

Resources for the Patient

Please print these out and give them to your patients with MS

An internet program for persons with MS on the FCM website

Multiple Sclerosis: A Toolbox of Information and Resources for the Patient

A patient education program to help you better understand and cope with your illness.

http://fcmcme.org/Pages/patient_education.htm

NMSS Resources for Patients

www.nmss.org

- Reliable information
 - Webpage, on-line modules, brochures, local programs
- Social networking
 - Support groups, retreats
 - Networking sites for MS: Facebook, Real talk. Real answers., Young adults, Moms with MS
- Exercise and wellness
- Financial support
 - Respite, durable medical equipment, home modifications, prescriptions, transportation...
- Care management
 - Comprehensive assessment of individual needs & resources

Proposal to introduce drugs to patients with following slides if you have a separated patient tool kit. I personally feel only giving them the drug slides is too dry.

- Would propose slide which gives overview of available drugs, such as the arrow slide but needs update as fingolimod now approved
- No formatting yet prior to decision
- Will need to include new oral drug Gilenya which was not available yet when I did this for other presentation
- Would propose slide to encourage and promote well being and not only to talk about drugs.

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Emerging new drugs

Betaseron

Avonex

Copaxone

Rebif

Cladribine

Fingolimod

Laquinomod

BG-12

Teriflunomide

Rituximab

Alemtuzumab

...

1993

2000

2006

Mitoxantrone

Tysabri

(>70 MS drugs in development)

First-line treatments

- ▣ Interferons
 - Avonex
 - Betaseron
 - Rebif
- ▣ Copaxone



Have changed the face of MS

Second-line treatments

- ▣ Tysabri
- ▣ Novantrone



Don't work for everyone

Optimal drug for the individual?



First-line treatments

- ▣ Interferons
 - Avonex
 - Betaseron
 - Rebif
- ▣ Copaxone

Very safe

Long-term safety >15 years

Effective in a lot of MS patients



Needles, self-injections

Tolerability

- Injection site reactions
- FLS and blood work for interferons

Compliance



Second-line treatments

- ▣ Tysabri
- ▣ Novantrone

Often work when other treatments failed or cannot be tolerated

No self-injection required

Less frequent dosing



Limited safety data

Safety risks:

Tysabri: PML, opportunistic infections

Novantrone: fertility, heart, leukemia

Want to know more?

- Speak to your doctor
- Look at accurate and updated information of these drugs and many other info about MS at the NMSS webpage:

www.nmss.org

The MS Disease- Modifying Medications

GENERAL INFORMATION



National
Multiple Sclerosis
Society



Current as of December 8, 2010. This online brochure is updated with breaking news as required. If you have a printed a copy of this publication, please check nationalMSsociety.org/DMD to assure that you have the most current edition.

For some people, a diagnosis of MS is a relief, giving a name and a reason for a parade of strange symptoms. For others, a diagnosis of MS brings images of the worst possible future. Both reactions will likely change somewhat over time, but for many with MS, diagnosis is a day when life changes.

Even before the news can be fully absorbed, people with MS face a decision about taking a disease-modifying medication. The Society's National Clinical Advisory Board agrees that disease-modifying medications are most effective when started early, before the disease has the opportunity to progress further.

Disease-modifying medications:

- Reduce the frequency and severity of clinical attacks (also called relapses or exacerbations), which are defined as the worsening of an MS symptom or symptoms, and/or the appearance of new symptoms, which lasts at least 24 hours and is separated from a previous exacerbation by at least one month.

- Reduce the accumulation of lesions (damaged or active disease areas) within the brain and spinal cord as seen on MRI (magnetic resonance imaging).
- Appear to slow down the accumulation of disability.

These medications, which are generally taken on a long-term basis, are the best defense currently available to slow the natural course of MS. Even though the disease-modifying medications don't generally make a person feel better, they can be looked upon as an investment in the future.

Options

There are currently eight disease-modifying medications approved by the U.S. Food and Drug Administration (FDA) for use in relapsing forms of MS (including secondary-progressive MS for those people who are still experiencing relapses).

Of these, one is also approved specifically for secondary-progressive MS. None of these medications is a cure, and none will prevent recurring symptoms, such as fatigue or numbness. However each of them has a proven record of effectiveness. Unfortunately, no disease-modifying medication has yet been approved to treat primary progressive MS — the type of MS that shows steady progression at onset.

