								
Satisfaction with current Rx	Dissatisfied due to side effects (Unclear)				↑ (32)			
Prior treatment							↔ (59)	↔ (59)
Current RA treatment	Biologic vs not		↔ (52)	↔ (52)	↔ (52)	↑↔ (41, 42)		
	SC vs IV				↑ (63)			
	More intensive vs single					↑ (14)		

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	Greater number prior DMARDs				↔ (32)		
	Unclear	↔ (28)					
History of AE	Prior AE	↔ (39)	↓ ↔ (26, 39)	↔ (39)			
Current drug costs	Monthly drug expenditures	↔ (39)	↓(39)	↔ (39)			↑ (24)
Other medical history							
Comorbidities	More					↔ (14)	
Clinic characteristics							
Travel time to clinic	Greater				↔ (63)		↑ (24)
Clinic location	Public (vs private)	↔ (40)	↔ (40)	↔ (40)	↔ (40)		

REFERENCES

1. Elwyn G, Frosch D, Thomson R, Joseph-Williams N, Lloyd A, Kinnersley P, et al. Shared decision making: a model for clinical practice. *J Gen Intern Med* 2012;27:1361-7.
2. Andrews JC, Schünemann HJ, Oxman AD, Pottie K, Meerpohl JJ, Coello PA, et al. GRADE guidelines: 15. Going from evidence to recommendation-determinants of a recommendation's direction and strength. *J Clin Epidemiol* 2013;66:726-35.
3. Andrews J, Guyatt G, Oxman AD, Alderson P, Dahm P, Falck-Ytter Y, et al. GRADE guidelines: 14. Going from evidence to recommendations: the significance and presentation of recommendations. *J Clin Epidemiol* 2013;66:719-25.
4. Ryan M, Scott DA, Reeves C, Bate A, van Teijlingen ER, Russell EM, et al. Eliciting public preferences for healthcare: a systematic review of techniques. *Health Technol Assess* 2001;5:1-186.
5. Hazlewood G. Measuring patient preferences: an overview of methods with a focus on discrete choice experiments. *Rheum Dis Clin North Am* 2018;44:337-47.
6. Froberg DG, Kane RL. Methodology for measuring health-state preferences--II: Scaling methods. *J Clin Epidemiol* 1989;42:459-71.
7. Bridges JF. Stated preference methods in health care evaluation: an emerging methodological paradigm in health economics. *Appl Health Econ Health Policy* 2003;2:213-24.
8. van den Bemt BJ, van Lankveld WG. How can we improve adherence to therapy by patients with rheumatoid arthritis? *Nat Clin Pract Rheumatol* 2007;3:681.
9. Barton JL. Patient preferences and satisfaction in the treatment of rheumatoid arthritis with biologic therapy. *Patient Prefer Adherence* 2009;3:335-44.
10. Medical Subject Headings (MeSH). US National Library of Medicine. (Internet. Assessed April 3, 2018.) Available from: <https://meshb.nlm.nih.gov/record/ui?ui=D057240>
11. Hazlewood GS, Barnabe C, Tomlinson G, Marshall D, Devoe DJ, Bombardier C. Methotrexate monotherapy and methotrexate combination therapy with traditional and biologic disease modifying anti-rheumatic drugs for rheumatoid arthritis: a network meta-analysis. *Cochrane Database Syst Rev* 2016:CD010227.

Online supplement to: Patient Preferences for Disease-modifying Antirheumatic Drug Treatment in Rheumatoid Arthritis: A Systematic Review. *The Journal of Rheumatology*. doi:10.3899/jrheum.181165

