**Request to Share Care and Agreement Form**

**Mycophenolate mofetil (MMF)**

**use in adults with multisystem autoimmune disease:**

**Nephrology / Rheumatology / Dermatology / Respiratory / Haematology / Neurology /**

**Ophthalmology / Gastroenterology**

**Shared Care Protocol: Guideline No 6; Version 2.1**

**For use in South and West Hertfordshire and East and North Hertfordshire**

**This Request to Share Care provides Key Primary Care Information on responsibilities and monitoring. The aim is to support the GP to agree to share care arrangements. Refer to Full Shared Care Protocol for further information (page 6 onwards).**

**GP to review and must respond to provider Trust request to share care within 2 weeks using form provided on page 5.**

**For Completion by Specialist (with page 5 Shared Care Agreement Form)**

Addressograph label

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| **Patient name** |       |
| **DOB** |       |
| **NHS number** |       |

 **OR**

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| **Drug(s) and Dose at handover:**  |       |
| **Indication:**  |       |
| **Date of first prescription by specialist:**  |       |
| **Patient weight (kg):** |       |
| **Estimated date for prescribing to be continued by the GP:**  |       |
| **Next monitoring tests due and dates if not at 12 weekly monitoring:**  |       |
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| **Specialist additional comments/advice:**  |       |
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| **Key Primary Care Information (refer to Full Shared Care Protocol for further information)****GP RESPONSIBILITIES*** Consider request to shared care arrangements and prompt completion and emailed return of signed response to the specialist using the Shared Care Agreement Form within 14 days of its receipt.
* If shared care accepted, prescribe mycophenolate mofetil once patient is clinically stable in line with protocol.
* Arrange, record, and share ongoing monitoring and take appropriate action as per protocol and advised by specialist (see monitoring table), ensuring GP practice systems are in place to recall patients for monitoring blood tests.
* Re-iterating with the patient that non-attendance for blood testing may lead to withdrawal of the medication. Further help and advice can be sought from the hospital specialist team.
* Ascertaining the reason for non-completion of routine blood testing, if one test is missed.
* Appropriately prompt notification to the hospital specialist of any significant and relevant changes in the patient’s condition, medication dose, or of an adverse reaction, according to the protocol and if the patient fails to attend for blood monitoring.
* Ensure no drug interactions with other medicines.
* Administer inactivated influenza vaccine and other recommended seasonal vaccines (e.g. coronavirus) annually unless otherwise advised by the initiating specialist.
* Check patient has had ONE DOSE of pneumococcal vaccine (revaccination is not recommended except every five years in patients whose antibody levels are likely to have declined more rapidly e.g. asplenia), see BNF or Green Book.
* COVID-19 vaccination is safe and recommended (see [The Green Book, Chapter 14a](https://www.gov.uk/government/publications/covid-19-the-green-book-chapter-14a)).
* For susceptible immunosuppressed individuals with significant exposure to chickenpox (varicella) or shingles (zoster), follow latest national guidance on post exposure prophylaxis and use of anti-virals and varicella zoster immunoglobulin (VZIG) <https://www.gov.uk/government/publications/post-exposure-prophylaxis-for-chickenpox-and-shingles>
* Ask about oral ulceration, sore throat, unexplained rash or unusual bruising/bleeding at every consultation.
* Change dose or stop treatment in line with protocol and as advised by specialist.
* Organisation of urgent referral to the specialist team or A&E if severe side effects or potential overdose is apparent.
* Liaising with the initiating clinician if the medicine becomes less effective and patient complains of symptoms.
* Reinforce the importance of strict sun protections measures, including high factor sunscreen and protective clothing, to reduce the risk of skin cancer.
* Reinforce the importance of women not becoming pregnant or breastfeeding whilst taking mycophenolate and informing their GP / Specialist if a woman thinks she may be pregnant. (Effective contraception must be used before beginning therapy, during therapy, and for six weeks following discontinuation of therapy). Men who wish to father a child should discuss this with their specialist.

**MONITORING AND ACTIONS TO BE TAKEN** **Monitoring Table – see GP monitoring highlighted in grey**

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| **Monitoring table** | **Hospital specialist** | **Hospital specialist** | **Hospital specialist / GP** | **GP**  | **Hospital specialist** |
| **Test** | **Indication** | Pre-treatment baseline | During TreatmentInitiation | Following Treatment Initiation | Ongoing | 6-12 month review |
| FBC | Baseline and ongoing assessment, including dose adjustment to confirm safe to prescribe | √ | **Phase I monitoring\*** Every 2 weeks until stable dose for 6 weeks | **Phase II monitoring\***Every 4 weeks for next 12 weeks*Hospital specialist will undertake the first 4-week test**GP will undertake the second and third 4-week test* | **Phase III monitoring\***Every 12 weeks | As part of review or as clinically indicated |
| LFTs, Albumin |
| U&Es, eGFR |
| ESR/CRP  | Disease activity scoring | √ | Every 4 - 12 weeks | Not routinely required | Every 12 weeks on advice of specialist |
| Height & weightBlood pressure | Baseline assessment  | √ | Not routinely required | Not routinely required | If clinically indicated |
| Hepatitis B, C HIVVZV serology | Baseline assessment, viral, respiratory and TB screening | If clinically indicated |
| Chest X-ray |
| TB screening if indicated |
| Urinalysis | To assess for or monitor renal disease (proteinuria) or infection | √ |
| Lipids | Baseline assessment | √ | Lipidsannually |
| Negative Pregnancy test (in those of childbearing potential) | Baseline assessment | √ |  |  | If there is a break in contraception, ensure negative pregnancy test inthose of childbearing potential |  |
| Ask about oral ulceration, sore throat, unexplained rash or unusual bruising/bleeding | √ | At every consultation | At every consultation | At every consultation |
| **\***If a further DMARD is added as combination therapy, or the dose is increased, the initial starting schedule should be reinstated. **For dose increases monitoring should start back with Phase I monitoring and be every 2 weeks until dose is stable for 6 weeks, then revert to previous schedule.** There may be clinical circumstances where the frequency of monitoring may vary and this should be specified by the initiating specialist. |