Decisions about taking a disease-modifying medication are best made by carefully considering and weighing factors including individual lifestyle, disease course, known side effects, and the potential risks and benefits of the different therapies. A full discussion with a knowledgeable health care professional is the best guide for your decision. Each person's body or disease can respond to these medications in different ways.

The following charts present important information about each of the medications, which are listed in alphabetical order.

Brand (Generic Name) & Frequency/Route of Delivery/Usual Dose

Avonex® (*interferon beta-1a*)

Once a week; intramuscular (into the muscle) injection; 30 mcg.

Betaseron® (*interferon beta-1b*)

Every other day; subcutaneous (under the skin) injection; 250 mcg.

Copaxone® (*glatiramer acetate*)

Every day; subcutaneous (under the skin) injection; 20 mg (20,000 mcg).

Extavia® (*interferon beta-1b*)

Every other day; subcutaneous (under the skin) injection; 250 mcg.

Gilenya™ (*fingolimod*)

Every day; capsule taken orally.

Novantrone®

(*mitoxantrone*; as of 2006, available as a generic drug)

Four times a year by IV infusion in a medical facility. Lifetime cumulative dose limit of approximately 8–12 doses over 2–3 years (140 mg/m²).

Rebif® (*interferon beta-1a*)

Three times a week; subcutaneous (under the skin) injection; 44 mcg.

Tysabri® (*natalizumab*)

Every four weeks by IV infusion in a registered infusion facility; 300 mg.

Manufacturer/Distributor & Year of FDA Approval

Avonex®	Biogen Idec — 1996
Betaseron®	Bayer HealthCare Pharmaceuticals, Inc. — 1993
Copaxone®	Teva Pharmaceuticals Industries, Ltd. — 1996
Extavia®	Novartis Pharmaceuticals Corp. — 2009
Gilenya™	Novartis Pharmaceuticals Corp. — 2010
Novantrone®	EMD Serono, Inc./Immunex Corporation — 2000
Rebif®	EMD Serono, Inc./Pfizer, Inc. — 2002
Tysabri®	Biogen Idec/Elan Pharmaceuticals, Inc. — 2006

Indication (FDA-approved Use)

Avonex®

For the treatment of relapsing forms of MS to slow the accumulation of physical disability and reduce the frequency of clinical exacerbations, and for patients who have experienced a first clinical episode and have MRI features consistent with MS.

Betaseron®

For the treatment of relapsing forms of MS to reduce the frequency of clinical exacerbations; and for patients who have experienced a first clinical episode and have MRI features consistent with MS.

Copaxone®

For the treatment of relapsing-remitting MS to reduce the number of clinical exacerbations; and for patients who have experienced a first clinical episode and have MRI features consistent with MS.

Extavia®

For the treatment of relapsing forms of MS to reduce the frequency of clinical exacerbations; and for patients who have experienced a first clinical episode and have MRI features consistent with MS.

Gilenya™

For the treatment of relapsing forms of MS to reduce the frequency of clinical exacerbations and to delay the accumulation of physical disability.

Novantrone®

For the treatment of worsening relapsing-remitting MS, progressive-relapsing MS or secondary-progressive MS to reduce neurologic disability and/or the frequency of clinical exacerbations.

Rebif®

For the treatment of relapsing forms of MS to reduce the frequency of clinical exacerbations and delay the accumulation of physical disability.

Tysabri®

To be used as a monotherapy (not in combination with any other disease-modifying medications) for the treatment of relapsing forms of MS to delay the accumulation of physical disability and reduce the frequency of clinical exacerbations; generally recommended for patients who have had inadequate response to, or are unable to tolerate, another disease modifying medication.

NOTE: Patients taking interferon beta-1a (Avonex or Rebif) or interferon beta-1b (Betaseron or Extavia) medications may develop immunity to the treatment demonstrated by the presence of “neutralizing antibodies” detected in their blood. Some neurologists believe that this is an important factor in managing patients receiving interferon.

Side Effects (always inform your health care professional of side effects)

Avonex®

Flu-like symptoms following injection, which lessen over time for many. (See “Managing side effects” on page 8.) Less common: depression, mild anemia, liver abnormalities, allergic reactions, heart problems. (See “Avonex Warnings” on page 9.)

