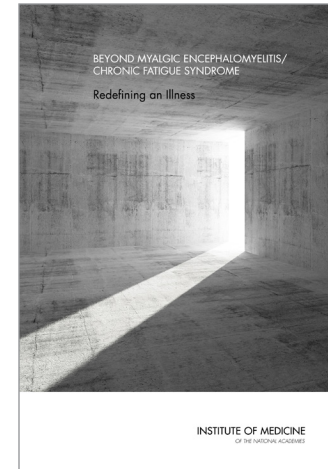


Beyond Myalgic Encephalomyelitis/Chronic Fatigue Syndrome

Redefining an Illness



Between 836,000 and 2.5 million Americans suffer from myalgic encephalomyelitis/chronic fatigue syndrome—commonly referred to as ME/CFS. This disease is characterized by profound fatigue, cognitive dysfunction, sleep abnormalities, autonomic manifestations, pain, and other symptoms that are made worse by exertion of any sort. ME/CFS can severely impair patients' ability to conduct their normal lives. Yet many people struggle with symptoms for years before receiving a diagnosis. Fewer than one-third of medical school curricula and less than half of medical textbooks include information about ME/CFS. Although many health care providers are aware of ME/CFS, they may misunderstand the disease or lack knowledge about how to diagnose and treat it. Such gaps in understanding lead to delayed diagnoses and inappropriate management of patients' symptoms.

The Department of Health and Human Services (HHS), the National Institutes of Health, the Agency for Healthcare Research and Quality, the Centers for Disease Control and Prevention, the Food and Drug Administration, and the Social Security Administration asked the Institute of Medicine (IOM) to convene an expert committee to examine the evidence base for ME/CFS. In *Beyond Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Redefining an Illness*, the committee proposes new diagnostic criteria that will facilitate timely diagnosis and care and enhance understanding among health care providers and the public. In addition, the committee recommends that the name of the disease be changed—from ME/CFS to systemic exertion intolerance disease (SEID)—to more accurately capture the central characteristics of the illness.

Understanding ME/CFS

The primary message of the committee's report is that ME/CFS is a serious, chronic, complex, systemic disease that often can profoundly affect the lives of

ME/CFS is a serious, chronic, complex, systemic disease that often can profoundly affect the lives of patients.

patients. Many people with ME/CFS report difficulty completing everyday tasks, and at least one-quarter have been home- or bed-bound at some point as a result of their illness. The total economic costs of ME/CFS are estimated at \$17 to \$24 billion annually.

Many health care providers are skeptical about the seriousness of ME/CFS, mistake it for a mental health condition, or consider it a figment of the patient's imagination. Misconceptions or dismissive attitudes on the part of health care providers make the path to diagnosis long and frustrating for many patients. The committee stresses that health care providers should acknowledge ME/CFS as a serious illness that requires timely diagnosis and appropriate care.

New Diagnostic Criteria for ME/CFS

On the basis of a comprehensive literature review and input from patient, advocacy, and research communities, the committee presents new diagnostic criteria for ME/CFS focused on the central symptoms of the disease (see Box). To reach consensus on these criteria, the committee weighed (1) the frequency and severity with which symp-

toms are experienced by patients; (2) the strength of the scientific literature; and (3) the availability of objective measures supporting a link between particular symptoms and an ME/CFS diagnosis.

Impaired day-to-day function, post-exertional malaise (the worsening of symptoms after physical, cognitive, or emotional activity), and unrefreshing sleep are almost universally present in ME/CFS patients. Therefore, the committee considers these to be the three core symptoms of the disease. Because cognitive impairment and orthostatic intolerance (onset of symptoms when standing upright that are improved by lying back down) are also frequently found in ME/CFS patients, the committee concludes that one of these symptoms must also be present for an ME/CFS diagnosis. Finally, symptoms should persist for at least 6 months and be present at least half the time with moderate, substantial, or severe intensity to distinguish ME/CFS from other diseases. The application of these new criteria will allow a large percentage of currently undiagnosed patients to receive an accurate diagnosis and appropriate care.

The committee recommends that physicians diagnose ME/CFS, in both children and adults, if the new diagnostic criteria are met after conduct-

BOX Proposed Diagnostic Criteria for ME/CFS

Diagnosis requires that the patient have the following three symptoms:

1. A substantial reduction or impairment in the ability to engage in pre-illness levels of occupational, educational, social, or personal activities, that persists for more than 6 months and is accompanied by fatigue, which is often profound, is of new or definite onset (not lifelong), is not the result of ongoing excessive exertion, and is not substantially alleviated by rest, and
2. Post-exertional malaise,* and
3. Unrefreshing sleep*

At least one of the two following manifestations is also required:

1. Cognitive impairment* or
2. Orthostatic intolerance

* Frequency and severity of symptoms should be assessed. The diagnosis of ME/CFS should be questioned if patients do not have these symptoms at least half of the time with moderate, substantial, or severe intensity.

Remarkably little research funding has been made available to study the cause of ME/CFS, mechanisms associated with the development and progression of the disease, or effective treatment, especially given the number of people affected.

ing a thorough medical history, physical examination, and targeted workup. These steps are essential to rule out other disorders that could cause the patient's symptoms, as well as to identify any other coexisting conditions. In addition, a new independent code should be assigned for the disease in the current edition of the *International Classification of Diseases*. Finally, to facilitate diagnosis according to the new criteria, the committee recommends that HHS develop a screening and diagnostic toolkit for use in a wide range of clinical settings, including primary care practices, emergency departments, mental/behavioral health clinics, physical/occupational therapy units, and specialists' offices.

