The use of brain imaging to aid in the diagnosis and treatment has been the hope for psychiatric disorders for decades. The initial belief of many investigators that the use of conventional volumetric measures of a single brain region would suffice to aid in clinical diagnosis and management was rather naïve, however, because nearly all brain regions are anatomically and functionally heterogeneous, and the likelihood that all or most of those heterogeneous subregions would be involved in the disease process is low, thereby diluting the diagnostic effects on overall regional volumes. Recent advances in image processing techniques now permit the construction of maps of local volume at each point across the entire brain or brain subregions, permitting a much finer-grained, higher resolution representation of diagnostic effects that more adequately represent the spatially distributed, circuit-based disturbances that are thought to produce psychiatric disturbances. These finer-grained maps across the brain are providing evidence for the presence of patterns of anatomical and functional disturbance that are specific for particular disorders and that may soon be sufficiently sensitive to aid in clinical diagnosis and management. These biomarkers may then be of considerable help in preventing illness in high risk populations, in predicting the course of future illness, and in subtyping disorders to improve and personalize treatment. Objectives for the audience will include:

1. State the operational definition of an endophenotype
2. Identify the cortical endophenotype for familial major depression
3. Identify the potential clinical uses of an endophenotype