Betaseron®

Flu-like symptoms following injection, which lessen over time for many. (See “Managing side effects” below.) Injection site reactions, about 5% of which need medical attention. Less common: allergic reactions, depression, liver abnormalities, low white blood cell counts. (See “Betaseron Warnings” on page 10.)

Copaxone®

Injection site reactions. Less common: vasodilation (dilation of blood vessels); chest pain; a reaction immediately after injection, which includes anxiety, chest pain, palpitations, shortness of breath, and flushing. This lasts 15-30 minutes, typically passes without treatment, and has no known long-term effects. (See “Copaxone Warnings” on page 10.)

Extavia®

Flu-like symptoms following injection, which lessen over time for many. (See “Managing side effects” below.) Injection site reactions, about 5% of which need medical attention. Less common: allergic reactions, depression, liver abnormalities, low white blood cell counts. (See “Extavia Warnings” on page 11.)

Gilenya™

Headache, flu, diarrhea, back pain, liver enzyme elevations and cough. Less common: slowed heart rate following first dose, infections, swelling in the eye. (See “Gilenya Warnings” on page 11.)

Rebif®

Flu-like symptoms following injection, which lessen over time for many. (See “Managing side effects” below.) Injection site reactions. Less common: liver abnormalities, depression, allergic reactions, and low red or white blood cell counts. (See “Rebif Warnings” on page 12.)

Novantrone®

Blue-green urine 24 hours after administration; infections, bone marrow suppression (fatigue, bruising, low blood cell counts), nausea, hair thinning, bladder infections, mouth sores. Patients must be monitored for serious liver and heart damage. (See “Novantrone Warnings” on page 13.)

Tysabri®

Headache, fatigue, urinary tract infections, depression, lower respiratory tract infections, joint pain, and chest discomfort. Less common: allergic or hypersensitivity reactions within two hours of infusion (dizziness, fever, rash, itching, nausea, flushing, low blood pressure, difficulty breathing, chest pain), liver abnormalities. Patients must be monitored for PML. (See “Tysabri Warnings” on page 13.)

Managing side effects of disease-modifying medications

Not everyone will experience every one of these side effects. Some adverse effects are common, and others are very infrequent but may be serious. Your health care provider can give you a better sense of how frequently problems occur with the specific agent he or she recommends for you. The industry-sponsored websites may also give you an idea of how frequently these effects occur.

The flu-like side effects of the interferon products — Avonex[®], Betaseron[®], Extavia[®], and Rebif[®] — can usually be managed successfully. Discuss this with your physician or other health care provider, and the patient support program of the pharmaceutical company (available through a toll-free number — see chart entitled “Industry-Sponsored Sites” on page 16). Should unacceptable side effects continue, discuss possible change to another medication with your health care professional.

The medications that are injected subcutaneously including Betaseron, Copaxone[®], Extavia, and Rebif, may cause injection site reactions, including bumps, bruises, pain, and infections. Good injection techniques can minimize problems. Auto-injecting devices may be helpful. The pharmaceutical company patient support programs offer injection training and helpful tips for avoiding or limiting site reactions (see chart entitled “Industry-Sponsored Sites” on page 16).

Avonex[®] Warnings

In response to events reported by patients and clinicians following approval of this medication, the FDA has added the following warnings about Avonex[®] (interferon beta-1a): Individuals with a history of depression, a seizure disorder, or cardiac problems should be closely monitored while on this medication; All patients on this medication should have baseline liver function testing and periodic testing thereafter;

Periodic blood testing is recommended to check for a possible reduction in infection-fighting blood cells, red blood cells, and cells that help blood to clots; Rare but significant allergic reactions have been reported to this medication.

Betaseron[®] Warnings

In response to events reported by patients and clinicians following approval of this medication, the FDA has added the following warning Betaseron[®] (interferon beta-1b): Individuals with a history of depression or a seizure disorder should be closely monitored while on this medication; This medication should be used with caution in people with depression; Rare but significant allergic reactions have been reported with this medication; Because skin infections or areas of severe skin damage can occur, injection sites should be rotated on a regular basis.

Copaxone[®] Warnings

The FDA labeling for Copaxone[®] (glatiramer acetate) contains the following warnings: Approximately 16% of people will experience an immediate post-injection reaction that includes at least two of the following: flushing, chest pain, palpitations, anxiety, shortness of breath, constriction of the throat, and transient skin eruptions. These symptoms generally disappear

spontaneously after about 15 minutes and have no long-term effects. This post-injection reaction generally occurs after the first few months of treatment and may occur more than once in a given individual. Transient chest pain — without any long-term effects — may also occur one or more times, either as part of the post-injection reaction or separately. Permanent depressions under the skin at injection sites can occur because of destruction of the fatty tissue. In addition, areas of severe skin damage can occur. For these reasons, careful rotation of injection sites is recommended so that no single area is injected more than one time per week.