**Action to be taken if abnormal result** Normal reference range may vary slightly between labs. Results should be recorded in the patient’s shared care monitoring record booklet (where in use). Please note an unusual fall or rise or a consistent downward or upward trend in any value should prompt review of the patient and extra vigilance. Some patients may have abnormal baseline values; specialist will advise if required.

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| **Abnormal Result** | **Action to be taken by GP** |
| Neutrophils: if < 2.0 x 109/L | If < 1.6 x 109/L stop. If between 1.6 - 2.0 - discuss with specialist to consider 50% dose reduction |
| WCC < 3.5 x 109/L | If <3.0 stop and contact specialist If 3.0-3.5 repeat, review dose with specialist if still <3.5, (NB - It is normal to get a low lymphocyte count, discuss with specialist if any concerns.) |
| Unexplained eosinophilia > 0.5 x 109/L  | Contact specialist for advice. Withhold mycophenolate mofetil if no response from specialist in 5-7 days. |
| Anaemia | If new – investigate in the usual way and monitor weekly, if long standing monitor as schedule. If cause for concern discuss with specialist.  |
| Lymphocytes < 0.5x109/L  | Discuss urgently with specialist team, and consider interruption |
| Platelets < 140 x 109/L  | Contact specialist for advice. Withhold mycophenolate mofetil if no response from specialist in 5-7 days. |
| MCV >105fL  | Check B12 & folate, alcohol history & TFT: if <120fL and folate & B12 are normal continue, if >120fL stop mycophenolate mofetil and contact specialist. |
| AST/ALT > 2 times the upper limit of normal (ULN) | If >3 x ULN hold mycophenolate mofetil and seek specialist advice.For results between 2 - 3 x ULN, continue mycophenolate, repeat bloods and seek specialist advice. Minor elevations of AST/ALT are common.  |
| If patient develops pancreatitis  | Discontinue treatment and contact specialist. |
| Rising ESR / CRP | Contact specialist for advice. |
| * If renal impairment develops
* Unexplained fall in serum albumin
 | Contact specialist for advice. Withhold mycophenolate mofetil if no response from specialist in 5-7 days. |

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* The expectation is that this information along with the full protocol provides sufficient information to enable GPs to be confident to take on the clinical & legal responsibility for prescribing and monitoring.
* Prescribing and monitoring responsibility will only be transferred under this shared care protocol when:
* Specialist has initiated treatment and prescribed/monitored treatment for initial stabilisation period.
* Specialist has provided pre-treatment counselling and discussed patient responsibilities, preferences and obtained consent to shared care arrangements.
* Specialist and patient have completed and signed the shared care agreement form (page 5).

**Shared Care Agreement Form**

**This form is used to agree shared care between the specialist, patient and GP.**

**Specialist and patient agreement**

**By signing below we accept:**

* the Herts and West Essex Area Prescribing Committee [shared care principles](https://www.hweclinicalguidance.nhs.uk/all-clinical-areas-documents/download?cid=1739&checksum=752d25a1f8dbfb2d656bac3094bfb81c) (HWE APC) and
* the requirements and responsibilities defined in this drug specific shared care protocol

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| **Specialist name:**       | **Patient name or addressograph label:**      |
| **Designation:**       |
| **Provider Trust:**       |
| **Direct telephone number:**       |
| **Email:**      **Email (for use by GP to respond to request to share care):**  |
| **Date:**       | **Specialist Signature:**       |
| **Date:** | **Patient signature or specialist confirmation of patient agreement to shared care arrangement:** |

**GP response to shared care**

**Please return to specialist within two weeks of receipt of request to share care.**

***This form is to be completed by the GP who is requested to share care.***

I agree to accept shared care for this patient as set out in this shared care protocol and HWE [shared care](https://www.hweclinicalguidance.nhs.uk/all-clinical-areas-documents/download?cid=1739&checksum=752d25a1f8dbfb2d656bac3094bfb81c) principles [ ]

I do not accept shared care for this patient [ ]

My reason(s) for not prescribing are given below:

Please note that GP agreement is voluntary, with the right to decline to share care if for any reason you do not feel confident in accepting clinical responsibility. Refusal should not be for financial reasons.

