

Table 1: Recommended Investigations for some commonly used DMARDs^{1,2,3,4,5,6}

The following recommendations are based on international guidelines and represent the most rigorous monitoring regimen. However local guidelines vary, so it is important to follow the advice of the treating rheumatologist, especially in regards to frequency of testing.

Methotrexate			
Monitoring	Frequency	What to look for	What to do
Complete blood count (CBC)	Baseline Then every 2 weeks until dose of methotrexate and monitoring has been stable for 6 weeks Thereafter every 4 weeks	WBC <3.5 x 10 ⁹ /L Neutrophils <2.0 x 10 ⁹ /L Platelets <150 x 10 ⁹ /L	Discuss with specialist team immediately.
		MCV > 105 fL	Check vitamin B12, folate and TSH. If abnormal, treat any underlying abnormality.
Liver function tests (LFTs)	Baseline Then every 2 weeks until dose of methotrexate and monitoring has been stable for 6 weeks Thereafter every 4 weeks	AST, ALT > twice the upper limit of reference range.	Withhold until discussed with specialist team. Other factors to consider: - Check alcohol intake. - Look at NSAID; may cause liver dysfunction. - Review medication
		Unexplained decrease in albumin (in absence of active disease)	Withhold until discussed with specialist team
Serum creatinine	Baseline Then every 2 weeks until dose of methotrexate and monitoring has been stable for 6 weeks Thereafter every 4 weeks	Significant deterioration in renal function	Reduce dose
Rash or oral ulceration			Withhold until discussed with specialist team. Folic acid mouth wash may help with mucositis.
Nausea and vomiting, diarrhoea			Giving methotrexate by subcutaneous injection is often a good way of avoiding nausea.
New or increasing dyspnoea or dry cough (pneumonitis)	Some teams perform baseline chest x-ray and respiratory function tests		Withhold and discuss URGENTLY with specialist team. Arrange chest x-ray and respiratory function tests
Severe sore throat, abnormal bruising			Immediate CBC and withhold until results available. Discuss any unusual results with specialist team

Sulfasalazine

Monitoring	Frequency	What to look for	What to do
Complete blood count (CBC)	Baseline Then every 2 weeks for the first 2 months Then monthly for next 3 months Thereafter 3-monthly	WBC <3.5 x 10 ⁹ /L Neutrophils <2.0 x 10 ⁹ /L Platelets <150 x 10 ⁹ /L	Discuss with specialist team immediately.
Liver function tests (LFTs)	Baseline Then every 2 weeks for the first 2 months Then monthly for next 3 months Thereafter 3-monthly	MCV > 105 fL AST, ALT > twice the upper limit of reference range.	Check vitamin B12, folate and TSH. Treat any underlying abnormality Withhold until discussed with specialist team. Consider the use of alcohol, NSAIDs or new alternative medicines
Nausea/dizziness/headache			If possible, continue treatment. May have to reduce dose or stop if symptoms are severe. Discuss with specialist team
Abnormal bruising or sore throat			Check CBC immediately and withhold until results are available. Discuss with specialist team if necessary
Unexplained acute widespread rash			Withhold and seek URGENT specialist (preferably dermatological) advice
Oral ulceration			Withhold until discussed with specialist team

Hydroxychloroquine

Monitoring	Frequency	What to look for	What to do
Any visual disturbance, especially reduced visual acuity	Baseline ophthalmological review. If normal examination and low risk (age <60 years, no liver disease, no retinal disease), 5 yearly visual acuity. High risk, annual visual acuity.		Discuss with ophthalmologist URGENTLY

Leflunomide

Monitoring	Frequency	What to look for	What to do
Complete blood count (CBC)	Baseline Then every 2 weeks for the first 6 months If stable, 8 weekly. If co-prescribed with another immunosuppressant or hepatotoxic agent, 4 weekly	WBC <3.5 x 10 ⁹ /L Neutrophils <2.0 x 10 ⁹ /L Platelets <150 x 10 ⁹ /L	Discuss with specialist team immediately.