Extavia® Warnings

Because Extavia® (interferon beta-1b) is identical to Betaseron® (interferon beta-1b), the FDA labeling includes the same warnings.

Gilenya™ warnings

Gilenya™ (fingolimod) has the following warnings included in its FDA label: If a person has not had chicken pox (varicella), his or her doctor may recommend the varicella vaccine prior to starting this medication; Because Gilenya can cause

a person's heart rate to drop after the first dose, patients will be monitored for six hours in the doctor's office after taking the first dose of medication; Because this medication reduces the number of white blood cells, leading to an increased risk of infection, a blood test to measure white blood cell count is recommended prior to starting treatment; A vision test is recommended prior to starting treatment and 2–3 months later to look for evidence of macular swelling in the eye; Because Gilenya can cause liver problems, a liver function test is recommended prior to starting treatment.

Rebif® Warnings

In response to events reported by patients and clinicians following approval of this medication, the FDA has added the following warnings about Rebif® (interferon beta-1a): Individuals with a history of depression or a seizure disorder should be closely monitored while on this medication; All patients on this medication should have baseline liver function testing and periodic testing thereafter; Periodic blood testing is recommended to check for a possible reduction in infection-fighting blood cells, red blood cells, and cells that help blood to clots; Rare but significant allergic reactions have been reported to this medication.

Novantrone® Warnings

Novantrone® (mitoxantrone) is a chemotherapeutic treatment originally developed to treat certain forms of cancer. The total lifetime dose is limited in order to avoid possible heart damage. People taking Novantrone should have tests of their heart function before each dose. It cannot be used in people with pre-existing heart problems, liver disease, and certain blood disorders. In addition to cardiac toxicity, acute myelogenous leukemia (AML), a type of cancer, has been reported in MS patients and cancer patients treated with Novantrone. AML can be fatal.

Tysabri® Warnings

Tysabri® (natalizumab) is a laboratory-produced monoclonal antibody that is given by intravenous (IV) infusion every four weeks. Tysabri cannot be infused at home, so your doctor will help you find an infusion center that is convenient to your home.

When talking with your health care professional about starting treatment with Tysabri, it is important to consider the following information: Individuals taking Tysabri are at increased risk for a rare, generally fatal brain disease called PML (progressive multifocal leukoencephalopathy), which is caused by the common JC virus.

There are no interventions that are known to cure PML once it occurs, but a course of plasma exchange to remove Tysabri® from the bloodstream as quickly as possible may provide benefit.

Although the initial cases of PML that occurred in the clinical trials were in patients who were also taking another disease-modifying medication, many additional cases of PML in people who were not taking another disease-modifying medication at the same time have been reported in the post-marketing phase.

The absolute risk for PML in patients treated with Tysabri® cannot be precisely estimated. However, the medication's sponsor has released data suggesting that the risk increases with increasing time on therapy, starting out lower than the one-in-one thousand level that was estimated at the time of Tysabri's re-approval in 2006, and rising after two years of infusions to about one in one thousand. At this time, there is insufficient information to determine the risk of PML in those who have been on therapy for three years or more.

Because of the risk of PML, Tysabri is only available under a restricted distribution program, referred to as the TOUCH™ program, which was created to monitor patients for PML and other adverse effects. Prescribing physicians and patients must enroll in this mandatory registry program. Infusion centers must also be enrolled in the TOUCH™ program. Patients using Tysabri should promptly report any continuously worsening symptoms to their prescriber.

Based on post-marketing experience with Tysabri®, the FDA added an additional warning to the product's labeling information in February, 2008. Tysabri has been found to increase the risk of liver damage, even after a single dose. Any person experiencing symptoms of liver injury, including yellowing of the skin and eyes (jaundice) unusual darkening of the urine, nausea, feeling tired or weak, and vomiting, should contact his or her physician immediately. Blood tests can be done to check for liver damage.

Tysabri is **not** recommended for use by any person whose immune system is weakened by disease or by the use of medications that alter the immune system, including other disease-modifying therapies.