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| **GP name:** | **Practice address /stamp:** |
| **Direct telephone number:** |
| **Email:** |
| **Date:** | **GP Signature:** |

**Please return a copy of the completed form to the requesting specialist within two weeks of receipt of request to share care (preferably by email).**

1. Specialist to retain copy in patient’s hospital records.
2. Copy to be given to patient.
3. GP to retain copy in patient’s notes.

**Full Shared Care Protocol**

**Mycophenolate mofetil (MMF)**

**use in adults with multisystem autoimmune disease:**

**Nephrology / Rheumatology / Dermatology / Respiratory / Haematology / Neurology /Ophthalmology / Gastroenterology**

**Shared Care Protocol: Guideline No 6; Version 2.1**

**This full protocol provides prescribing and monitoring guidance. It should be read in conjunction with HWE shared care principles,** [**Summary of Product Characteristics (SPC)**](https://www.medicines.org.uk/emc) **and the** [**BNF**](http://www.bnf.org/bnf/index.htm)**.**

**BACKGROUND AND INDICATION(S) FOR USE**

Mycophenolate mofetil (MMF) is a pro-drug of mycophenolic acid. It is a reversible inhibitor of inosine monophosphate dehydrogenase and thus inhibits purine synthesis, with potent cytostatic effects on both T and B-lymphocytes. It does not inhibit production of interleukins as does ciclosporin and tacrolimus. Different brands and formulations of mycophenolate have small differences in bioavailability, but this is not a problem in this group of patients.

Time to response is usually between 6 weeks and 3 months.

See SPC for full details <http://www.medicines.org.uk/emc/medicine/1680>

Transplant and other indications not specified below are not covered by this Shared Care Protocol.

**Unlicensed indications:**

Connective tissue diseases (rheumatoid arthritis, cutaneous and systemic lupus erythematosus and lupus nephritis, scleroderma, dermatomyositis and polymyositis), severe psoriasis, severe atopic dermatitis, blistering conditions, pyoderma gangrenosum, vasculitis, autoimmune bullous dermatoses such as pemphigus, inflammatory eye disease (uveitis and scleritis), myasthenia gravis, haemolytic anaemia, idiopathic thrombocytopenic purpura, autoimmune hepatitis, disease-associated interstitial lung disease (not idiopathic pulmonary fibrosis),

**DOSAGE, ROUTE OF ADMINISTRATION AND DURATION OF TREATMENT**

**Adult dosage and administration**

The recommended adult dose is between 1g and 3g daily, taken in 2 divided doses. Gastrointestinal adverse effects (most commonly diarrhoea and nausea) may be limited by increasing dose frequency (e.g. 500mg four times daily rather than 1g bd). Dosage may need to be reduced in patients with renal impairment.

**Available as:** mycophenolate mofetil tablets 500mg, capsules 250mg and oral suspension 1g/5ml.

Swallowing difficulties

Please refer to the [‘specials’ alternative guidance](https://gbr01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.hweclinicalguidance.nhs.uk%2Fall-clinical-areas-documents%2Fdownload%3Fcid%3D2274%26checksum%3D95f8d9901ca8878e291552f001f67692&data=05%7C02%7Cheernamehta%40nhs.net%7Ccba67ac584344a90298108dcafcc3bcd%7C37c354b285b047f5b22207b48d774ee3%7C0%7C0%7C638578538908037976%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=drWPIVzT4RkMn0VJJa96%2F2dIm19xPNtqcc0yghL%2FsEA%3D&reserved=0) for a list of commonly prescribed medicines and alternative methods of administration for patients with swallowing difficulties, feeding tubes or for patients prescribed unlicensed ‘specials’ medication. Each entry takes into account alternative medicines, formulations, cost and licensing. This list is not exhaustive. As not all medicines are listed, please contact the initiating specialist if required for individual patient advice if a patient has a swallowing difficulty.

Also refer to page 1/2

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| **SPECIALIST RESPONSIBILITIES INCLUDING PRE-TREATMENT ASSESSMENT*** Assess if patient is suitable for treatment with mycophenolate mofetil and initiate treatment.
* Where treatment is off-label advise patient.
* Undertake pre-treatment counselling and document discussion in patient’s records. Provide patient/carer with relevant (preferably written) information on use, side effects, need for monitoring of medication and precautions including that no new medicines are started (including over the counter preparations) unless this has been discussed with the GP, specialist or pharmacist.
* Obtain agreement and consent to share care. Complete and sign Specialist and patient agreement section of Shared Care Agreement form. Document in patient’s notes and transfer once patient stabilised.
* Request for GP confirmation of acceptance of shared care by secure emailing of request to share care, protocol and completed agreement form, allowing 2 weeks for response.
* Receipt and recording in patient records/notes that GP has / has not accepted shared care and ensuring appropriate action if not (specialist to continue to prescribe/monitor).
* Prescribe and monitor for initial stabilisation period of 12 weeks.
* Undertake baseline and ongoing tests as indicated in the monitoring table. Review results of safety monitoring and request additional tests as required.
* Continue to review the patient at agreed specified intervals, sending a written summary to the GP whenever the patient is reviewed.
* Monitor disease response and adverse effects to treatment and need to continue therapy. Notify the GP of any changes to dose or cessation of therapy.
* Notify GP if patient does not attend clinic repeatedly and advise on action to take.
* Provide any other advice, information or support for the GP if required. Communicate any clinically important issues and action to be taken.
* Reinforce the importance of strict sun protections measures, including high factor sunscreen and protective clothing, to reduce the risk of skin cancer.
* If the patient is a woman of child bearing potential– ensure that they are aware of the importance of effective contraception and the need to discuss with their consultant if they wish to become pregnant (See MHRA safety updates for more information)
* Ensure they are aware either male patients or their female partners use reliable contraception and that men planning to have children discuss this with their doctor. (See MHRA safety updates for more information)
* Encourage all women aged 25-64 years old to participate in national cervical cancer screening programmes. There is no need to attend more frequently than recommended.
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**GP RESPONSIBILITIES**

