NINDS CDE Project
Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)
Common Data Elements (CDEs)
Overall Working Group Summary

Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), sometimes referred to as myalgic encephalomyelitis (ME) or chronic fatigue syndrome (CFS), is a debilitating multi-system disease that lacks a known cause or treatment. According to the CDC, more than one million Americans have ME/CFS. At least one-quarter of individuals with ME/CFS are bedbound or housebound at some point in the illness and most never regain their pre-disease level of functioning. ME/CFS strikes people of all ages and racial, ethnic, and socioeconomic groups, and is two to four times more common in women than men. Clinical diagnosis is made on the basis of medical examination and symptom profile. Several research case definitions are currently used. None of the research definitions include guidance as to how individual criteria should be evaluated. In addition, patient heterogeneity is significant even when the same case definition is used.

This illness heterogeneity presents a significant challenge in performing and interpreting research studies and clinical trials in ME/CFS. Variations in research case definitions as well as in the methods used to apply the case definition also present challenges. For these reasons, developing a set of CDEs for ME/CFS that can be used across studies is needed to assure that data needed to more fully characterize patients is collected. This will improve the ability to directly compare information from different studies.

This is the first set of CDEs for ME/CFS, so the working group did not have prior recommendations to evaluate. Our approach started with identifying domains of ME/CFS that should be covered, assuring representation of ME/CFS clinical experts, scientific experts in each domain, as well as patients and/or family members living with ME/CFS. We then divided into ME/CFS subgroups that focused on identifying and defining data elements in the domains of: baseline/covariate information; fatigue; post-exertional malaise; sleep; pain; neurologic; cognitive; CNS imaging; autonomic; neuroendocrine; immune; quality of life/functional status/CPET/activity; and biomarkers. We decided to incorporate recommendations for specific groups of patients with ME/CFS, such as pediatric/adolescent and severely ill or bedbound into each domain. Regular subgroup meetings were held to discuss their purview, review forms and instruments within their domain currently used in ME/CFS research and applicable CDEs from other NINDS CDE disease. Each working group provided recommendations on CDEs to be utilized in the study of ME/CFS and responded to public comments.

Core elements for ME/CFS include those core elements for all disorders: see General Core. An extensive set of assessments exist in the categories Supplemental-Highly Recommended, Supplemental and Exploratory because in many cases the subgroups determined that there are no standard instruments or tests being used across studies for some elements. The table (Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) Highlight Summary Document) outlines the disease domains, sub-domains, and the recommendations for each category of CDEs for each.

We want to emphasize to researchers that selection of instruments and tests should be tailored to the specific research question. For example, studies of sleep in ME/CFS would include more of the sleep domain questionnaires than studies focusing on pain. The baseline/covariate domain includes recommendations for basic measures of each symptom included in current research case definitions.

This will allow study participants to be stratified for analysis by symptom severity (frequency and intensity) and could be used as an initial approach to re-classify study participants according to a case definition that differed from that used in the study protocol. Researchers need to be judicious in selection of study instruments, considering the additional burden that each questionnaire adds to patients whose illness may be worsened by their efforts completing requested forms.

We believe that these CDEs are an important first step and recognize that use of the CDEs will result in refinement and improvements. Each of the domain working groups found limited evidence for content validation of assessments and questionnaires in ME/CFS studies, indicating more research is needed. There is also a need to validate how well these measures reflect the patients' experience of ME/CFS. Specific gaps were most evident in the domain of post-exertional malaise, a key symptom of the illness that lacks good measurement tools. Each domain working group provided a section on future considerations and unmet needs for their domain. We believe these will be useful in guiding and prioritizing research into improving measures of ME/CFS. Finally, we wish to emphasize that these CDEs are not dependent on use of any specific research case definition. While thresholds for scoring symptom intensity and severity to meet individual criteria of research case definitions have been suggested, additional research is needed to fully operationalize and standardize application of research case definitions.

All of the above assessment tools can be downloaded via the ME/CFS NINDS Common Data Elements Website: see "Download ME/CFS CDE Recommendations" or scroll down the page for the full list of elements.