Currently, nothing is known about the safety of long-term use of Tysabri or whether additional side effects will emerge in time.

Warnings about IV infusions

All medications delivered by IV infusion pose risks of bruising, vein damage, blood clots and more. Infusions must be managed by a well-trained medical professional who is qualified to administer them.

Industry-Sponsored Sites for Patient Information and/or Financial Assistance

Avonex®
MS Active Source®
avonex.com | msactivesource.com
800-456-2255

Betaseron®
BETAPLUS®
betaseron.com
800-788-1467

Copaxone®
Shared Solutions®
copaxone.com | sharedsolutions.com | mswatch.com
800-887-8100

Extavia®
extavia.com
Patient Support Program
866-925-2333

Gilenya™
gilenya.com
Patient Support Program
877-408-4974

Novantrone®
novantrone.com
877-447-3243

Rebif®
MS LifeLines™
rebif.com | mslifelines.com
877-447-3243

Tysabri®
biogenidec.com | tysabri.com
800-456-2255

Benefits of the Disease-Modifying Medications

Reducing the frequency of attacks and new lesions as seen on MRI

All of these medications have been shown to reduce the frequency of MS relapses and the development of new lesions. In individual clinical trials comparing a drug versus an inactive placebo treatment, MS attacks were reduced by 28–68 percent by different agents. In the clinical trials, most people were also found to have fewer, smaller, or no new lesions developing within their central nervous system as visible in MRI scans.

Preventing permanent damage

Permanent damage to nerve fibers (called axons) occurs early in MS in association with the destruction of myelin. Overall brain shrinkage (or atrophy), can occur early in the disease, and damage can be ongoing even when the person has no symptoms of an attack and feels well. Therefore, MS specialists advise the early use of a medication that effectively limits lesion formation and brain atrophy, or shrinkage. In the opinion of the National MS Society's Clinical Advisory Board, limiting lesions may be a key to reducing future permanent disability for many people with MS.

None of these medications is recommended for women who are pregnant or plan to become pregnant. Physicians should be consulted. Most women will be advised to avoid using these medications during pregnancy.

The bottom line

Many factors will influence the decision that you and your physician make about your choice of medication. One of them will be lifestyle issues that could affect your ability to stay with a treatment over time. Another factor is your response to the therapy, which should be carefully tracked. If your MS is not responding, you and your physician should discuss your options.

Paying for a Disease-Modifying Medication: Some Help is Available

Disease-modifying medications are costly. The actual cost to an individual or an insurance company will vary depending on the source. Because cost information is subject to frequent change, we recommend that you contact your healthcare plan and/or your pharmacy for cost information.

Some private insurance plans do not cover prescription medications, although they may cover procedures such as IV infusions in a medical facility. Plans that do cover prescription medications often have a list of the specific drugs covered by the plan (known as a formulary). It is possible that some disease-modifying medications are covered by a plan and some are not. In addition, many formularies now distinguish between “preferred” and “non-preferred” drugs, or put drugs on different tiers. The co-insurance amounts you may have to pay as a result can vary significantly.

Because Novantrone® and Tysabri® must be infused in a medical facility, they are covered under Medicare Part B. If Avonex® is administered in a physician’s office or clinic, it will be covered by Medicare Part B under most circumstances. For more detailed information, contact MS Active Source® (800-456-2255).

Medicare Part D covers prescription drugs through private plans approved by Medicare. For more information on Medicare prescription drug coverage, go to: nationalMSsociety.org/medicare, or call 1-800-344-4867.

Medicaid includes prescription drug coverage. However, the list of specific medications covered may vary from state to state. Call your state Medicaid office for more information.

Each of the pharmaceutical companies offers a program designed to help people apply for and use all the state and federal programs for which they are eligible.

They also help some people who are uninsured or under-insured through patient assistance programs. The companies invite physicians and people with MS who might be deterred by the cost from considering a disease-modifier to call the toll-free numbers listed in the chart entitled “Industry-Sponsored Sites.” Ask for information on available assistance.

For additional information on specific industry assistance, visit: nationalMSsociety.org/AssistancePrograms.

Help with the Cost of Medications for Symptom Management

In addition to the disease-modifying medications discussed above, there are many other medications, treatments, and strategies to help manage specific MS symptoms such as bowel and bladder function, spasticity and pain. Symptom management medications make important contributions to keeping people with MS well and active.

