Multiple sclerosis

1. Multiple sclerosis

Multiple sclerosis (MS) is a life-changing diagnosis which most often presents in early adulthood. It can have a significant impact on personal and social function as well as employment and finances. So, when should we consider this diagnosis in primary care?

The information in this article comes from the 2022 NICE guidance on MS (NICE 2022, NG220). Other sources are referenced below.

This article was updated in December 2024.

1.1. What is MS?

MS is an acquired chronic inflammatory condition of the central nervous system which affects the brain and the spinal cord. It is immune-mediated, although the cause is unknown. It is thought that an abnormal immune response to an environmental factor in those with a genetic predisposition results in acute, and then chronic, inflammation.

- In the UK, there are approximately 130 000 people with MS.
- The commonest age of presentation is 20–30y.
- It is the most common serious physical disability in working-aged adults.

1.2. Definitions

There are three 'types' of MS. Over time, patients can move from one type to another (BMJ 2015;350:h1765).

Relapsing–remitting MS	• Most common – 85% of people with MS have this form initially. • Stable periods (remission) followed by relapses when symptoms deteriorate.
Secondary progressive MS	• Over 15y, about half of people with relapsing–remitting MS develop secondary progressive MS. • The relapses tend to stop but there is a gradual worsening of disability.
Primary progressive MS	• Rare (15%). • Symptoms gradually worsen over time, with no episodes of relapse or remission.

1.3. When to consider MS

The symptoms of MS can be wide ranging. The commonest presenting symptoms are visual/sensory disturbance, limb weakness, gait problems or bladder/bowel dysfunction.

The diagnosis should be considered as follows:

<table>
<tr><th>If certain symptoms are present</th><th>Certain features make the diagnosis more likely</th></tr>
<tr><td>Commonest presenting symptoms of MS:
Visual symptoms:
Loss/reduced vision in one eye, with painful eye movements.
Double vision.
Sensory symptoms:
Ascending sensory disturbance and/or weakness.
Altered sensation/pain down the back +/- into the limbs on flexing the neck (Lhernitte's sign).
Balance and gait symptoms:
Progressive difficulties with balance and gait.</td><td>People with MS usually present with neurological symptoms/signs AND:
Are under 50y.
Don't have a fever or infection.
Symptom-specific features:
Have symptoms that have evolved over more than 24h.
Have symptoms that may persist over several days/weeks and then improve.
May have a history of previous neurological symptoms.</td></tr>
<tr><td colspan="2">AND
Full history and examination carried out and more common alternate diagnoses excluded.
(NICE does not give a prescriptive list of bloods/investigations that should be done to exclude other diagnoses; it says this should be tailored to the individual.)</td></tr>
<tr><td colspan="2">There are no symptoms or features that need to be present to warrant referral. If alternate causes have been ruled out and there is ongoing concern about the possibility of MS, refer.</td></tr>
</table>

The NICE guidance on MS says that non-specialists should refer to the NICE guidance on suspected neurological conditions for advice on symptoms and

signs of MS. The NICE guidance on suspected neurological conditions identifies 3 specific instances of when to consider MS (NICE 2019, NG127 and full guidance):

- A rapidly-progressive unsteady gait: urgent neurology referral.
- Progressive memory problems in a young adult which involve multiple domains of cognitive function: routine referral.
- Persistent, distally-predominant altered sensation in the limbs and brisk, deep tendon reflexes: routine referral.

Symptoms which are NOT suggestive of MS:

- Fatigue, depression, dizziness or vague sensory symptoms without focal neurological symptoms/signs.
- Headache.

Multiple sclerosis prodrome

UK retrospective, population-based data has shown that people with MS have increased healthcare use in the 10 years before diagnosis (Lancet 2024;403:183). Presentations were non-specific and included gastrointestinal and urinary symptoms, depression and anxiety, insomnia and pain. In the future, we may be able to identify an MS prodrome which allows treatment at an earlier stage.

1.4. Referral

If MS is suspected, referral should be made to a consultant neurologist.

NICE says the specialist should be contacted directly if we feel the patient

needs to be seen urgently.

Eye symptoms:

- If optic neuritis is suspected, refer to ophthalmology. If it is confirmed by ophthalmology, the patient should be referred to neurology for further assessment.

1.5. Diagnosis of MS in secondary care

Secondary care will make a diagnosis of MS based on history, examination, MRI and laboratory findings. MS is not diagnosed based on MRI alone.