12. Purnell TS, Joy S, Little E, Bridges JF, Maruthur N. Patient preferences for noninsulin diabetes medications: a systematic review. *Diabetes Care* 2014;37:2055-62.
13. Eiring Ø, Landmark BF, Aas E, Salkeld G, Nylenna M, Nytroen K. What matters to patients? A systematic review of preferences for medication-associated outcomes in mental disorders. *BMJ Open* 2015;5:e007848.
14. Hazlewood GS, Bombardier C, Tomlinson G, Thorne C, Bykerk VP, Thompson A, et al. Treatment preferences of patients with early rheumatoid arthritis: a discrete-choice experiment. *Rheumatology* 2016;55:1959-68.
15. Goekoop-Ruiterman YP, de Vries-Bouwstra JK, Allaart CF, Kerstens PJ, Grillet BA, de Jager MH, et al. Patient preferences for treatment: report from a randomised comparison of treatment strategies in early rheumatoid arthritis (BeSt trial). *Ann Rheum Dis* 2007;66:1227-32.
16. Constantinescu F, Goucher S, Weinstein A, Smith W, Fraenkel L. Understanding why rheumatoid arthritis patient treatment preferences differ by race. *Arthritis Rheum* 2009;61:413-8.
17. Fraenkel L, Bogardus S, Concato J, Felson D, Wittink D. Patient preferences for treatment of rheumatoid arthritis. *Ann Rheum Dis* 2004;63:1372-8.
18. Chiou CF, Weisman M, Sherbourne CD, Reyes C, Dylan M, Ofman J, et al. Measuring preference weights for American college of rheumatology response criteria for patients with rheumatoid arthritis. *J Rheumatol* 2005;32:2326-9.
19. Ferraz MB, Quaresma MR, Goldsmith CH, Bennett K, Atra E. Corticosteroids in patients with rheumatoid arthritis: utility measurements for evaluating risks and benefits. *Rev Rhum Engl Fr* 1994;61:240-44.
20. Suarez-Almazor ME, Conner-Spady B. Rating of arthritis health states by patients, physicians, and the general public. Implications for cost-utility analyses. *J Rheumatol* 2001;28:648-56.
21. Ferraz MB, Quaresma MR, Goldsmith CH, Bennett K, Atra E. [Estimation of benefits and risks of the treatment of rheumatoid polyarthritis with glucocorticoids using the health-related quality of life measurements]. [Article in French] *Rev Rhum Ed Fr* 1994;61:255-9.
22. Dolan P, Sutton M. Mapping visual analogue scale health state valuations onto standard gamble and time trade-off values. *Soc Sci Med* 1997;44:1519-30.
23. Slothuus U, Brooks RG. Willingness to pay in arthritis: a Danish contribution. *Rheumatology* 2000;39:791-9.
24. Slothuus U, Larsen ML, Junker P. Willingness to pay for arthritis symptom alleviation. Comparison of closed-ended questions with and without follow-up. *Int J Technol Assess Health Care* 2000;16:60-72.
25. Tuominen R, Tuominen S, Möttönen T. How much is a reduction in morning stiffness worth to patients with rheumatoid arthritis? *Scand J Rheumatol Suppl* 2011;125:12-6.
26. Fraenkel L, Bogardus S, Concato J, Felson D. Unwillingness of rheumatoid arthritis patients to risk adverse effects. *Rheumatology* 2002;41:253-61.

Online supplement to: Patient Preferences for Disease-modifying Antirheumatic Drug Treatment in Rheumatoid Arthritis: A Systematic Review. *The Journal of Rheumatology*. doi:10.3899/jrheum.181165

