Chronic fatigue syndrome, or CFS, is a debilitating and complex disorder characterized by profound fatigue that is not improved by bed rest and that may be worsened by physical or mental activity. Persons with CFS most often function at a substantially lower level of activity than they were capable of before the onset of illness. In addition to these key defining characteristics, patients report various nonspecific symptoms, including weakness, muscle pain, impaired memory and/or mental concentration, insomnia, and post-exertional fatigue lasting more than 24 hours. In some cases, CFS can persist for years. The cause or causes of CFS have not been identified and no specific diagnostic tests are available. Moreover, since many illnesses have incapacitating fatigue as a symptom, care must be taken to exclude other known and often treatable conditions before a diagnosis of CFS is made.

Similar Medical Conditions
A number of illnesses have been described that have a similar spectrum of symptoms to CFS. These include fibromyalgia syndrome, myalgic encephalomyelitis, neurasthenia, multiple chemical sensitivities, and chronic mononucleosis. Although these illnesses may present with a primary symptom other than fatigue, chronic fatigue is commonly associated with all of them.

Other Conditions That May Cause Similar Symptoms
In addition, there are a large number of clinically defined, frequently treatable illnesses that can result in fatigue. Diagnosis of any of these conditions would exclude a definition of CFS unless the condition has been treated sufficiently and no longer explains the fatigue and other symptoms. These include hypothyroidism, sleep apnea and narcolepsy, major depressive disorders, chronic mononucleosis, bipolar affective disorders, schizophrenia, eating disorders, cancer, autoimmune disease, hormonal disorders, subacute infections, obesity, alcohol or substance abuse, and reactions to prescribed medications.

Other Commonly Observed Symptoms in CFS
In addition to the eight primary defining symptoms of CFS, a number of other symptoms have been reported by some CFS patients. The frequencies of occurrence of these symptoms vary from 20% to 50% among CFS patients. They include abdominal pain, alcohol intolerance, bloating, chest pain, chronic cough, diarrhea, dizziness, dry eyes or mouth, earaches, irregular heartbeat, jaw pain, morning stiffness, nausea, night sweats, psychological problems (depression, irritability, anxiety, panic attacks), shortness of breath, skin sensations, tingling sensations, and weight loss.

Prevalence of CFS
Chronic fatigue syndrome (CFS) affects more than one million people in the United States. There are tens of millions of people with similar fatiguing illnesses who do not fully meet the strict research definition of CFS.

Risk Factors for CFS
People of every age, gender, ethnicity and socioeconomic group can have CFS. CFS affects women at four times the rate of men. Research indicates that CFS is most common in people in their 40s and 50s. Although CFS is much less common in children than in adults, children can develop the illness, particularly during the teen years.

Defining CFS Symptoms
CFS is marked by extreme fatigue that has lasted at least six months; is not the result of ongoing effort; is not substantially relieved by rest; and causes a substantial reduction in daily activities. In addition to fatigue, CFS includes eight characteristic symptoms:
- postexertional malaise (relapse of symptoms after physical or mental exertion);
- unrefreshing sleep;
- substantial impairment in memory/concentration;
- muscle pain;
- pain in multiple joints;
headaches of a new type, pattern or severity; sore throat; and tender neck or armpit lymph nodes.

Symptoms and their consequences can be severe. CFS can be as disabling as multiple sclerosis, lupus, rheumatoid arthritis, congestive heart failure and similar chronic conditions. Symptom severity varies from patient to patient and may vary over time for an individual patient.

**Diagnosis of CFS**
There are no physical signs that identify CFS. There are no diagnostic laboratory tests for CFS. People who suffer the symptoms of CFS must be carefully evaluated by a physician because many treatable medical and psychiatric conditions are hard to distinguish from CFS. Common conditions that should be ruled out through a careful medical history and appropriate testing include mononucleosis, Lyme disease, thyroid conditions, diabetes, multiple sclerosis, various cancers, depression and bipolar disorder.

Research conducted by the Centers for Disease Control and Prevention (CDC) indicates that less than 20% of CFS patients in this country have been diagnosed.

**Treatment of CFS**
Since there is no known cure for CFS, treatment is aimed at symptom relief and improved function. A combination of drug and nondrug therapies is usually recommended.

No single therapy exists that helps all CFS patients. Lifestyle changes, including prevention of overexertion, reduced stress, dietary restrictions, gentle stretching and nutritional supplementation, are frequently recommended in addition to drug therapies used to treat sleep, pain and other specific symptoms.

Carefully supervised physical therapy may also be part of treatment for CFS. However, symptoms can be exacerbated by overly ambitious physical activity. A very moderate approach to exercise and activity management is recommended to avoid overactivity and to prevent deconditioning.

Although health care professionals may hesitate to give patients a diagnosis of CFS for various reasons, it’s important to receive an appropriate and accurate diagnosis to guide treatment and further evaluation. Delays in diagnosis and treatment are thought to be associated with poorer long-term outcomes. For example, CDC’s research has shown that those who have CFS for two years or less were more likely to improve. It’s not known if early intervention is responsible for this more favorable outcome; however, the longer a person is ill before diagnosis, the more complicated the course of the illness appears to be.

**Recovery from CFS**
CFS affects each individual differently. Some people with CFS remain homebound and others improve to the point that they can resume work and other activities, even though they continue to experience symptoms. Recovery rates for CFS are unclear. Improvement rates varied from 8% to 63% in a 2005 review of published studies, with a median of 40% of patients improving during follow-up. However, full recovery from CFS may be rare, with an average of only 5% to 10% sustaining total remission.

**Possible Causes of CFS**
Despite an intensive, nearly 20-year search, the cause of CFS remains unknown. Many different infectious agents and physiologic and psychological causes have been considered, and the search continues. Much of the ongoing research into a cause has centered on the roles of the immune, endocrine and nervous systems may play in CFS. More recently, interactions among these factors are under evaluation.

Genetic and environmental factors may play a role in developing and/or prolonging the illness, although more research is needed to confirm this. CDC is applying cutting-edge genomic and proteomic tools to understand the origins and pathogenesis of CFS.

CFS is not caused by depression, although the two illnesses often coexist, and many patients with CFS have no psychiatric disorder.