BNSSG Shared Care Guidance
Please complete all sections

Section 1: Heading

Drug	Mycophenolate mofetil and mycophenolic acid (as mycophenolate sodium)
Amber ***three months***	
Indication	Autoimmune rheumatological conditions such as connective tissue diseases and vasculitis Autoimmune hepatitis Inflammatory bowel disease Interstitial Lung Disease (not for use in idiopathic pulmonary fibrosis) Autoimmune neurological conditions such as myasthenia gravis, neuromyelitis optica, neuroscaroidosis, neuro-Behçet's, autoimmune myopathies and vasculitis. Dermatology conditions such as dermatitis, connective tissue disorders, vasculitides, pemphigus, pemphigoid and lichen planus. Oral mucosal ulceration secondary to skin conditions including pemphigus, pemphigoid, lichen planus and Behcet's. Ocular inflammation

Section 2: Treatment Schedule

Usual dose and frequency of administration *(Please indicate if this is licensed or unlicensed and any relevant dosing information)*	Mycophenolate medicines are used off license in the management of autoimmune disease. The dose of treatment will be determined by the specialist team and may be adjusted according to response and tolerance. Typical dose 1-2g daily and maximum dose is up to 3g/day.
Route and formulation	Oral - tablets/capsules
Duration of treatment	This should be continued as long as clinically indicated unless there is a serious side effect or the drug becomes ineffective.

Section 3: Monitoring

Please give details of any tests that are required before or during treatment, including frequency, responsibilities (please state whether they will be undertaken in primary or secondary care), cause for adjustment and when it is required to refer back to the specialist.

Baseline tests - where appropriate

Baseline tests - specialist team to take bloods and interpret results.

All specialities:

- Height, weight, blood pressure, FBC, renal function/GFR, LFTs, CRP/ESR and screening for viral infection (HIV, Hep B, Hep C).
- For women of childbearing age - pregnancy tests to be carried out prior to commencing treatment.

Rheumatology only:

- Immunoglobulins (before initiating treatment).

Subsequent tests - where appropriate *(Please indicate who takes responsibility for taking bloods and interpreting results)*

Test	Frequency	Who by	Action/management
Immunoglobulins	Average x2 / year.	Secondary care at clinic appointments	Rheumatology only
FBC, creatinine/calculated GFR, and LFTs	**Initially,** every 2 weeks until on stable dose for 6 weeks	Secondary Care	Specialist team
FBC, creatinine/calculated GFR and LFTs	**Once on stable dose,** Monthly for 3 months	Secondary Care (for 3 months following initiation) then Primary Care	Specialist team and GP (See guidance below)
FBC, creatinine/calculated GFR and LFTs	**Thereafter** At least every 12 weeks. (More frequent monitoring is appropriate in patients at higher risk of toxicity.) Secondary care specialist team will advise if necessary.	Primary care	GP (See guidance below)

Advice for GP

The dose will be determined by the specialist team and may be adjusted according to response and tolerance. We will write to advise you of any dose amendments. Dose increases should be monitored by FBC, creatinine/calculated GFR and LFTs every 2 weeks until on stable dose for 6 weeks then revert to previous schedule.
As well as responding to absolute values in laboratory tests, it is also relevant to observe trends in results (e.g. gradual decreases in white blood cells or albumin, or increasing liver enzymes).

Note that a rise in alkaline phosphatase may reflect disease activity rather than drug toxicity. Similarly a low WCC may be a feature of the underlying disease. Renal function decline from baseline may reflect disease activity so an analysis of trends in results is also relevant.

If in doubt, please contact the patient's specialist team.
Chicken pox / shingles infection - stop and commence aciclovir.

Section 4: Side Effects

Please list only the most pertinent side effects and management. Please provide guidance on when the GP should refer back to the specialist. For everything else, please see BNF or SPC.

Side effects and management

Side effect	Frequency/severity	Action/management
GI disorders (esp haemorrhage, ulceration)	Common	Speak to specialist team
Hepatobiliary disorders	Common	See guidance below
Increased risk of infection	Common	See guidance below
Blood and lymphatic system disorders	Common	See guidance below
Neoplasms	Common	Speak to specialist team
Renal impairment	Common	See guidance below

The most common gastrointestinal disorders were diarrhoea, nausea and vomiting.