27. Fraenkel L, Bogardus S, Concato J, Felson D. Risk communication in rheumatoid arthritis. *J Rheumatol* 2003;30:443-8.
28. Ho M, Lavery B, Pullar T. The risk of treatment. A study of rheumatoid arthritis patients' attitudes. *Br J Rheumatol* 1998;37:459-60.
29. O'Brien BJ, Elswood J, Calin A. Willingness to accept risk in the treatment of rheumatic disease. *J Epidemiol Community Health* 1990;44:249-52.
30. Bolge SC, Goren A, Brown D, Ginsberg S, Allen I. Openness to and preference for attributes of biologic therapy prior to initiation among patients with rheumatoid arthritis: patient and rheumatologist perspectives and implications for decision making. *Patient Prefer Adherence* 2016;10:1079-90.
31. Navarro-Millan I, Herrinton LJ, Chen L, Harrold L, Liu L, Curtis JR. Comparative effectiveness of etanercept and adalimumab in patient reported outcomes and injection-related tolerability. *PloS One* 2016;11:e0149781.
32. Scarpato S, Antivalle M, Favalli EG, Nacci F, Frigelli S, Bartoli F, et al. Patient preferences in the choice of anti-TNF therapies in rheumatoid arthritis. Results from a questionnaire survey (RIVIERA study). *Rheumatology* 2010;49:289-94.
33. da Silva JA, Ramiro S, Pedro S, Rodrigues A, Vasconcelos JC, Benito-Garcia E. Patients- and physicians- priorities for improvement. The case of rheumatic diseases. *Acta Reumatol Port* 2010;35:192-9.
34. Heiberg T, Kvien TK. Preferences for improved health examined in 1,024 patients with rheumatoid arthritis: pain has highest priority. *Arthritis Rheum* 2002;47:391-7.
35. Sanderson T, Morris M, Calnan M, Richards P, Hewlett S. Patient perspective of measuring treatment efficacy: the rheumatoid arthritis patient priorities for pharmacologic interventions outcomes. *Arthritis Care Res* 2010;62:647-56.
36. Buitinga L, Braakman-Jansen LM, Taal E, van de Laar MA. Worst-case future scenarios of patients with rheumatoid arthritis: a cross-sectional study. *Rheumatology* 2012;51:2027-33.
37. Fraenkel L, Miller AS, Clayton K, Crow-Hercher R, Hazel S, Johnson B, et al. When patients write the guidelines: patient panel recommendations for the treatment of rheumatoid arthritis. *Arthritis Care Res* 2016;68:26-35.
38. van Overbeeke E, De Beleyr B, de Hoon J, Westhovens R, Huys I. Perception of originator biologics and biosimilars: a survey among Belgian rheumatoid arthritis patients and rheumatologists. *BioDrugs* 2017;31:447-59.
39. Skjoldborg US, Lauridsen J, Junker P. Reliability of the discrete choice experiment at the input and output level in patients with rheumatoid arthritis. *Value Health* 2009;12:153-8.
40. Augustovski F, Beratarrechea A, Irazola V, Rubinstein F, Tesolin P, Gonzalez J, et al. Patient preferences for biologic agents in rheumatoid arthritis: a discrete-choice experiment. *Value Health* 2013;16:385-93.
41. Fraenkel L, Cunningham M, Peters E. Subjective numeracy and preference to stay with the status quo. *Med Decis Making* 2015;35:6-11.

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42. Constantinescu F, Goucher S, Weinstein A, Fraenkel L. Racial disparities in treatment preferences for rheumatoid arthritis. *Med Care* 2009;47:350-5.
43. Stacey D, Légaré F, Col NF, Bennett CL, Barry MJ, Eden KB, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev* 2014;1:CD001431.
44. Lofland JH, Johnson PT, Ingham MP, Rosemas SC, White JC, Ellis L. Shared decision-making for biologic treatment of autoimmune disease: influence on adherence, persistence, satisfaction, and health care costs. *Patient Prefer Adherence* 2017;11:947-58.
45. Bykerk VP, Akhavan P, Hazlewood GS, Schieir O, Dooley A, Haraoui B, et al; Canadian Rheumatology Association. Canadian Rheumatology Association recommendations for pharmacological management of rheumatoid arthritis with traditional and biologic disease-modifying antirheumatic drugs. *J Rheumatol* 2012;39:1559-82.
46. Singh JA, Saag KG, Bridges SL, Jr., Akl EA, Bannuru RR, Sullivan MC, et al. 2015 American College of Rheumatology guideline for the treatment of rheumatoid arthritis. *Arthritis Rheumatol* 2016;68:1-26.
47. Smolen JS, Landewe R, Bijlsma J, Burmester G, Chatzidionysiou K, Dougados M, et al. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. *Ann Rheum Dis* 2017;76:960-77.
48. Paling J. Strategies to help patients understand risks. *BMJ* 2003;327:745-8.
49. Goodacre LJ, Goodacre JA. Factors influencing the beliefs of patients with rheumatoid arthritis regarding disease-modifying medication. *Rheumatology* 2004;43:583-6.
50. Selva A, Sola I, Zhang Y, Pardo-Hernandez H, Haynes RB, Martinez Garcia L, et al. Development and use of a content search strategy for retrieving studies on patients' views and preferences. *Health Qual Life Outcomes* 2017;15:126.
51. Yepes-Nunez JJ, Zhang Y, Xie F, Alonso-Coello P, Selva A, Schunemann H, et al. Forty-two systematic reviews generated 23 items for assessing the risk of bias in values and preferences' studies. *J Clin Epidemiol* 2017;85:21-31.
52. Fraenkel L, Nowell WB, Michel G, Wiedmeyer C. Preference phenotypes to facilitate shared decision-making in rheumatoid arthritis. *Ann Rheum Dis* 2017.
53. Husni ME, Betts KA, Griffith J, Song Y, Ganguli A. Benefit-risk trade-offs for treatment decisions in moderate-to-severe rheumatoid arthritis: focus on the patient perspective. *Rheumatol Int* 2017;37:1423-34.
54. Alten R, Kruger K, Rellecke J, Schiffner-Rohe J, Behmer O, Schiffhorst G, et al. Examining patient preferences in the treatment of rheumatoid arthritis using a discrete-choice approach. *Patient Prefer Adherence* 2016;10:2217-28.
55. Hazlewood GS, Bombardier C, Tomlinson G, Marshall D. A Bayesian model that jointly considers comparative effectiveness research and patients' preferences may help inform GRADE recommendations: an application to rheumatoid arthritis treatment recommendations. *J Clin Epidemiol* 2018;93:56-65.