“Finding Lower-Priced Prescription Drugs” is a useful resource focused on making medications more affordable. Visit our website at [nationalMSSociety.org/insurance](https://www.nationalMSSociety.org/insurance) for more information.

For detailed information on patient assistance programs from drug manufacturers, visit [needymeds.org](https://www.needymeds.org).

Avonex® is a registered trademark of Biogen Idec.

Betaplust® is a registered trademark of Bayer Schering Pharma.

Betaseron® is a registered trademark of Bayer Schering Pharma Aktiengesellschaft.

Copaxone® is a registered trademark of Teva Pharmaceutical Industries Ltd.

Extavia® is a registered trademark of Novartis AG.

Novantrone® is a registered trademark of Immunex Corp.

MS Active Source® is a registered trademark Biogen, IDEC MA Inc.

MS Lifelines™ is a trademark of Ares Trading S.A.

Rebif® is a registered trademark of Ares Trading, S.A.

Shared Solutions® is a registered trademark of Teva Neuroscience, Inc. Corporation.

Tysabri® is a registered trademark of Elan Pharmaceuticals, Inc.

TOUCH™ is a trademark of Biogen Idec and Elan.

**MS STOPS PEOPLE FROM MOVING.
WE EXIST TO MAKE
SURE IT DOESN'T.
JOIN THE MOVEMENT®**



**National
Multiple Sclerosis
Society**

nationalMSsociety.org

**For Information:
1 800 FIGHT MS (1 800 344 4867)**

What is Multiple Sclerosis?

GENERAL INFORMATION



MS[®]

National
Multiple Sclerosis
Society

Kim, diagnosed in 1986

What is MS?

Multiple sclerosis (or MS) is a chronic, often disabling disease that attacks the central nervous system (brain and spinal cord). Symptoms may be mild, such as numbness in the limbs, or severe, such as paralysis or loss of vision.

The progress, severity, and specific symptoms of MS vary among individuals and are unpredictable. Today, new treatments and advances in research are giving new hope to people who are affected by the disease.

MS is thought to be an autoimmune disease. The body's own defense system attacks myelin, the fatty substance that surrounds and protects the nerve fibers of the brain, optic nerves, and spinal cord (the central nervous system).



Beverly diagnosed in 2001

The damaged myelin forms scar tissue (sclerosis). Often the nerve fiber is also damaged. When any part of the myelin sheath or nerve fiber is damaged or destroyed, nerve impulses traveling to and from the brain and spinal cord are distorted or interrupted.

MS is not a fatal disease. Most individuals with MS have near-normal life expectancies, and most learn to cope with the disease and are able to live productive lives.

What are its symptoms?

The symptoms of MS may include tingling, numbness, painful sensations, slurred speech, and blurred or double vision. Some people experience muscle weakness, poor balance, poor coordination, muscle tightness or spasticity, tremors, or paralysis, which may be temporary or permanent. Problems with bladder, bowel, or sexual function are common. Fatigue is a major concern for many. MS can cause forgetfulness or difficulty concentrating. It can also cause mood changes and may make people more susceptible to depression. Symptoms may come and go, appear in any combination, and be mild, moderate, or severe.

Can MS be treated?

Yes. Today, there are eight disease-modifying medications approved by the Food and Drug Administration (FDA) to treat MS. Five of them — Avonex[®], Betaseron[®], Copaxone[®], Extavia[®], and Rebif[®] — are given by injection, and have been shown to be effective in reducing disease activity in relapsing forms of MS. Gilenya[™] — the first oral disease-modifying medication approved to treat relapsing forms of MS — has also been shown to be effective in reducing disease activity.

These six medications are considered to be first-line options for people with MS, meaning that the FDA does not recommend or require that a person try another medication before taking them.

The National MS Society recommends that treatment with one of these “disease modifiers” be considered as soon as possible following a confirmed diagnosis of MS with a relapsing course.

Treatment with a disease-modifying therapy may be recommended even before an individual is definitely diagnosed, if the person experienced one attack (also called a relapse or exacerbation) and has evidence of MS lesions as seen by MRI scanning.

Tysabri[®], another disease-modifying medication, is delivered by infusion. It is recommended for patients who have an inadequate response to, or are unable to tolerate, other MS therapies.

Novantrone[®] is a powerful immune system suppressor shown to be effective in slowing down MS that is rapidly worsening or becoming progressive. Novantrone is delivered by infusion.