Refer to page 1/2 and GP Considerations for Shared Care page 12.

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| **PATIENT RESPONSIBILITIES IN COOPERATION WITH SPECIALIST AND GP*** Confirm their agreement with the decision to move to a shared care model for their ongoing care and their understanding of the shared care agreement.
* Consent to share care and complete/sign Specialist and patient agreement section of Shared Care Agreement form.
* Confirm their understanding of the treatment and agreeing to contact the specialist/GP if they subsequently do not have a clear understanding of the treatment (patient to be provided with relevant contact details for GP/specialist in and out of hours).
* Attending for blood monitoring and follow up hospital or GP appointments.
* Ensuring a list of all medications is brought to all GP surgery, outpatient and A&E consultations.
* Reporting any change in symptoms and adverse effects promptly to the clinician who is currently prescribing.
* Confirm that no new medicines are started (including over the counter preparations) unless this has been discussed with the GP, specialist or pharmacist.
* Alert GP and/or specialist of any changes of circumstance which could affect management of disease e.g. plans for pregnancy; plans to move/change GP practice.
* Patients should take adequate precautions to avoid pregnancy.
* Be aware all women aged 25-64 years old should participate in national cervical cancer screening programmes. There is no need to attend more frequently than recommended.
* Be aware skin may be more sensitive to exposure to UV light while taking mycophenolate. Use appropriate self-care: e.g. sun avoidance, protective clothing, avoiding tanning (including tanning beds) and to purchase and use a broad spectrum sunscreen (at least SPF30).
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| **DISPENSING PHARMACIST RESPONSIBILITIES*** Confirming that the patient has received verbal and written patient counselling / information and provide additional counselling should this be required.
* Check the patient is being monitored regularly, e.g. using the patient held monitoring booklet where available, to ensure that it is safe before issuing or dispensing prescriptions.
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| **MONITORING AND ACTIONS TO BE TAKEN*** Refer to page 2-4.
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| **SIDE EFFECTS AND ACTIONS TO BE TAKEN (REFER TO** [**BNF**](http://www.bnf.org/bnf/index.htm) **AND** [**SPC**](http://www.medicines.org.uk/emc) **for full details)*** GP to liaise with specialist if any side effects are a cause for concern

Patients should be instructed to report immediately any evidence of infection, unexpected bruising or bleeding or other manifestations of bone marrow depression - also refer to monitoring section.

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| **SIDE EFFECTS** | **Action to be taken by GP** |
| Nausea | If symptoms mild, change time to with meals. |
| Hypersensitivity reactions (fever, rigors, rash, myalgia, arthralgia, hypotension, dizziness)  | Advise immediate withdrawal (as per SPC), contact specialist |
| Infection | Mycophenolate can cause hypogammaglobulinaemia which can be associated with recurrent infections. Discuss with specialist if the patient has recurrent infections |
| Flu like symptoms/myalgia/headache | Mild – continue Moderate / Severe – **STOP DRUG** and discuss with specialist team. |
| Fever, sore throat, mouth ulceration | Check FBC and **STOP DRUG** if WCC low (see monitoring section) |
| Abnormal bruising or bleeding | **STOP DRUG** until recovery and check FBC (see monitoring section). Do not restart if blood test abnormal, contact specialist team. |
| Progressive multifocal leukoencephalopathy (PML)  | Should be considered a differential diagnosis in patients reporting neurological symptoms on treatment with mycophenolate. Discuss with specialist. |
| Suspected Pancreatitis  | Check amylase level and STOP DRUG until result of amylase is available. If amylase raised, withhold until discussed with specialist team. Make clinical assessment and refer to hospital if appropriate. Check Amylase, FBC, LFT, U&E, CRP. |
| Alopecia | If mild, reassure and continue. If significant, contact specialist team to discuss treatment alternatives. |
| Hypercholesterolaemia | Discuss abnormal result with specialist team |

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**CONTRAINDICATIONS AND PRECAUTIONS** **(REFER TO** [**BNF**](http://www.bnf.org/bnf/index.htm) **AND** [**SPC**](http://www.medicines.org.uk/emc) **for full details)**

**Contra-indications**

Hypersensitivity to mycophenolate

Severe hepatic impairment

**Pregnancy**: Mycophenolate mofetil and its active metabolite are associated with a high rate of serious birth defects and spontaneous abortion.

Mycophenolate should not be given to women who are pregnant, or likely to become pregnant. It should only be initiated in women of childbearing potential when there is a negative pregnancy test.