Radiologically-isolated syndrome in MS

With improvements in MRI scanning, it is increasingly common for MRI changes consistent with MS to be seen incidentally when scanning for other indications (Lancet 2024;403:183). These findings are more prevalent in family members of people with MS, with around 8% of this group having MRI changes on scanning. Over 5 years, around 20–50% of people with asymptomatic MRI changes will progress to having a clinically significant demyelinating event. The role of treatment in this group with 'radiologically-isolated syndrome' is unclear at present.

Once a diagnosis has been made, secondary care should provide information on the diagnosis, treatment options, symptom management, social/care needs, support groups, online resources and driving (MS is included in DVLA – assessing fitness to drive: a guide for medical professionals under chronic neurological disorders).

What else will secondary care do?

Treatment of disease progression

There are many different DMARD treatments for MS; treatment choice will be a secondary care decision.
What do we need to know about DMARDs for MS? (BMJ 2018;363:k4674, JAMA 2021;325:765):

- Disease-modifying drugs reduce relapses each year by 29–68% (JAMA 2021;325:765).
- DMARDs can be associated with blood abnormalities, increased risk of infection, cardiac arrhythmias, macular oedema, secondary autoimmunity (e.g. autoimmune thyroid disease) and, in some cases, increased risk of cancer.
- Who takes these? Are these drugs coded on your system?
- Women of childbearing age taking these drugs should use effective contraception.
- Live vaccines should be avoided.

Things that should NOT be offered to treat MS:

- Vitamin D: a Cochrane review concluded that vitamin D had no effect on relapse rates, disability or parameters of disease activity (lesions on MRI) (DTB 2019 DOI:10.1136/dtb.2019.000070).
- Omega-3 or omega-6 fatty acid compounds: no evidence they affect relapse frequency or progression of MS.

Long-term follow-up

All patients with MS should remain under secondary care review. Secondary care should arrange a comprehensive care review at least annually. In summary, this should cover:

- MS symptoms, including impact on function.
- MS disease course, e.g. active disease, relapses, progression, disability.

- General health, e.g. weight, exercise, smoking.
- Medication review.
- Social activities, employment and driving.
- Bone health.
- Risk of contractures and pressure ulcers.
- Care and carers' needs.

1.6. Management of specific symptoms

Below, I have summarised the management of specific symptoms in MS, including primary care management (NICE 2022, NG220).

Symptom	What we need to know

Fatigue	Ask about it.
	Consider possible causes:
	• MS symptoms, e.g. pain, spasticity, bladder dysfunction.
	• MS-related fatigue (can be brought on by heat or stress (biological, physical or emotional)).
	• Other causes, e.g. anxiety, depression, sleep problems, medication, acute illness, comorbidities.
	Management:
	• Non-pharmacological management, offered by secondary care (OT, MS nurses or physiotherapists):
	  • Centres around supported self-management (goal-setting, energy conservation, healthy eating, stress management and wellbeing approaches, e.g. mindfulness and CBT).
	  • Aerobic, resistive and balance exercises (including yoga and

	Pilates) may help. • If fatigue AND moderately-impaired mobility, see mobility problems below. • Medication for fatigue: • Should only be offered by a specialist. • Specialist may consider amantadine, modafinil or an SSRI (all off-label uses). We may be asked to prescribe these on shared-care agreement. • Modafinil should not be used in women who are pregnant/planning a pregnancy (risk of congenital malformations, e.g. heart problems, hypospadias, orofacial clefts). Blood pressure and heart rate should be monitored in anyone with hypertension who is on modafinil (BNF, accessed July 2022). • Things that should NOT be offered to treat MS-related fatigue: • Hyperbaric oxygen (based on lack of evidence, specialist consensus and high costs). • B12 injections (in the absence of B12 deficiency/pernicious anaemia). • Any specific diet.
Mobility problems	• Refer to rehabilitation specialist/specialist physiotherapist (this may be through the MS team). • Do not offer fampridine (is clinically effective for some people but not cost effective. If already taking it, can continue). • If mobility problems AND fatigue: • Consider vestibular rehabilitation if limited standing balance. • May be offered a supervised activity programme and CBT. Ongoing exercise after a supervised programme may give longer-term benefits.
Spasticity	Suspect spasticity if ANY of:

- Involuntary muscle movements/spasms.
- Muscle stiffness.
- Pain and restriction with certain movements (may present as difficulty doing certain tasks).
- Changing in mobility or upper limb function.