Liver function tests (LFTs)	Baseline Then every 4 weeks for the first 6 months if stable, 8 weekly. If co-prescribed with another immunosuppressant or hepatotoxic agent, 4 weekly	AST, ALT, Alk Phos > twice the upper limit of reference range	Withhold until discussed with specialist team
Blood pressure	Baseline. Then at each visit	BP >140/90mmHg	Treat. If blood pressure remains uncontrolled, discuss with specialist team
Abnormal bruising or severe sore throat			Check CBC immediately and withhold until results available
New or increasing dyspnoea or dry cough (pneumonitis)	Some teams perform baseline chest x-ray and respiratory function tests		Withhold and discuss URGENTLY with specialist team. Arrange chest x-ray and respiratory function tests
Azathioprine			
Monitoring	Frequency	What to look for	What to do
Complete blood count (CBC)	Baseline Then weekly for 6 weeks Then every 2 weeks until dose is stable for 6 weeks Then monthly Repeat CBC and LFT two weeks after a dose change	WBC <3.5 x 10 ⁹ /L Neutrophils <2.0 x 10 ⁹ /L Platelets <150 x 10 ⁹ /L	Withhold until discussed with specialist team. Measure 6-TGN and 6-MMP levels.
		MCV > 105 fL	Check vitamin B12, folate and TSH. If abnormal, treat any underlying abnormality. Check 6-TGN level
Liver function tests (LFTs)	Baseline and then monthly	AST, ALT > twice the upper limit of reference range.	Withhold until discussed with specialist team.
Serum creatinine	Baseline and then every 6 months	Mild-to-moderate renal impairment (10-50 mL/minute)	Withhold until discussed with specialist team
Rash or oral ulceration			Withhold until discussed with specialist team
Abnormal bruising or severe sore throat			Withhold until CBC results available and discuss with specialist team

Cyclosporin

Monitoring	Frequency	What to look for	What to do
Complete blood count (CBC)	Baseline Then monthly until dose stable for 3 months Then 3-monthly	Platelets <150 x 10 ⁹ /L	Withhold until discussed with specialist team
Liver function tests (LFTs)	Baseline Then monthly until dose stable for 3 months Then 3-monthly	AST, ALT, or alkaline phosphatase more than two times the upper limit of the reference range	Check for any other reason such as alcohol or drug interactions (including OTC medication), and discuss with specialist team
Creatinine	Baseline Then every two weeks until dose is stable for three months Then monthly.	Creatinine increase > 30% from baseline	Repeat in one week, if still > 30% above baseline, withhold until discussed with specialist team.
Uric acid	Every 3 months.		Discuss persistently elevated uric acid with Rheumatology team and watch for development of gout and tophi.
Electrolytes	Baseline Then every two weeks until dose is stable for three months Then monthly.	Potassium increase to above the reference range	Use clinical judgement, and if necessary discuss with the specialist team
Fasting lipids	Baseline Then six monthly	Significant increase in fasting lipids	Withhold until discussed with specialist team
Blood pressure	Baseline and then check every time patient attends clinic	BP >140/90mmHg	Treat. If blood pressure remains uncontrolled, discuss with specialist team
Abnormal bruising/bleeding			Check CBC immediately and withhold until discussed with the specialist team

Sodium aurothiomalate, injectable gold

Monitoring	Frequency	What to look for	What to do
Complete blood count (CBC)	Baseline and then at each injection	WBC <3.5 x 10 ⁹ /L Neutrophils <2.0 x 10 ⁹ /L Platelets <150 x 10 ⁹ /L	Withhold until discussed with specialist team
Urine dipstick	Baseline and then at each injection	Eosinophilia > 0.5 x 10 ⁹ /L	Caution and extra vigilance for increased eosinophilia (hypersensitivity reaction)
Rash (usually itchy) or oral ulceration		2+ proteinuria or more	If infection present treat appropriately. If 2+ proteinuria or more persists, withhold until discussed with specialist team. Withhold until discussed with specialist team
Abnormal bruising or severe sore throat			Check CBC immediately and withhold until results are available