

Are Endophenotypes for Genetic Studies of Suicidal Behavior within Reach?

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Meeting Summary

Suicidal behavior is an important, preventable cause of injury, disability, and death throughout the world. The vast majority of suicides and nonfatal suicide attempts are associated with psychiatric disorders. Our understanding of the neurobiology of suicidal behavior has increased tremendously since the first findings on cerebrospinal fluid 5-hydroxyindoleacetic acid (CSF 5-HIAA) emerged decades ago, yet reliable identification of individuals in imminent danger remains elusive. With advances in research on suicide and the brain, the mapping of the human genome, the genetics of mental disorders, including gene-environment interactions, and the availability of powerful technologies in neuroscience, the purpose of the workshop, convened in June 2007, was to revisit the biological and behavioral underpinnings of suicidality. The meeting assembled leading researchers in suicide, neuroscience, genetics, epidemiology, imaging, and related fields to review promising findings, to discuss research gaps and opportunities, and to propose next steps toward the identification of relevant endophenotypes for suicidality.

Workshop participants considered the following issues:

What is the evidence for a genetic component in the diathesis for suicidal behavior that is independent of genetic contributions to major psychiatric disorders such as depression and alcoholism that carry a risk for suicide?

What genes have been implicated in the diathesis for suicidal behavior?

How can we identify more genes relevant to suicidal behavior?

What do we know now about potential endophenotypes for suicide mortality and morbidity?

What are the most promising findings and research directions on the role of genes and environment in suicidal behavior?

What conceptual and methodological issues specific to suicidal behavior need to be addressed in order to advance the field?

Major themes emerged from the meeting, including the critical and fundamental role of accurate phenotyping, e.g., definitions and measurement, and the likelihood that suicidality is best explained by a complex model. The participants identified promising intermediate phenotypes for suicidality and current findings on potential underlying brain mechanisms associated with suicidality. Participants also discussed the challenges associated with appropriate methodologies for measuring genetic and environmental contributions to suicidality, in the context of a number of developmental periods.