Assess for factors that may worsen spasticity, e.g. pressure ulcers, bladder/bowel dysfunction, infection, pain.
Consider medication:

- Some people use their spasticity to maintain posture/standing, and medication with a muscle relaxant may impair this.
- Treat with a specific goal in mind, e.g. improving mobility, easing pain.
- Increase the dose gradually no sooner than every 2w until symptoms controlled or maximum tolerated dose. Stop if no benefit. If beneficial, review at least annually.
- First line: oral baclofen.
    - Do NOT stop suddenly (risks of hyperactive state, exacerbation of spasticity and autonomic dysfunction, including hyperthermia, psychiatric reactions and seizures).
    - If withdrawing medication, reduce dose gradually over at least 1–2w, and slower if symptoms develop (BNF, accessed July 2022).
- Second line: gabapentin (off-label use).
- Third line: baclofen AND gabapentin together:
    - Consider if monotherapy doesn't control symptoms or side-effects prevent dose of monotherapy being increased.
    - Caution should be used with these drugs in combination: risk of severe respiratory depression (people with a neurological condition (e.g. MS) may be at higher risk).
- If ongoing problems with mobility, posture or function: refer.
- For information on THC:CBD spray for treating spasticity in MS, see the *Cannabis: medical use* article in the online handbook.

Oscillopsia	• Visual disturbance where objects in vision appear to move. • Consider gabapentin first line or memantine second line (both off-label uses). • NICE says if ongoing symptoms, refer.
Emotional lability	• Involuntary laughing/crying can occur if frontal lobe lesion in MS. • Consider amitriptyline (off-label use).

Pain	• Assess for any underlying cause and treat appropriately.
	• Commonest types of pain in MS are:
	  • Neuropathic pain: follow NICE guidance on neuropathic pain.
	  • Musculoskeletal pain secondary to poor mobility, spasticity and posture.
	• Pain can have a negative impact on mental health.

Cognitive and memory problems	• Should be assessed as part of the secondary care annual review. • May be multifactorial and influenced by anxiety, depression, sleep, fatigue and medications. • If persistent cognitive impairment, OT and/or neuropsychiatry referral may be considered.
Ataxia, dystonia and tremor	• For ataxia and tremor, NICE didn't recommend any particular medication and made a research recommendation in this area. • For dystonia and tremor, NICE signposted to its guidance on deep brain stimulation (not primary care's remit!).

What about urinary symptoms?

We know that many patients with MS have significant urinary symptoms. This is not covered in the NICE guidance on management of MS, but it is covered in the NICE guidance on urinary incontinence in neurological disease (NICE 2012, CG148).

In someone with MS and urinary symptoms:

- Urodynamics should not be offered routinely.
- For overactive bladder:
    - Offer antimuscarinic drugs (some evidence antimuscarinics may worsen cognitive impairment of MS).
    - Offer bladder wall injections with botox to adults if antimuscarinic drugs haven't worked/been tolerated.
- For stress incontinence: consider pelvic floor exercises (refer to women's health physio).
- To reduce the risk of urinary tract infections: NICE felt it could not recommend specific management options (e.g. prophylactic antibiotics, intermittent or permanent catheterisation to aid bladder drainage), and highlighted this as an area for future research.

What about optic neuritis?

What is optic neuritis?:

- Optic neuritis is inflammation of the optic nerve.
- It presents with eye pain, visual loss and/or decreased colour vision.
- It can occur in MS, but it can also be due to other causes.

Referral:

- If optic neuritis is suspected, refer to ophthalmology.
- If it is confirmed by ophthalmology, the patient should be referred to neurology for further assessment.

What is 'neuromyelitis optica spectrum disorder'?

- This is a rare autoimmune condition characterised by optic neuritis and transverse myelitis.
- It may be confused with MS; the diagnosis should only be made by an appropriate specialist.
- In primary care, the management is the same:
    - If we suspect optic neuritis: refer to ophthalmology.
    - If we suspect MS: refer to neurology.

1.7. Recognising a relapse in MS

Symptoms of MS may change for several reasons (not all symptoms are due to a relapse):

- Co-existing illness, e.g. infection.
- Change of disease status, e.g. progression.
- Relapse.

A relapse should be considered if someone with MS whose disease has been stable for the past 1m:

- Develops new symptoms OR has worsening existing symptoms AND
- Symptoms last more than 24h AND no signs of infection.