Female patients of childbearing potential must use at least one reliable form of contraception before and during treatment and for 6 weeks after stopping mycophenolate medicines; 2 forms of contraception are preferred.

It is recommended that male patients or their female partner use reliable contraception during treatment and for at least 90 days after stopping mycophenolate medicines. Men planning to have children should discuss this with their doctor.

Patients should be instructed not to stop treatment but to consult their physician immediately should pregnancy occur.

For information on effective contraception please see MHRA Drug Safety Update [Mar 2019](https://www.gov.uk/drug-safety-update/medicines-with-teratogenic-potential-what-is-effective-contraception-and-how-often-is-pregnancy-testing-needed) *Medicines with teratogenic potential: what is effective contraception and how often is pregnancy testing needed?*

Also see MHRA Drug Safety Updates for more information, [Dec 2015](https://www.gov.uk/drug-safety-update/mycophenolate-mofetil-mycophenolic-acid-new-pregnancy-prevention-advice-for-women-and-men) *Mycophenolate mofetil, mycophenolic acid: new pregnancy-prevention advice for women and men*, and [Feb 2018](https://www.gov.uk/drug-safety-update/mycophenolate-mofetil-mycophenolic-acid-updated-contraception-advice-for-male-patients) *Mycophenolate mofetil, mycophenolic acid: updated contraception advice for male patients*.

**Breastfeeding**: Mycophenolate should be avoided during breast feeding.

**Infection**: Immunosuppressants can increase susceptibility to infection. It is advisable not to commence or continue treatment with mycophenolate when patients have an established local or systemic infection. It is advisable to recommence once the infection has been treated. Precise period of discontinuation depends on the nature and severity of infection and the activity of the underlying disease. If a patient on these treatments has an infection / requires antibiotics, an individual clinical decision is needed on the risks / benefits of continuation of immunosuppressants and GPs can contact the specialist team for advice and guidance if support is required with clinical decision making.

**Pre-existing blood dyscrasia**: such as significant anaemia, leucopenia, thrombocytopenia.

**Live vaccines:** Avoid live vaccines. Consult the Green Book and take additional advice from initiating specialist if required.

**Precautions**

**Renal impairment**: Caution is advised in patients with severe chronic renal impairment (glomerular filtration rate < 25 mL/min-1/1.73 m2),

**Elderly** (increased risk of infection, gastrointestinal haemorrhage and pulmonary oedema)

**Blood disorders** Leucopenia, anaemia, thrombocytopenia, pancytopenia, pure red cell aplasia, neutropenia and leucocytosis have been reported. GPs should be alert to any oral ulceration, sore throat, unexplained rash or abnormal bruising/bleeding. See monitoring section.

**Nausea:** can occur initially but can be reduced by taking the tablets after food.

**Cancer risk**: Patients receiving long-term immunosuppressive drugs are at increased risk of developing a malignancy. The most frequently occurring types are lymphoma and skin malignancy. The avoidance of excessive exposure to the sun, and the use of high factor sunscreen and protective clothing are advised. Adherence to population screening programmes is particularly important in this population e.g. cervical screening every 3 years.

**What to do if Chickenpox or shingles exposure:** For susceptible immunosuppressed individuals with significant exposure to chickenpox (varicella) or shingles (zoster), follow latest national guidance on post exposure prophylaxis and use of anti-virals and varicella zoster immunoglobulin (VZIG) <https://www.gov.uk/government/publications/post-exposure-prophylaxis-for-chickenpox-and-shingles>

Stop mycophenolate and contact specialist team for advice if there are any concerns.

**Genetic deficiencies:** Mycophenolate mofetil is an IMPDH (inosine monophosphate dehydrogenase) inhibitor. On theoretical grounds therefore it should be avoided in patients with rare hereditary deficiency of hypoxanthine-guanine phosphoribosyl-transferase (HGPRT) such as Lesch-Nyhan and Kelley-Seegmiller syndrome.

**NOTABLE DRUG INTERACTIONS (REFER TO** [**BNF**](http://www.bnf.org/bnf/index.htm) **AND** [**SPC**](http://www.medicines.org.uk/emc) **for full details)**

**Common drug interactions**

**Aciclovir/Ganciclovir/Valaciclovir/Valganciclovir** – mycophenolate increases aciclovir/valaciclovir plasma levels and possibly increases plasma concentration of ganciclovir and valganciclovir.

**Antacids:** may reduce the absorption of mycophenolate

**Metronidazole & Norfloxacin**: possibly reduce bioavailability of mycophenolate

**Cholestyramine**: may reduce the absorption of mycophenolate

**Probenecid**: Prevents renal tubular secretion and causes an increase in plasma concentration of mycophenolate

**Rifampicin:** decreases the level of mycophenolate

**Sevelamer:** reduced levels of mycophenolate

**Iron preparations:** may reduce absorption of mycophenolate

**Drugs that can cause myelosuppression**: concurrent use may increase risk.

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| **CONTACT DETAILS for BACK-UP INFORMATION / ADVICE** **East and North Hertfordshire NHS Trust**

