

# Accelerated Cure Project for MS

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## Comorbidity – Living with MS and...

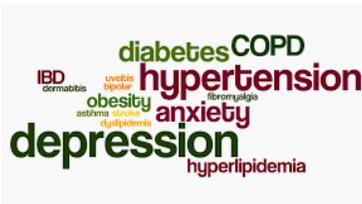
MS is a complex neurological disease that can be unpredictable and, at times, difficult to treat. People with MS often have other medical conditions, which may complicate things further. These other illnesses are referred to as comorbidities. Managing multiple health conditions poses a challenge to people with MS and their health care providers. Coexisting maladies may have the same symptoms as MS, as is the case with depression, which may mimic MS fatigue. Teasing out symptoms and determining which are due to MS and which are due to another health condition is often difficult. This distinction is important in both the diagnosis and treatment of MS. MS disease modifying therapies (DMTs) may also interact with medications required for other illnesses.



Comorbidities may occur either before or after an MS diagnosis, and have the potential to reduce one's wellbeing and quality of life. Exactly why a secondary condition develops isn't always clear. In some cases, it may be related to MS. For example, some people with MS have trouble with mobility. This may lead to being less physically active and overweight, which in turn may increase the risk of high blood pressure, high cholesterol and diabetes. In other cases, comorbidities and MS may share common risk factors. For example, smoking increases the risk of MS and also increases the risk of lung cancer and other pulmonary diseases. Unfortunately, comorbidities in MS are often overlooked. This may be due to patients attributing all symptoms they experience to MS and not to other undiagnosed conditions. Treating these additional conditions is essential for people with MS, not only for their overall health and wellbeing, but also for the effective management of their MS.



The prevalence of comorbidities in people with MS varies widely. [Researchers](#) in Australia conducted an international survey of people with MS. Of the 2,399 respondents, 67 percent reported having at least one other health condition. Investigators concluded comorbid disorders are significantly more prevalent in North America. Obesity and smoking (either former or current) are associated with an increase in the number of comorbidities, while healthy diet, physical activity and moderate alcohol consumption are associated with decreased number of comorbidities. Data show having a higher number of concurrent health conditions and MS leads to a lower quality of life, as well as an increased chance of disability and MS relapse. Another [study](#) confirms smokers with MS (particularly women with MS) have an increased risk of developing comorbid conditions (specifically, autoimmune diseases) after MS onset. A [research article](#), published in 2008, suggests the risk of comorbidity in MS is more common in certain groups, specifically in males, older individuals (greater than 60 years old), African Americans (compared to Caucasians), and those with lower socioeconomic status (annual income less than \$15,000).



The [International Advisory Committee on Clinical Trials in MS](#) is a committee comprised of international leaders in MS research and clinical care that is jointly supported by the [National MS Society](#) and the [European Committee for Treatment and Research in MS](#) (ECTRIMS). In 2015, the committee conducted an international workshop on comorbidities in MS (called the MS Comorbidities Project) to characterize the types and frequencies of comorbidities in MS, as well as to evaluate their impact on those living with the disease. As part of this effort, investigators conducted a [review](#) of existing published studies related to coexisting medical conditions in people with MS. They concluded the five most prevalent disorders occurring alongside MS are depression, anxiety, high blood pressure, high cholesterol, and chronic lung disease. The committee's review showed other common disorders in people with MS include heart disease, congestive heart failure, stroke, arthritis, inflammatory bowel disease, irritable bowel syndrome, seizure disorders, bipolar disorder, sleep disorders, and alcohol abuse. The most prevalent autoimmune diseases occurring with MS were thyroid disease and psoriasis. Interestingly, [researchers](#) at the University of Buffalo found that autoimmune comorbid conditions develop sooner in individuals with MS taking DMTs, suggesting a possible link between the two. However, it's important to note these results have not been replicated in other studies. Other [research](#) confirms depression, bipolar and anxiety disorders are highly prevalent among persons with MS. As discussed in our [April 2019 newsletter](#), depression has the potential to reduce quality of life, make other MS symptoms, such as fatigue, pain or cognitive changes, feel worse and may be life threatening.

