

## Neurosciences Unit

# What is Multiple Sclerosis (MS)?

Multiple Sclerosis (MS) is a condition of the brain and spinal cord, which make up the central nervous system. Your brain controls bodily activities, such as movement and thought, and your spinal cord is the central message pathway. Messages are sent from your brain to all parts of your body, controlling both conscious and unconscious actions. Surrounding and protecting the nerve fibres of the central nervous system is a substance called myelin, which helps the messages travel quickly and smoothly between the brain and the rest of the body.

It is thought that with MS, the body's own immune system which normally helps to fight off infections, mistakes the myelin for a foreign body, such as bacteria and attacks it, stripping it off the nerve fibres either completely or partially, leaving scars known as lesions or plaques.

This damage to the myelin disrupts messages travelling along the nerve fibres and they can slow down, become distorted or not get through at all. As well as myelin loss, there can also sometimes be damage to the actual nerve fibres themselves. It is the nerve damage that causes the increasing disability that can occur over time.

Not everyone with MS has the same symptoms. The symptoms a person gets depend on the areas of the central nervous system that become damaged.

MS is the most common condition of the central nervous system affecting young adults. Over 100,000 people in the UK have MS which is about one in every 600. It is nearly three times more common in women than in men. Most people are diagnosed in their 20s and 30s but it can be diagnosed in younger and older people.



### What causes MS?

The causes of MS are unknown but are thought to be a combination of environmental and genetic factors which lead the body's immune system to malfunction.

### How is MS diagnosed?

There is no single sign or symptom that is specific to MS. It is primarily made by the neurologist after reviewing their patients' medical history, conducting a physical examination, and interpreting a series of tests all of which assist in the diagnosis:

- Magnetic Resonance Imaging (MRI). This involves a scan of the brain and/or spinal cord.
- Lumbar Puncture (LP), which involves taking a sample of fluid from around the spinal cord for analysis.

### Types of MS

There are four types of MS, each with its own characteristics, but each as unpredictable as the other. It might not be clear which type of MS someone has when they are first diagnosed. However, by noting changes over time, neurologists should be able to clarify which type someone has.

- **Relapsing Remitting MS:** this is when you have a relapse (flare up of symptoms), followed by periods of remission (recovery). Relapses are unpredictable; they can last for days, weeks or months and vary from mild to severe. These may be with new symptoms or a recurrence or worsening of previous symptoms. During remissions symptoms can disappear completely or sometimes people only make a partial recovery.
- **Secondary progressive MS:** most people who have relapsing-remitting MS later develop secondary progressive MS. This is when their condition becomes steadily worse, and their disability progresses for a period of six months or more whether they continue to have relapses or not.

## Patient Information

- **Primary progressive MS:** this is where symptoms steadily worsen, resulting in continued progression of disability. They don't have distinct relapses and remissions.
- **Benign MS:** it is only possible to make a diagnosis of benign MS once you have experienced little or no disability for a period of 10 to 15 years. However, this doesn't guarantee that they will be free of problems; a relapse may occasionally occur after many years of inactivity.

## Symptoms

MS is unpredictable. It varies from person to person and can result in a wide variety of symptoms, none of which are unique to MS. People may only experience a few symptoms.

They can range from mild to severe and from brief to persistent. Symptoms such as walking difficulties are obvious but others like pain or tiredness are less so. These are the hidden or silent symptoms and are more difficult, for those who aren't familiar with MS, to understand.

### **The more common symptoms of MS include:**

- Fatigue: an overwhelming sense of tiredness making physical and mental tasks difficult.
- Problems with walking, balance or coordination
- Stiffness or spasms
- Visual problems: blurred or double vision
- Numbness or tingling in hands or feet
- Dizziness
- Pain: mild to severe
- Loss of muscle strength
- Mood changes
- Cognitive problems
- Speech problems
- Continence issues

### **Current treatments available for MS**

Specialists such as Occupational Therapists, Physiotherapists, continence advisors and Psychologists can help with mobility, coordination, continence and memory or concentration problems. People with MS should discuss their treatment options and concerns with appropriate healthcare professionals who can best identify the best therapies available.

### **Disease modifying drugs (DMD's)**

These treatments are not a cure for MS but the main benefits can be:

- Fewer relapses;
- Less severe relapses;
- Help reduce the build-up of disability which can occur if you don't recover completely from relapses.

DMD's work with different parts of the immune system to reduce the inflammation caused by MS to nerve cells in the brain and spinal cord. This helps reduce the number and severity of relapses.

Inflammation does not always result in a relapse or visible symptoms. This silent activity may mean that although you are feeling well, there may still be changes caused by your MS that can only be seen on a brain scan. MRI scans show that taking a DMD can lead to fewer, smaller or no new areas of damage (lesion) in the brain and spinal cord. Treating the visibly active relapses as well as the silently active aspects of MS is a new goal that is emerging in MS treatment. The goal is often called no evidence of disease activity (NEDA). The aim is to reach a point where you are free of visible relapses and invisible (changes seen only on brain scans) MS disease activity.

Some research suggests that DMDs work best when they are started as soon as possible after diagnosis, effectively before there is any sign of disability, to reduce the build-up of damage to the nerve cells.

Most people will continue to have a background of symptoms. DMDs are not able to repair nerve damage already caused by MS so they cannot reverse existing symptoms.

## Patient Information

### **Relapse management**

People with relapsing-remitting MS may experience 1-2 relapses per year which are generally treated with corticosteroids which are effective in hastening a recovery from an attack. This can be given in either tablet form or by intravenous infusion, for which admission to hospital, on a daily basis, is required.

It is important to realise that new symptoms may not be due to a relapse or even MS.

### **Useful contacts**

If you have any more questions or would like further information, please contact:

#### **MS Specialist Nurses (University Hospitals Coventry and Warwickshire NHS Trust)**

024 7696 5128

#### **MS Society UK**

372 Edgware Road

London, NW2 6ND

020 8438 0700

[www.mssociety.co.uk](http://www.mssociety.co.uk)

#### **National MS Helpline**

Freephone 0808 800 8000 (Monday to Friday, 9.00am-9.00pm)

### **Useful Websites**

[www.mstrust.org.uk](http://www.mstrust.org.uk)

[www.msdecisions.org.uk](http://www.msdecisions.org.uk)

[www.carersuk.org](http://www.carersuk.org)

[www.citizensadvice.org.uk](http://www.citizensadvice.org.uk)

<http://www.scope.org.uk/dial>

[www.motability.co.uk](http://www.motability.co.uk)

<http://disabilityrightsuk.org/>

## Patient Information

The Trust has access to interpreting and translation services. If you need this information in another language or format please contact 024 7696 5128 and we will do our best to meet your needs.

The Trust operates a smoke free policy

### **Document History**

Department:	Neurosciences
Contact:	25128
Updated:	January 2020
Review:	January 2023
Version:	6.1
Reference:	HIC/LFT/494/07