Before diagnosing a relapse of MS:

- Rule out infection, e.g. chest infection or UTI AND
- Discriminate between the relapse and fluctuations in disease or progression.

We can do the former and treat any infections identified. Deciding if this is a relapse or disease progression or expected fluctuations in disease sounds much more like a secondary care task! **All suspected relapses should be discussed with secondary care that day:**

Symptoms of a relapse	The commonest symptoms (and the proportion of relapses presenting with these) are (BMJ 2015;350:h1765): • Loss of visual acuity (optic neuritis) (20%). • Sensory alterations (48%). • Weakness (34%). • Imbalance (ataxia). • Fatigue and cognitive difficulty.
Time course	The time course of a relapse (BMJ 2015;350:h1765): • A MS relapse typically develops over hours to days until a plateau is reached, which may last for days or weeks. • This is followed by recovery, which may be complete or incomplete. • Relapses may continue to improve for up to 12m. • A stable or improving period of 30d should separate the onset of subsequent relapses for them to be classified as a separate relapse.
Contact	**Prompt (same-day) contact with secondary care is essential**

secondary care	**(NICE 2022, 220):**
	• Treatment, if needed, should be started straightaway (as early as possible and within 14d of onset of symptoms).
	• Treatment should be offered for relapses of MS that affect the person's ability to perform their usual tasks.
	• Steroids should never be started in primary care without discussion with a specialist:
	  • Not all relapses need steroids (secondary care will decide).
	  • Steroids should only be prescribed for that specific relapse; they should not be kept at home as rescue medication.

Treatment	• A MS relapse is treated with oral methylprednisolone 0.5g daily for 5d (NICE 2022, 220). • IV methylprednisolone 1g daily for 3–5d will be considered if (NICE 2022, 220): • Oral steroid failed/not tolerated or • Severe relapse and needs admission or • Admission required for monitoring (e.g. of coexisting diabetes or depression).

Modifiable risk factors for relapse or progression

NICE identified 3 modifiable risk factors for relapse or progression:

- Exercise: regular exercise may have beneficial effects.
- Not smoking: smoking increases the progression of disability.
- Immunisations: offer vaccines as per The Green Book for patients with MS and their carers.

1.8. Pregnancy and pregnancy planning

NICE updated its guidance this time to include women and men planning to start a family/a pregnancy, and those considering adoption.

Forward planning is key. Ask about any plans for a pregnancy/children. These discussions are best started soon after diagnosis and revisited often. People with MS may be on DMARDs which should not be taken during pregnancy; discussing this preconception with their specialist is important. They should also inform primary/secondary care if they become pregnant on treatment.

When a woman with MS is pregnant/planning a pregnancy, the following should be discussed:

- She should take vitamin D and folic acid (for information on folic acid dosing in pregnancy, see the *Folate deficiency* article).
- Secondary care will advise regarding medication (ideally before pregnancy occurs).
- Pregnancy doesn't increase the risk of disease progression.
- Relapses:
    - May decrease during pregnancy.
    - May increase in the 3–6m after delivery (and then return to pre-pregnancy levels).
- Breastfeeding is safe unless on certain DMARD drugs.

Caring for a child may impact on MS symptoms, e.g. fatigue; management strategies should be discussed. There is a slight increased risk of the child developing MS.

1.9. Advanced MS and advance care planning

As MS becomes more advanced, patients may need increased social care as well as support and input from specialist teams:

- Ask about social isolation and depression.
- Consider OT input for mobility aids and home adaptations to maintain independence.
- Discuss, as appropriate:
    - Social care, employment rights, benefits and carer's assessment.
    - Power of attorney.
    - Advance care planning and palliative care team input.

Multiple sclerosis

- If you suspect MS, refer.
- People with MS need easy access to a multi-professional team. Do you know how to access yours?
- Be aware of the treatment for common symptoms and refer if these don't work.
- Recognising relapses is difficult, but important. Some need treatment, some do not. Assess for other causes (especially urinary and respiratory infection), and refer for the specialist team that day to make the decision on whether or not it is a relapse and whether or not to offer treatment.
- Disease-modifying treatments are being used by secondary care. How do we highlight their use on our clinical systems?

Useful resources:

Websites (all resources are hyperlinked for ease of use in Red Whale Knowledge)

- MS Society

accurate, complete or up to date.

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