Disseminating the Criteria

New diagnostic criteria will not improve outcomes for ME/CFS patients unless health care providers use them. Therefore, the committee outlines a nationwide dissemination strategy in the final chapter of its report. This strategy, to be carried out by HHS, will equip health care providers, school employees, professional societies, and patient groups with information about ME/CFS and the new diagnostic criteria. The dissemination effort should continue to position ME/CFS as a serious disease that occurs in both adults and children and requires timely diagnosis and appropriate care.

The Need for More Research

Remarkably little research funding has been made available to study the cause of ME/CFS, mechanisms associated with the development and progression of the disease, or effective treatment, especially given the number of people affected. This limited evidence base hindered the com-

mittee's efforts to determine whether ME/CFS has subtypes or is instead a collection of potentially distinguishable disorders. Large studies that include individuals with diverse symptoms are needed to fill these knowledge gaps. Almost all studies conducted to date have compared ME/CFS patients to healthy control groups, rather than to patients with other complex fatiguing diseases. As a result, there are very few data to guide clinicians in distinguishing ME/CFS from other disorders—a major impediment to progress in diagnosing and treating the disease.

Finding the cause of and cure for ME/CFS may also require research on large numbers of ME/CFS patients, from which important subsets can be identified (for example, variations in symptoms, response to physical and cognitive stressors, brain imaging, the microbiome, virology, immune function, and gene expression). Studies assessing the natural history of the disease and its temporal characteristics—onset, duration, severity, recovery, and functional losses—are essential for a better understanding of ME/CFS. The committee stresses that more research is urgently needed.

However, the committee notes that some progress is being made in studying ME/CFS using physiologic and molecular methods. This and future research could lead to findings that refine the diagnostic criteria and understanding of ME/CFS subtypes. Therefore, the committee recommends that a multidisciplinary group reexamine its proposed criteria after 5 years or sooner if firm evidence supports the need for modification.

A New Name for ME/CFS

Many ME/CFS patients believe that the term “chronic fatigue syndrome” perpetuates misun-



Committee on the Diagnostic Criteria for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome

Ellen Wright Clayton (Chair)
Center for Biomedical Ethics and Society, Vanderbilt University Medical Center, Nashville, TN

Margarita Alegría
Harvard Medical School, Boston, MA

Lucinda Bateman
Fatigue Consultation Clinic, Salt Lake City, UT

Lily Chu
International Association for Chronic Fatigue Syndrome/Myalgic Encephalomyelitis, Chicago, IL; Stanford University ME/CFS Initiative, Stanford, CA

Charles S. Cleeland
University of Texas MD Anderson Cancer Center, Houston

Ronald Davis
Stanford University School of Medicine, Stanford, CA

Betty Diamond
The Feinstein Institute for Medical Research, Manhasset, NY

Theodore Ganiats
University of Miami, Miami, FL

Betsy Keller
Ithaca College, Ithaca, NY

Nancy Klimas
Nova Southeastern University, Miami, FL

A. Martin Lerner
Oakland University, William Beaumont School of Medicine, Rochester, MI

Cynthia Mulrow
University of Texas Health Science Center, San Antonio

Benjamin Natelson
Mount Sinai Beth Israel, New York, NY

Peter Rowe
Johns Hopkins University, Baltimore, MD

Michael Shelanski
Columbia University, New York, NY

Consultants

Rona Briere
Briere Associates Inc., Felton, PA

Troy Petenbrink
Caduceus Marketing, Washington, DC

René Gonin
Westat, Inc., Rockville, MD

Study Staff

Carmen C. Mundaca-Shah
Study Director

Sulvia Doja
Senior Program Assistant (from May 2014)

Kate Meck
Associate Program Officer (until September 2014)

Doris Romero
Financial Associate

Jonathan Schmelzer
Research Associate (from September 2014)

Frederick (Rick) Erdtmann
Director, Board on the Health of Select Populations

Adriana Moya
Senior Program Assistant (until May 2014)

Study Sponsors

Department of Health and Human Services

Centers for Disease Control and Prevention

National Institutes of Health Agency for Healthcare Research and Quality

Food and Drug Administration
Social Security Administration

Understanding of the illness and dismissive attitudes from health care providers and the public. The committee agrees that this term does not serve ME/CFS patients well. Furthermore, the committee concludes that the term “myalgic encephalomyelitis” is inappropriate because there is a lack of evidence for encephalomyelitis (brain inflammation) in ME/CFS patients, and myalgia (muscle pain) is not a core symptom of the disease.

To replace ME/CFS, the committee proposes the name systemic exertion intolerance disease, or SEID. This name captures a central characteristic of the disease: the fact that exertion of any sort—physical, cognitive, or emotional—can adversely affect patients in many organ systems and in many aspects of their lives. The committee believes systemic exertion intolerance disease appropriately captures the complexity and severity of the illness. Therefore, it recommends that patients who meet the proposed diagnostic criteria, whether or not they have already been diagnosed with ME/CFS, should henceforth be diagnosed with SEID.

Conclusion

In *Beyond Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Redefining an Illness*, the committee proposes clear and concise diagnostic criteria that will facilitate diagnosis and care for the patients affected by this often-debilitating disease. Broad dissemination and use of these criteria is essential to improve understanding of the disease among health care providers and the public and provide a firm foundation for future improvements in diagnosis and treatment of these patients.



Advising the nation • Improving health

500 Fifth Street, NW
Washington, DC 20001
TEL 202.334.2352
FAX 202.334.1412

www.iom.edu

The Institute of Medicine serves as adviser to the nation to improve health.
Established in 1970 under the charter of the National Academy of Sciences, the Institute of Medicine provides independent, objective, evidence-based advice to policy makers, health professionals, the private sector, and the public.
Copyright 2015 by the National Academy of Sciences. All rights reserved.