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| **Department** | **Contact number** | **Specialist Team designated nhs.net email** | **Pharmacy Team shared care admin contact** | **Out of hours contact / switchboard** |
| **Haematology** | via switchboard | No generic email address | sharedcare.enh-tr@nhs.net01438 284032 | 01438 314333 |
| **Neurology** | via switchboard | neurologysecretaries.enh-tr@nhs.net |
| **Dermatology** | via switchboard | No generic email address |
| **Gastroenterology** | 01438 285767 | ibdhelpline.enh-tr@nhs.net  |
| **Ophthalmology** | 01438 288102 | ophmedicalsecretaries.enh-tr@nhs.net  |
| **Renal** | via switchboard | nephadmin.enh-tr@nhs.net  |
| **Respiratory** | via switchboard | respiratoryadmin.enh-tr@nhs.net  |
| **Rheumatology** | 01438 285624 | rheumsecretariesenh-tr@nhs.net  |

**West Hertfordshire Hospitals NHS Trust**

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| **Department** | **Contact number** | **Specialist Team designated nhs.net email** | **Pharmacy Team shared care admin contact** | **Out of hours contact / switchboard** |
| **Dermatology** | WGH: 01923 217375HHGH: 01442 287467SACH: 01727 897837 | Westherts.dermatologysecretaries@nhs.net   | Wherts-tr.medinfowatford@nhs.net | WGH:  01923 244 366HHGH: 01442 213 141SACH: 01727 866 122 |
| **Gastroenterology** | 01442 287485 | westherts.ibdnurses@nhs.net |
| **Haematology** | 01923 436 190 (ext. 8190) | westherts.haematology@nhs.net  |
| **Neurology** | 01923 217 350 | westherts.neurology@nhs.net  |
| **Ophthalmology** | 01923 436 001 | westherts.ophthalmology@nhs.net  |
| **Respiratory** | 01923 217 676 | westherts.respiratory@nhs.net  |
| **Rheumatology** | 01923 217 520 | westherts.rheumatology@nhs.net |

**Communication**For any queries relating to a patient’s treatment with azathioprine or MP, please contact the specialist as documented at the top of this document. Read in conjunction with HWE shared care principles document.For advice if you have any concerns contact the specialist team. If unable to contact specialist team or out of hours, contact medical registrar on call. |

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| **SUPPORTING INFORMATION***Systemic lupus erythematosus* * Gordon C, Amissah-Arthur M\_B, Gayed M, *et al*, for the British Society for Rheumatology Standards, Audit and Guidelines Working Group, The British Society for Rheumatology guideline for the management of systemic lupus erythematosus in adults, Rheumatology 2018; 57: e1–e45, <https://doi.org/10.1093/rheumatology/kex286>
* Fanouriakis A, Kostopoulou M, Alunno A, *et al*. 2019 update of the EULAR recommendations for the management of systemic lupus erythematosus. Annals of the Rheumatic Diseases 2019;78:736-745) <https://ard.bmj.com/content/78/6/736>
* NICE evidence summary (ESUOM36). Systemic lupus erythematosus: oral mycophenolate 2014 <https://www.nice.org.uk/advice/esuom36/chapter/Key-points-from-the-evidence>

*Autoimmune haemolytic anaemia** Hill QA, Stamps R, Massey E *et al*, on behalf of the British Society for Haematology. The diagnosis and management of primary autoimmune haemolytic anaemia. British J Haematol 2016; 176:395-411. <https://doi.org/10.1111/bjh.14478>

*Chronic refractory idiopathic thrombocytopenic purpura (ITP)** Provan D, Stasi R, Newland AC, *et al*. International consensus report on the investigation and management of primary immune thrombocytopenia. Blood. 2010; 115:168-186. <https://ashpublications.org/blood/article-lookup/doi/10.1182/blood-2009-06-225565>

*Pemphigus vulgaris, severe psoriasis, atopic dermatitis, bullous pemphigoid, chronic actinic dermatitis, pyoderma gangrenosum, dermatomyositis, polymyositis, cutaneous vasculitis** NHS England Clinical Commissioning Policy: Rituximab for the treatment of dermatomyositis and polymyositis (adults) (references use of mycophenolate mofetil) <https://www.england.nhs.uk/wp-content/uploads/2018/07/Rituximab-for-the-treatment-of-dermatomyositis-and-polymyositis-adults.pdf>
* Harman KE, Brown D, Exton LS *et al*, British Association of Dermatologists guidelines for the management of pemphigus vulgaris 2017 Br J Dermatol 2017; 177: 1170-1201 <https://onlinelibrary.wiley.com/doi/full/10.1111/bjd.15930>
* Venning VA, Taghipour K, Mohd Mustapa MF et al British Association of Dermatologists' guidelines for the management of bullous pemphigoid 2012. Br J Dermatol 2012; 167: 1200-1214. <https://onlinelibrary.wiley.com/doi/full/10.1111/bjd.12072>
* Park H. The emergence of mycophenolate mofetilin in dermatology. J Clin Aesthet Dermatol 2011; 4(1): 18-27. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3030212/>

