

Summary of recommendations from multi-disciplinary focused-advisory groups on cascade testing and genetic counseling for fragile X-associated disorders

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Fragile X-associated disorders are conditions caused by mutations in the *FMR1* gene. Included are fragile X syndrome (FXS), fragile X-associated tremor/ataxia syndrome (FXTAS) and fragile X-associated premature ovarian failure (POF). Cascade testing and genetic counseling are important in the identification and counseling of family members at risk for fragile X-associated disorders once a mutation has been discovered in a proband. The NSGC and ACMG have previously issued guidelines addressing testing, diagnosis, and genetic counseling for those with fragile X-associated disorders. Over the last several years, there has been increasing insight into the phenotypic range associated with both *FMR1* premutations and full mutations. Additional recommendations for cascade testing and genetic counseling were needed to further address underdeveloped or complex issues such as the variable phenotype in premutation carriers and population screening.

In 2006, CDC-funded investigators from the Fragile X Research and Treatment Center at the Medical Investigation of Neurodevelopmental Disorders (M.I.N.D.) Institute at the University of California at Davis, organized four focused-advisory groups to develop protocols for genetic counseling and cascade testing for fragile X-associated disorders. Each group was composed of healthcare professionals from a variety of medical fields related to the particular meeting topic, most of whom are experts in fragile X-associated disorders. The four topics discussed were: 1) FXTAS; 2) POF and reproductive endocrinology; 3) FXS psychiatric, behavioral and psychological issues; and 4) population screening and related ethical issues. The groups developed broader recommendations for *FMR1* testing in specific populations (FXTAS, POF, and psychiatric disorders); highlighted issues related to population and newborn screening; and identified areas for future research. Recommendations from the four focused-advisory groups will be presented.