Referral back to specialist

Abnormal results

If any of the following occur, please advise the patient to WITHHOLD the mycophenolate mofetil / mycophenolic acid and contact the specialist team for advice:

Neutrophils <1.5 x10^9/L
Platelets < 140 x10^9/L
WCC< 3.5 x10^9/L
ALT>100 U/l
Unexplained albumin <30 g/l
Serum creatinine >30% increase over 12 months

Some of these patients may have lymphopenia related to their condition or long term steroid use therefore if **lymphocytes suddenly or progressively fall below 0.5 x 10^9/L** please CONTINUE but alert the specialist who will assess.

Recurrent infections

Contact specialist team if recurrent infections develop. Measure serum immunoglobulin levels and consider bronchiectasis if persistent respiratory symptoms suggestive of recurrent infection.

Section 5: Other Issues

(e.g. Drug Interactions, Contra-indications, Cautions, Special Recommendations)

Please list only the most pertinent action for GP to take (For full list please see BNF or SPC)

Issues

Intercurrent illness

During a serious infection, mycophenolate should be TEMPORARILY WITHHELD until the patient has recovered from the infection. 'Serious' is defined as an infection that warrants admission to hospital or parenteral anti-microbial therapy or active chicken pox/shingles infection.

Caution

Active serious gastro-intestinal disease (risk of haemorrhage, ulceration and perforation); elderly (increased risk of infection, gastro-intestinal haemorrhage and pulmonary oedema); increased susceptibility to skin cancer (avoid exposure to strong sunlight); risk of hypogammaglobulinaemia or bronchiectasis when used in combination with other immunosuppressants.

	Patients should avoid contact with people who have active chickenpox or shingles and report any contact to their GP and hospital specialist. If immunosuppressed patients are exposed to chickenpox or shingles, they will need to be assessed for susceptibility and the need for aciclovir post exposure prophylaxis, see: UKHSA guidance: Guidelines on post-exposure prophylaxis (PEP) for varicella/shingles and the Green Book Chapter 34. (See below "Issues" for advice on additional monitoring due to interaction). **Contra-indications** Hypersensitivity to mycophenolate mofetil or mycophenolic acid. Pregnancy & breastfeeding. **Avoid live vaccines, Varicella-zoster vaccine, oral Typhoid vaccine, Rotavirus vaccine, Bacillus Calmette-Guérin vaccine** **Interactions** - Rifampicin decreases the concentration of mycophenolate. Manufacturer advises monitor and adjust dose. -Antacids containing aluminium and magnesium hydroxide cause a decrease in the absorption of Mycophenolate. -Aciclovir: Mycophenolate is predicted to increase the risk of haematological toxicity when given with aciclovir. Monitoring advised – monitor for side effects of both mycophenolate and aciclovir, and if concerned, repeat bloods including FBC, creatinine/calculated GFR and LFTs. -Cholestyramine may decrease the bio-availability of mycophenolate by 40% -Sevelamer may reduce the absorption of Mycophenolate. It is recommended to administer mycophenolate mofetil at least one hour before or three hours after sevelamer intake to minimise the impact on the absorption of mycophenolate.
Reminder to ask patient about specific problems	Recurrent infections, respiratory symptoms

Section 6: Advice to the patient

Advice for prescribing clinician to inform patient

1. Before starting on this treatment, inform patient of the proposed benefits and possible risks associated with these drugs. Give patient information leaflet.
2. Mycophenolate medicines should be swallowed whole with a glass of water and not crushed, opened or chewed.
3. Patients should be warned to report immediately any signs or symptoms of bone marrow suppression e.g. infection or inexplicable bruising or bleeding.
4. Patient should agree to and attend for the monitoring of therapy (including having blood tests carried out at agreed intervals) and assessment of outcomes, to assist health professionals to provide safe, appropriate treatment.
5. Mycophenolate mofetil and mycophenolic acid are contraindicated in pregnancy due to their genotoxic and teratogenic potential. Female and male patients of reproductive potential must be made aware of the increased risk of pregnancy loss and congenital malformations at the beginning of the treatment and must be counselled regarding pregnancy prevention.
   - Women of childbearing potential should not be initiated on treatment until two negative pregnancy tests are provided (at least 8-10 days apart and immediately before starting treatment). Highly effective contraception (simultaneous use of two reliable forms of contraception before starting, during and for six weeks after stopping therapy, unless abstinence is the chosen method of contraception) is required.
   - Sexually active male patients (or their female partners) are recommended to use reliable contraception during treatment with mycophenolate mofetil or mycophenolic acid and for at least 90