*Systemic vasculitis: granulomatosis with polyangiitis (GPA: formerly Wegener’s granulomatosis), microscopic polyangiitis (MPA), eosinophilic granulomatosis with polyangiitis (formerly Churg–Strauss syndrome)** Ntatsaki E *et al*, BSR and BHPR guideline for the management of adults with ANCA-associated vasculitis, Rheumatology, Volume 53, Issue 12, December 2014, Pages 2306–2309, <https://doi.org/10.1093/rheumatology/ket445>
* Yates M, Watts RA, Bajema IM, *et al*. EULAR/ERA-EDTA recommendations for the management of ANCA-associated vasculitis. Annals of the Rheumatic Diseases 2016;75:1583-1594 <https://ard.bmj.com/content/75/9/1583>
* Tuin J *et al*. Mycophenolate mofetil versus cyclophosphamide for the induction of remission in nonlife-threatening relapses of AAV. CJASN July 2019, 14 (7) 1021-1028
* Kidney Disease: Improving Global Outcomes (KDIGO) Glomerulonephritis Work Group. KDIGO Clinical Practice Guideline for Glomerulonephritis. Kidney inter., Suppl. 2012; 2: 139–274. <https://kdigo.org/wp-content/uploads/2017/02/KDIGO-2012-GN-Guideline-English.pdf>

*Myasthenia Gravis** Sussman J, Farrugia ME, Maddison P, *et al*. Myasthenia gravis: Association of British Neurologists’ management guidelines. Practical Neurology 2015; 15: 199-206. <http://dx.doi.org/10.1136/practneurol-2015-001126>
* Sanders DB, Wolfe GI, Benatar M *et al*. International consensus guidance for management of myasthenia gravis. Neurology 2016; 87(4): 419–425. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4977114/#R5>

*Uveitis** Adalimumab and dexamethasone for treating non-infectious uveitis NICE TA460, July 2017 – (references use of mycophenolate mofetil) <https://www.nice.org.uk/guidance/ta460/chapter/1-Recommendations>
* NHS England Clinical Commissioning Policy: Infliximab (Remicade) and Adalimumab (Humira) As Anti-TNF Treatment Options For Adult Patients with Severe Refractory Uveitis (references use of mycophenolate mofetil) <https://www.engage.england.nhs.uk/consultation/specialised-services-consultation/user_uploads/uveitis-adults-policy.pdf>
* Rathinam SR, Gonzales JA, Thundikandy R *et al*. Effect of Corticosteroid-Sparing Treatment With Mycophenolate Mofetil vs Methotrexate on Inflammation in Patients With Uveitis: A Randomized Clinical Trial. JAMA 2019; 322(10): 936-945. <https://jamanetwork.com/journals/jama/fullarticle/2749597>

*Interstitial lung disease** Omair MA & Alhamad EH. Mycophenolate mofetil is an effective therapy for connective tissue disease-associated interstitial lung disease**.** Int. J. Clin. Rheumatol2017; 12(3): 067-073. <https://www.openaccessjournals.com/articles/mycophenolate-mofetil-is-an-effective-therapy-for-connective-tissue-diseaseassociated-interstitial-lung-disease.pdf>

*Autoimmune hepatitis** Gleeson D & Heneghan MA. British Society of Gastroenterology (BSG) guidelines for management of autoimmune hepatitis. Gut 2011; 60: 1611-1629. <https://www.bsg.org.uk/wp-content/uploads/2019/12/BSG-guidelines-for-the-management-of-autoimmune-hepatitis.pdf>
* Mack CL, Adams D, Assis DN *et al*. Diagnosis and Management of Autoimmune Hepatitis in Adults and Children: 2019 Practice Guidance and Guidelines From the American Association for the Study of Liver Diseases. Hepatology 2019; 72(2); 671-722

<https://aasldpubs.onlinelibrary.wiley.com/doi/full/10.1002/hep.31065>*Rheumatoid Arthritis* * Goldblum R. Therapy of rheumatoid arthritis with mycophenolate mofetil. Clin Exp Rheumatol. Mar-Apr 1993;11 Suppl 8:S117-9 <https://pubmed.ncbi.nlm.nih.gov/8324935/>

*Scleroderma** Kowal-Bielecka O, Fransen J, Avouac J. et al. Update of EULAR recommendations for the treatment of systemic sclerosis. Ann Rheum Dis 2017;76:1327–1339. <https://ard.bmj.com/content/annrheumdis/76/8/1327.full.pdf>
* NICE evidence summary (ESUOM32). Scleroderma: oral mycophenolate 2014 <https://www.nice.org.uk/advice/esuom32/chapter/Key-points-from-the-evidence>
 |

