The goal of disease-directed treatment is to diminish or down-regulate the auto-immune reaction of activated T-lymphocytes against myelin antigens.

In relapsing disease, corticosteroids remain the mainstay of therapy for an acute attack. They have an immunomodulating and anti-inflammatory effect that restores the blood-brain barrier, reduces oedema, and may improve axonal conduction. Corticosteroids shorten the duration of the attack and accelerate the recovery. However, it is not known whether they improve the overall degree of recovery or alter the long-term course of the disease (Rudick et al, 1997).
Interferons are glycoproteins secreted by certain cells in response to viral infections which have antiviral and immunomodulating activities. Two forms of recombinant interferon beta, 1a and 1b, have recently been approved for use in the treatment of relapsing-remitting MS. Interferon beta 1b (Betaseron) has been studied in patients with mild to moderate disability and relapsing-remitting disease. Compared to a control group receiving placebo, those in the treatment group showed a 31 % reduction in the number of moderate and severe relapses and an increased proportion of patients were relapse free (27 % versus 17 %) (IFBN Multiple Sclerosis Study Group, 1993). In addition, those receiving interferon beta 1b showed a reduction in disease activity and a 6 % decrease in the area of MS lesions measured on MRI, as compared with a 17 % increase in the placebo group.
Interferon beta 1a (Avonex) has also been studied in relapsing-remitting disease. When compared with a control group receiving placebo, those in the treatment group had a
32 % reduction in relapse rate. Treatment with interferon beta 1a also lowered the probability of disease progression and severe disability (Jacobs et al, 1996).

Glatiramer acetate (Copaxone) is a mixture of synthetic polypeptides composed of 4 amino acids which has also recently been approved in the treatment of relapsing-remitting MS. In those with mild to moderate disease, this drug has shown to decrease the relapse rate. When compared with controls, the treatment group had a 29 % lower annualised relapse rate and a greater proportion had improvement in their disability (25 % versus 15 %).
Serum antibodies also develop to glatiramer acetate but do not appear to affect clinical benefit (Rudick et al, 1997).

In progressive MS, treatment becomes directed at slowing the progression of the disease and usually consists of non-specific immune suppression.
Methotrexate, effective in other autoimmune diseases such as rheumatoid arthritis, has been shown to be of benefit in ambulatory patients with chronic

progressive MS. Patients with secondary progressive MS seemed to benefit most (Rudick et al, 1997). Interferon beta 1b has also appeared effective in delaying deterioration for 9-12 months in a study period of 2-3 years in people with secondary progressive MS (European Study Group on Interferon beta 1b in Secondary Progressive MS, 1998).

The recent advances in the pharmacological treatment of MS have decreased the frequency and severity of attacks and delayed neurologic progression. All of these medications, however, have potential side effects (e.g. influenza-like symptoms during interferon beta therapy). Despite the use of these medications, attacks still occur and neurologic impairments still accumulate.