Online supplement to: Patient Preferences for Disease-modifying Antirheumatic Drug Treatment in Rheumatoid Arthritis: A Systematic Review. *The Journal of Rheumatology*. doi:10.3899/jrheum.181165

56. Louder AM, Singh A, Saverno K, Cappelleri JC, Aten AJ, Koenig AS, et al. Patient preferences regarding rheumatoid arthritis therapies: a conjoint analysis. *Am Health Drug Benefits* 2016;9:84-93.
57. Nolla JM, Rodriguez M, Martin-Mola E, Raya E, Ibero I, Nocea G, et al. Patients' and rheumatologists' preferences for the attributes of biological agents used in the treatment of rheumatic diseases in Spain. *Patient Prefer Adherence* 2016;10:1101-13.
58. Poulos C, Hauber AB, Gonzalez JM, Turpcu A. Patients' willingness to trade off between the duration and frequency of rheumatoid arthritis treatments. *Arthritis Care Res* 2014;66:1008-15.
59. Ozdemir S, Johnson FR, Hauber AB. Hypothetical bias, cheap talk, and stated willingness to pay for health care. *J Health Econ* 2009;28:894-901.
60. Bacalao EJ, Greene GJ, Beaumont JL, Eisenstein A, Muftic A, Mandelin AM, et al. Standardizing and personalizing the treat to target (T2T) approach for rheumatoid arthritis using the Patient-Reported Outcomes Measurement Information System (PROMIS): baseline findings on patient-centered treatment priorities. *Clin Rheumatol* 2017;36:1729-36.
61. van Tuyl LH, Sadlonova M, Hewlett S, Davis B, Flurey C, Goel N, et al. The patient perspective on absence of disease activity in rheumatoid arthritis: a survey to identify key domains of patient-perceived remission. *Ann Rheum Dis* 2017;76:855-61.
62. Desplats M, Pascart T, Jelin G, Norberciak L, Philippe P, Houvenagel E, et al. Are abatacept and tocilizumab intravenous users willing to switch for the subcutaneous route of administration? A questionnaire-based study. *Clin Rheumatol* 2017;36:1395-400.
63. Huynh TK, Ostergaard A, Egsmose C, Madsen OR. Preferences of patients and health professionals for route and frequency of administration of biologic agents in the treatment of rheumatoid arthritis. *Patient Prefer Adherence* 2014;8:93-9.
64. Martin RW, Enck RD, Tellinghuisen DJ, Eggebeen AT, Birmingham JD, Head AJ. Comparison of the Effects of a Pharmaceutical Industry Decision Guide and Decision Aids on Patient Choice to Intensify Therapy in Rheumatoid Arthritis. *Med Decis Making* 2017;37:577-88.
65. Goekoop-Ruiterman YP, de Vries-Bouwstra JK, Allaart CF, van Zeben D, Kerstens PJ, Hazes JM, et al. Clinical and radiographic outcomes of four different treatment strategies in patients with early rheumatoid arthritis (the BeSt study): a randomized, controlled trial. *Arthritis Rheum* 2005;52:3381-90.