**REFERENCES**

* NICE CKS DMARDs: Last revised in July 2018; What monitoring is required for mycophenolate? <https://cks.nice.org.uk/dmards#!scenarioRecommendation:3>
* BSR and BHPR guideline for the prescription and monitoring of non-biologic disease-modifying anti-rheumatic drugs, Rheumatology 2017;56:865868 <https://www.rheumatology.org.uk/practice-quality/guidelines>
* Specialist Pharmacy Service (SPS). Suggestions for therapeutic drug monitoring in adults in primary care. September 2020. https://www.sps.nhs.uk/articles/suggestions-for-therapeutic-drug-monitoring-in-adults-in-primary-care-2/
* The Green Book Immunisation against infectious disease <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>
* Interface Pharmacist Network Specialist Medicines (Northern Ireland Health & Social Care) Mycophenolate - Adult (non-transplant indications) Shared Care Guidelines [http://www.ipnsm.hscni.net/download/shared\_care\_guidelines/MycophenolateSCG2017.pdf](http://www.ipnsm.hscni.net/download/shared_care_guidelines/AzathioprineSCG2017.pdf)
* BSR and BHPR guideline on prescribing drugs in pregnancy and breastfeeding—Part I: standard and biologic disease modifying anti-rheumatic drugs and corticosteroids, Rheumatology, Volume 55, Issue 9, September 2016, Pages 1693–1697, <https://doi.org/10.1093/rheumatology/kev404>
* Renal Association Clinical Practice guideline. Pregnancy and renal disease. <https://renal.org/wp-content/uploads/2019/09/FINAL-Pregnancy-Guideline-September-2019.pdf>
* MHRA. Drug Safety Update. Mycophenolate mofetil, Mycophenolic acid: new pregnancy-prevention advice for women and men. Issued December 2015. Accessed February 2021. <https://www.gov.uk/drug-safety-update/mycophenolate-mofetil-mycophenolic-acid-new-pregnancy-prevention-advice-for-women-and-men>
* MHRA. Drug Safety Update: Mycophenolate mofetil, mycophenolic acid: updated contraception advice for male patients (February 2018)

 <https://www.gov.uk/drug-safety-update/mycophenolate-mofetil-mycophenolic-acid-updated-contraception-advice-for-male-patients>

 MHRA. Drug Safety Update: Medicines with teratogenic potential: what is effective contraception and how often is pregnancy testing needed? (March 2019) <https://www.gov.uk/drug-safety-update/medicines-with-teratogenic-potential-what-is-effective-contraception-and-how-often-is-pregnancy-testing-needed>

**GP Considerations for Shared Care**

This shared care agreement outlines suggested management for the prescribing of the specified drug(s) and indication(s) when the responsibility is shared between the specialist and general practitioner (GP). Sharing of care assumes communication between the specialist, GP and patient. It is important that patients are consulted about treatment and are in agreement with it. The intention to share care should be explained to the patient by the doctor initiating treatment and consent obtained.

Prescribing is to be initiated in secondary care by a provider Trust specialist and will usually be prescribed for 12 weeks unless otherwise stated within the agreed individual shared care protocol**. The expectation is that these shared care guidelines should provide sufficient information to enable GPs to be confident to take on the clinical and legal responsibility for the prescribing and the monitoring of this / these drug(s) in stable patients.** The questions below will help you confirm this:

* Is the patient’s condition predictable or stable?
* Do you have the relevant knowledge, skills and access to equipment to allow you to monitor treatment as indicated in this shared care document?
* Have you been provided with relevant clinical details including monitoring data?
* Have this document and BNF/SPC provided sufficient information for you to feel confident in accepting clinical and legal responsibility for prescribing?

**If you can answer YES to all of these questions (after reading this shared care guideline), then it is appropriate for you to accept the prescribing responsibility. GPs need to formally accept shared care by completing and returning the form provided within this protocol to the specialist within two weeks of receipt of request to share care.**

If the answer is NO to any of these questions, you should not accept prescribing responsibility. You should respond back to the consultant outlining your reasons for NOT prescribing on the agreement form within two weeks of receiving the request to share care. If you do not have the confidence to prescribe, you still have the right to decline. In such an event, the total clinical responsibility for prescribing the medication and any monitoring required remains with the specialist. Please note that medication cost is not an acceptable reason for refusal to take on shared care.

The prescribing doctor legally assumes clinical responsibility for the drug and the consequences of its useas well as responsibility of monitoring (securing and reviewing blood test results).

Prescribing and monitoring responsibility will only be transferred when the consultant and the GP agree that the patient’s condition is stable or predictable. This will usually be 12 weeks of treatment unless otherwise stated within the agreed individual shared care protocol.

**Approval Information**

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| Version  | 2.1 Updated wording on swallowing difficulties September 20242.0 Harmonisation of Hertfordshire Medicines Management Committee (HMMC) guidance and West Essex Medicines Optimisation Programme Board (WEMOPB) guidance updates include:* Rebadging with HWE ICB and removal of Trust and ENHCCG and HVCCG headers
* Review date removed and replaced with standard statement.
 |
| Developed by | East and North Hertfordshire NHS Trust Pharmacy department and relevant specialisms supported by Hertfordshire CCGs Pharmacy and Medicines Optimisation Teams |
| Approved by | HMMC, APC |
| Date approved/updated | HMMC May 2021, APC April 2024 |
| Review date:  | The recommendation is based upon the evidence available at the time of publication. This recommendation will be reviewed upon request in the light of new evidence becoming available.  |
| Superseded version | 1.0 * Addition of recommendation for Covid-19 vaccination
* Amendment of Phase II monitoring in line with wording agreed HWE APC February 2024
* Addition of recommendation for cervical screening in specialist and patient responsibilities.
* Addition of recommendation for sun protection under patient responsibilities
* Addition of lymphocyte action if result abnormal
* Amendment in line with MHRA guidance for contraceptive recommendations
* Clarity on antibiotic use and infections under Contraindications and precautions section.
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