

**Table 4. Study characteristics and outcomes for the outcome measure safety – disease activity**

First author, year	Vaccine	Patients	Medication used <sup>a</sup>	Follow-up	Result	Effect of medication on results
<b>HPV</b>						
Heijstek, 2014	HPV-b (Cervarix vaccine)	IG: n=68 JIA patients CG: n=55 HC	24 MTX, 9 TNFi, 6 other DMARD	12 months	Stable DA 1 year post vaccine	Not reported
Esposito, 2014	HPV-b (Cervarix vaccine)	IG: n=21 JIA patients CG: n=55 HC	10 NSAID, 5 MTX, 6 TNFi	7 months	No increase in JADAS-27	Not reported
<b>PCV/PPV</b>						
Aikawa, 2015	PPV23	IG: n=17 JIA patients pre-etanercept CG: n=10 JIA patients using MTX	IG: MTX HD 2 weeks before ETA. CG: 10 LD MTX.	12 months	Stable DA in JIA patients	Significant decrease in DA parameters over time in patients with anti-TNF compared with patients without anti-TNF.
<b>Influenza</b>						
Aikawa, 2013	H1N1	IG: n=95 JIA patients CG: n=91 HC	16 TNFi, 63 DMARD(s)	3 weeks	DAS stable	Not reported
Carvalho, 2013	Influenza (H1N1, H3N2, B/Florida)	IG: n=44 JIA patients CG: n=10 HC	IS in 34-44%	180 days	Equal ACRped30 pre and post vaccination	Not reported
Dell'Era, 2012	Influenza (M59 adjuvanted, with H1N1, H3N2, and influenza B)	IG: n=60 JIA patients CG: n=30 HC	30 DMARD vs. 30 aTNF (Etanercept)	3 months	Stable DA during follow-up	Not reported
Camacho-Lovillo, 2017	Influenza (H1N1, H3N2, B)	IG: n=25 JIA patients CG: n=6 healthy siblings	15 anti-TNF $\alpha$ (11 etanercept and 4 adalimumab), 4 anti-IL-1R (anakinra), 6 anti-IL-6R (tocilizumab)	1 year	No flares, increased JADAS in 6pt	Not reported
<b>MMR (live-attenuated vaccine)</b>						
Heijstek, 2013	MMR (MMR-NVI and M-M-RVAXPRO)	IG: n=68 vaccinated JIA patients CG: n=69 unvaccinated JIA patients	60 MTX, 15 biologicals, 3 GC	12 months	Stable DA, incl. pts on biologicals	No difference in JADAS-27 score between patients with MMR booster and control group in patients taking methotrexate (JADAS-27 difference over time, 0.02; 95% CI, -1.1 to 1.2) or biologics (JADAS-27 difference over time, 0.6; 95% CI, -1.2 to 2.4)

						No difference in relative risk of a flare between revaccinated patients and controls in patients using methotrexate or biologics (although small patient number precluded definite conclusions).
<b>VZV (live-attenuated vaccine)</b>						
Groot, 2017	VZV (Oka strain, Varilrix as second dose)	IG: n=49 in total, 39 JIA patients CG: n=18 HC	49 MTX, 16 GCs, 3 biologics	4-6 weeks after vaccination	3 patients had a slight increase in JADAS-71 score after vaccination (median JADAS increase: 1)	Three patients (one using MTX, corticosteroids and ciclosporine; one using MTX and corticosteroids and one using MTX per day and corticosteroids) reported having mild temperature elevation and a mild vesicular rash within the first two weeks after vaccination, compared with one HC having fever after vaccination.
<b>Covid-19</b>						
Udaondo, 2022	Covid-19 (BNT162b2 mRNA vaccine)	IG: n=40 in total, 26 JIA patients CG: n=24 HC	35 immunosuppressive treatment, 11 adalimumab, 9 etanercept, 3 infliximab, 5 mycophenolate mofetil, 5 baricitinib, 1 cyclosporine, 14 methotrexate between 10 and 15 mg/m2/weekly combined with other treatment.	3 weeks after complete vaccination regime	No inflammatory arthritis flares in JIA patients were reported, in the context of either vaccination time points.	Not reported

AB, antibody; ABT, abatacept; ADA, adalimumab; AE, adverse event; ANR, Anakinra; AZA, azathioprine; bDMARD, biological disease modifying anti-rheumatic drugs; CAM, canakinumab; CG, control group; Cy, cyclophosphamide; CYC, cyclosporine; DTP, diphtheria tetanus pertussis; ETN, etanercept; GC, glucocorticosteroids; GMT, geometric mean titer; HAV, hepatitis A virus; HBV, hepatitis B virus; HC, healthy controls; pts, patients; IBD, inflammatory bowel disease; IFX, infliximab; IG, intervention group; IgG, immunoglobulin G; IRD, immune rheumatic diseases; IS, immunosuppression; IVIG, intravenous immunoglobulines; HCQ, hydroxychloroquine; JIA, juvenile idiopathic arthritis; LEF, leflunomide; MMF, mycophenolic acid; MMR(/V), measles mumps rubella (/varicella); 6-MP, 6-mercaptopurine; MTX, methotrexate; MV, measles vaccine; NSAID, non-steroid anti-inflammatory drug; RAI, relative avidity index; SAE, severe adverse event; RD, rheumatic diseases; RTX, rituxim; SC, seroconversion; SP, seroprotection; SFU, spot forming units; TBE, tick-borne-

encephalitis; TBEV, tick-borne-encephalitis virus; TCZ, tocilizumab; Thiopur, thiopurine; TNFi, tumor necrosis factor inhibitor; TT, tetanus toxoid; vacc, vaccine; VZV, varicella zoster virus;

<sup>a</sup> Medication used in the intervention group, unless reported different. Numbers represent amount of patients using that medication