

# Understanding relapsing forms of multiple sclerosis

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS) characterized by myelin destruction and axonal damage in the brain, optic nerves and spinal cord.<sup>1</sup>



MS affects ~2.3 million people worldwide.<sup>2</sup>



The average age of MS onset is 30 years and there are twice as many women as men with MS overall.<sup>2</sup>

There are four main types of MS:

- clinically isolated syndrome (CIS),
- relapsing–remitting MS (RRMS),
- secondary progressive MS (SPMS) and
- primary progressive MS (PPMS).<sup>3</sup>

The various forms of MS can be distinguished based on whether a patient experiences relapses (clearly defined acute inflammatory attacks of worsening neurologic function), and/or whether they experience progression of neurologic damage and disability from the onset of the disease.<sup>1</sup>

## Relapsing forms of MS (RMS): CIS, RRMS and active SPMS<sup>4</sup>

Type of MS	Characterization
CIS	This is defined as a first episode of neurologic symptoms that lasts at least 24 hours and is caused by inflammation or demyelination in the CNS. <sup>5</sup>
RRMS	Of people with MS, 85% have RRMS, characterized by clearly defined episodes of relapses and remission (periods of partial or complete recovery). <sup>1</sup> Since every patient's journey is unique, the frequency, severity, and lasting impact of new symptoms from relapses may vary. <sup>3</sup> Underlying progression can happen even if there are no signs of a relapse. <sup>6</sup>
Active SPMS	Up to 80% of patients with RRMS will develop SPMS. <sup>2</sup> Active SPMS is characterized by physical and cognitive changes over time, in the presence of relapses, leading to a progressive accumulation of neurologic disability. <sup>1</sup> The frequency of relapses may also reduce over time. <sup>7</sup>

## How is disease progression monitored?

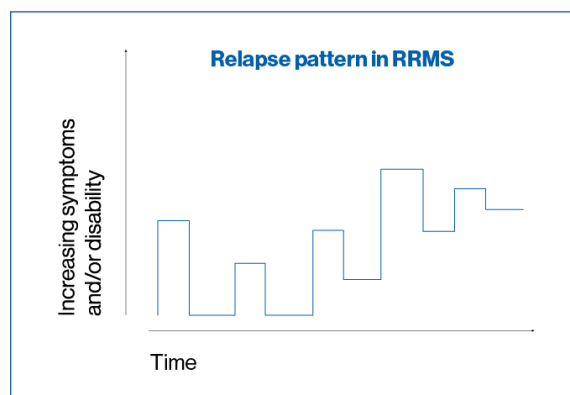
Several different measures are commonly used in clinical trials to monitor disease progression and help evaluate the effect of potential new therapies.

### Imaging of lesions

Magnetic resonance imaging scans can assess disease activity in the brain by detecting areas of inflammation and scarring, or lesions.<sup>8</sup>

## Relapses

The annualized relapse rate estimates the average number of relapses a group of patients experienced over a year.<sup>9</sup>

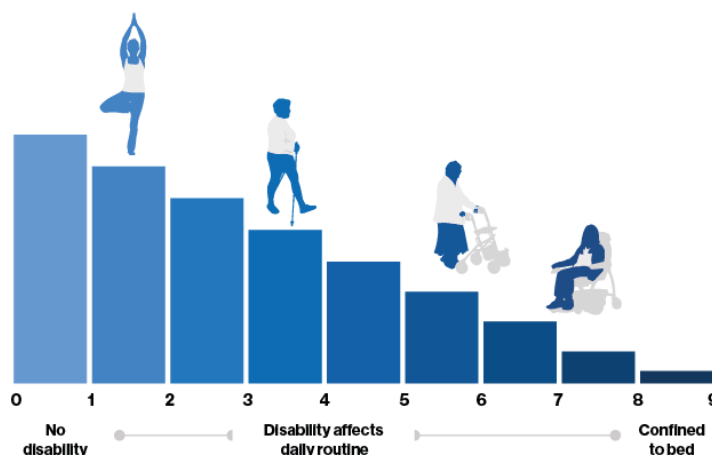


The relapse frequency varies depending on the type of MS.<sup>3</sup>

## Disability worsening

A sustained change in a person's Expanded Disability Status Scale (EDSS) score, which quantifies disability, can be considered confirmed disability worsening, a measure that helps determine disease progression over time.<sup>10,11</sup>

## EDSS



The EDSS is a measure to rate neurologic impairment in MS.<sup>10</sup>

## Treatment

Despite the availability of several disease-modifying therapies for the treatment of RMS, the majority of individuals with RMS continue to experience disease activity. Evidence suggests that early initiation of a high-efficacy MS treatment may improve long-term outcomes.<sup>12</sup> B-cells are known to play a critical role in the development of autoimmune diseases—such as RMS—and are a key target in MS pathogenesis. B-cell treatments, which bind to and deplete B-cells associated with disease activity in MS, help to suppress the cascade of immune events contributing to MS disease activity.<sup>13</sup>



## References

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