Steroids may be used to shorten acute attacks. Many other medications and combinations, including oral therapies, are in various stages of clinical trials or are under review by the FDA, and researchers are hopeful that more treatments for MS will be available in the near future. Please check nationalMSsociety.org for updates.

There are also many medications to relieve or moderate MS symptoms such as spasticity, bowel and urinary distress, pain, fatigue, or depression, including one MS-specific symptom management medication (Ampyra[™]) recently approved by the FDA to improve walking. Physical therapy, exercise, vocational and cognitive rehabilitation, attention to diet, adequate rest, and counseling are also valuable for managing symptoms and maintaining independence and quality of life. Prompt management of symptoms is vital and should be discussed with a knowledgeable physician.



AJ, diagnosed in 2000

Who gets MS?

An estimated 400,000 Americans have MS. Most are diagnosed between the ages of 20 and 50, and about two thirds are women. The disease is more frequently found among people raised in colder climates. Studies indicate that genetic factors make certain individuals susceptible to the disease, but there is no evidence that MS is directly inherited.

What happens in MS?

MS is an unpredictable disease. Symptoms vary greatly from person to person and vary over time in the same person.

Periods of active MS symptoms are called attacks, exacerbations, or relapses. These can be followed by quiet periods called remissions.

The disease ranges from very mild and intermittent to steadily progressive. Some people have few attacks and little, if any, accumulation of disability over time. At diagnosis, most people have relapsing-remitting disease. This means they have attacks followed by periods of partial or total remission that may last months or even years. Others experience a progressive disease course with steadily worsening symptoms. The disease may worsen steadily from the onset (primary-progressive MS) or may become progressive after a relapsing-remitting course (secondary-progressive MS).

Because MS affects individuals so differently, it is difficult to make generalizations about disability. Statistics suggest that 2 out of 3 people with MS remain able to walk over their lifetime, though many of them will need a cane or other assistive device. Some will choose to use a scooter or wheelchair to conserve energy or manage balance problems. Others will require a wheelchair to maintain mobility.

The disease-modifying treatments, which have been in use only since the 1990s, may favorably alter this projection.

Is MS easily diagnosed?

MS is not always easy to diagnose because symptoms may come and go. In addition, other diseases of the central nervous system have some of the same symptoms. No single neurological or laboratory test can confirm or rule out MS.

Medical imaging, particularly MRI (magnetic resonance imaging), helps to clarify the diagnosis. A conclusive or definitive diagnosis requires evidence of multiple patches of scar tissue in different parts of the central nervous system and evidence of at least two separate attacks of the disease. A definitive diagnosis can take several months. Sometimes it takes years.

Do we know the cause of MS?

The answer is no — not yet. The cause of MS and how we can stop progression, restore function, and ultimately prevent it, are the subjects of intensive worldwide research. Over 325 research grants and fellowships are funded by the National MS Society each year. Knowledge about MS is expanding and many clinical trials are in progress.

For information: 1-800-344-4867
nationalMSsociety.org

Join the Movement[®]

The National MS Society

Information, local referrals, publications, programs, and volunteer opportunities are available from the National Multiple Sclerosis Society and our 50-state network of chapters. To reach the chapter nearest you, call 1-800-344-4867 or visit **nationalMSsociety.org**.

The Society helps bring together the MS movement, comprised of people who want to do something about MS now, including people with MS, their family members, concerned friends, neighbors, health care professionals, volunteers and staff.

As the world's largest private funder of MS research, the Society supports local, state, and national advocacy programs.

Ampyra[™] is a trademark of Acorda Therapeutics, Inc.

Avonex[®] is a registered trademark of Biogen Idec.

Betaseron[®] is a registered trademark of Bayer Schering Pharma Aktiengesellschaft.

Copaxone[®] is a registered trademark of Teva Pharmaceutical Industries Ltd.

Extavia[®] is a registered trademark of Novartis AG Corporation.

Gilenya[™] is a trademark of Novartis AG Corporation.

Novantrone[®] is a registered trademark of Immunex Corp.

Rebif[®] is a registered trademark of Ares Trading S.A.

Tysabri[®] is a registered trademark of Elan Pharmaceuticals, Inc.



YES!

I want to join the movement to end MS. Please use my gift to push MS research, advocacy, educational initiatives and chapter programs further than ever before.

Enclosed is a gift of:

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