According to the MS Comorbidities Project, the risk and prevalence of cancer in people with MS varies according to the type of cancer. Data suggest the types of cancer that occur most often in those living with MS are cervical, breast, and digestive system cancers. Results show people with MS have a higher risk of brain tumors and bladder cancer, and a lower risk of pancreatic, ovarian, prostate and testicular cancer, compared to the general population. Other investigations shed additional light on cancer risk in people with MS. A [2014 study](#) confirms an increased incidence of breast cancer in MS (with larger tumor size at diagnosis) compared to other common malignancies. [Researchers](#) in Sweden



suggest there is a decreased overall cancer risk in people with MS, however increased risks were also observed for brain tumors and bladder cancer. [Investigators](#) at the University of Buffalo agree there is a lower rate of cancer in people with MS compared with the general population. Interestingly, this study found MS subjects with a personal history of cancer were more likely to report DMT use, suggesting a possible relationship between the two. [Researchers](#) in France also found MS to be associated with a reduced overall cancer risk. Statistical analysis revealed MS subjects were 37 percent less likely to develop cancer compared to the control group when matched by geographic area, age, sex and lifestyle habits like tobacco use and alcohol consumption (which are known to increase cancer risk).

There is growing evidence that comorbidities affect MS disease progression. [Investigators](#) at the Cleveland Clinic have studied the impact of a number of comorbidities on disease course in people with MS, including hypertension, hyperlipidemia, diabetes and obstructive lung disease. Their results show all of the comorbidities studied except hyperlipidemia impact clinical outcomes (walking speed, disability, and depression). The study team also observed a cumulative effect in subjects with multiple comorbidities. Of all of the conditions studied, hypertension had the greatest effect. Interestingly, study results showed MRI outcomes are unaffected by comorbidities.

Concurrent vascular conditions, such as heart disease, hypertension or peripheral vascular disease, adversely influence health outcomes in several chronic illnesses, including MS. A [2010 study](#) found comorbid vascular diseases substantially increase the risk of disability progression in MS, whether such conditions are present at MS symptom onset, diagnosis or later in the disease course. In addition, results suggest the risk of MS progression increases with the number of vascular conditions an individual may have. [Researchers](#) at the University of New York suggest people with MS having one or more cardiovascular conditions (including hypertension and heart disease) show an increased lesion burden and more brain atrophy on MRI. There is also [evidence](#) that vascular and visual comorbidities, such as cataracts or glaucoma, are associated with progression of visual disability in MS.



In addition to influencing MS disease progression, there is evidence that comorbidities may complicate an MS diagnosis. One [study](#) suggests coexisting illnesses may delay MS diagnosis and worsen the amount of disability an individual may have at that time. Data suggest the odds of moderate disability at diagnosis increases in subjects with vascular conditions or obesity. The odds of severe disability increase with musculoskeletal or mental comorbidity. More research is needed to better understand the mechanisms underlying these relationships.

Comorbid conditions have the potential to profoundly impact an individual's care, whether they have MS or not. Those taking medications for multiple diseases may have difficulty coordinating them, in terms of correct timing and dosage. Some may experience compounding effects of medications or drug interactions. Comorbidity may affect the frequency or intensity of treatments for MS and other medical conditions, as well as their effectiveness, safety, and tolerability. According to a [2015 study](#), comorbid conditions increase the risk of hospitalization in people with MS.

MS treatment in the context of comorbidities has been a major focus of MS research. There is evidence some DMTs for MS increase the likelihood of developing other health conditions. For example, a [recent study](#) showed individuals with MS are at increased risk of developing autoimmune thyroid disease when treated with [Lemtrada](#) (alemtuzumab). There is [evidence](#) that individuals with MS and diabetes are at increased risk of developing macular edema when treated with [Gilenya](#) (fingolimod). In addition, [research](#) has shown people with MS may experience more frequent and more severe migraines while on [interferon-beta therapy](#). Research shows the converse is also true – comorbidities can substantially impact MS treatment. A [recent study](#) examined the correlation between comorbidities and the decision to initiate DMT in a cohort of over 10,000 subjects with MS. Data suggest subjects with higher numbers of comorbid conditions are less likely to start DMT. Some health conditions show more of an effect in this regard than others. Specifically, subjects with ischemic heart disease and anxiety are least likely to initiate DMT, followed by those with hyperlipidemia, chronic lung disease, and bipolar disorder. [Researchers](#) at Johns Hopkins University found subjects with MS and other coexisting conditions are more likely to change from their current DMT due to intolerance. Of interest, there was no relationship between a specific comorbidity and DMT intolerance.



Concurrent illnesses warrant the full attention of people with MS and their healthcare providers. Coexisting health conditions can increase the number of hospitalizations an individual with MS may have, as well as reduce their ability to participate in daily activities at home, work, or in the community. They may delay MS diagnosis, affect treatment, cause more rapid disease progression and may even be life threatening. Learning more about comorbidities and their impact is key to improving outcomes, wellbeing and quality of life for people with MS. We, at ACP, are committed to facilitating research into subjects, like this, that are of utmost importance to the MS community.