days after cessation of treatment. If condoms are the chosen method of contraception, condom use applies for both reproductively competent and vasectomised men, because the risks associated with the transfer of seminal fluid also apply to men who have had a vasectomy.
6. Manufacturer advises avoid in breastfeeding- present in milk in animal studies.
7. There is increased risk of developing lymphomas and other malignancies, particularly of the skin. The risk appears to be related to the intensity and duration of immunosuppression rather than to the use of any specific agent. As general advice to minimise the risk for skin cancer, exposure to sunlight and UV light should be limited by wearing protective clothing and using a sunscreen with a high protection factor.
8. Patients should not donate blood during therapy or for at least 6 weeks following discontinuation of mycophenolate. Men should not donate semen during therapy or for 90 days following discontinuation of mycophenolate.
9. Patients should be advised to limit their alcohol intake to well within national recommendations.
10. Patients should be advised to inform GP/Specialist/pharmacist of all medicines (including OTC preparations) that they are currently taking.
11. Patients should be advised to ensure that the patient held record is presented at every consultation (in primary or secondary care).

Section 7: Generic principles of shared care for SECONDARY CARE

Please do not amend.

Core responsibilities

1. NB We prescribe mycophenolate mofetil generically.
2. Initiating treatment and prescribing for the length of time specified in **section 1.**
3. Undertaking the clinical assessment and monitoring for the length of time specified in **section 1** and thereafter undertaking any ongoing monitoring as detailed in **section 3.**
4. Communicate details of the above in 1 and 2 to GP within the first month of treatment. This information should be transferred in a timely manner.
5. Refer patients to GP and provide information of further action where appropriate e.g. if blood test is due.
6. To provide advice to primary care when appropriate.
7. Review concurrent medications for potential interaction prior to initiation of drug specified in **section 1.**
8. Stopping treatment where appropriate or providing advice on when to stop.
9. Reporting adverse events to the MHRA.
10. Reminder to ask patients about particular problems see **section 5.**

Section 8: Generic principles of shared care for PRIMARY CARE

Please do not amend.

Core responsibilities

1. Responsible for taking over prescribing after the length of time specified in **section 1.**
2. Responsible for adding drug and dose details to each patient's individual record.
3. Responsible for any clinical assessment and monitoring if detailed in **section 3** after the length of time specified in **section 1.**
4. Review of any new concurrent medications for potential interactions.
5. Reporting adverse events to the MHRA.
6. Refer for advice to specialist where appropriate.
7. Reminder to ask patients about particular problems see **section 5.**

Section 10: Contact Details

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Section 11: Document Details

Date prepared	18/02/2020 (updated to include ocular inflammation 26/10/2021)
Prepared by	Nidhimol Mathews (update to include dermatology and oral medicine conditions 26/10/2021 completed by BNSSG Formulary Team). Change to information about PEP for varicella/shingles February 2023 added by BNSSG Formulary Team. Minor update to contact details June 2024
Date approved by JFG	November 2021
Date of review	March 2022
Document Identification: Version	1.6

Section 12: Collaboration

All shared care protocols should be BNSSG wide where possible. Specialists in any one discipline are encouraged to collaborate across the health community in preparing shared care guidance. Please give details

1. Click here to enter details

Section 13: References

Please list references

1. British National Formulary. BNF Online. Available from: https://bnf.nice.org.uk/drug/mycophenolate-mofetil.html#indicationsAndDoses (Accessed 18/2/2020)
2. Roche Products limited. Summary of product characteristics Cellcept 500mg film coated tablet (2019). Available from: https://www.medicines.org.uk/emc/product/1103/smpc (Accessed 18/2/2020)
3. Accord Healthcare limited. Summary of product characteristics Mycophenolate 250mg capsules (2019). Available from : https://www.medicines.org.uk/emc/product/6118/smpc (Aaccessed 18/2/2020)
4. Ledingham, J., Gullick, N., Irving, K. et al. (2017). 'BSR and BHPR guideline for the prescription and monitoring of non-biologic disease-modifying anti-rheumatic drugs', Rheumatology, 56 (6) 865–868. Available from: https://academic.oup.com/rheumatology/article/56/6/865/3053478 (Accessed 18/2/2020)