

**Final Recommendations of the NIAAA Extramural Advisory Board
'Fetal Alcohol Spectrum Disorders Research'
Feb 6-7, 2007**

1. **To define full range of FASD/prenatal alcohol phenotypes and endophenotypes across the lifespan using advanced methods, technologies and applications – integrative biology/systems biology and database approaches.** Produce data-driven consensus criteria for diagnoses of the full spectrum. Improve prenatal and develop early postnatal identification of individuals who have been exposed and are at risk. Explore and expand domains for early identification of affected children, including dysmorphology, neurobehavioral assessment, brain morphology and function, sensory systems, circadian regulation, and immune and other systems. Particular attention should be paid to defining neurocognitive/behavioral phenotypes for use in translational research.
2. **Develop and validate biomarkers to assess the exposure and insult to the mother and the fetus.** Using prospective longitudinal studies, evaluate tiered screening, starting with commonly ascertained, less specific biomarkers and moving to more targeted markers (e.g., FAEE, ethyl glucuronide, micro and macronutrients, pre- and post-natal ultrasound, EEG power analysis and BEAM, genetic polymorphisms). Correlate markers of exposure with improved methods for ascertaining drinking history (quantity, frequency, timing, maximum) before and during pregnancy, and correlate both with outcomes.
3. **Conduct analyses of pre- and postnatal nutritional, genetic, epigenetic and environmental factors to determine risk or protective factors and co-morbidities (e.g., diabetes, tobacco and other drugs) that may alter susceptibility and natural history of fetal alcohol spectrum disorders.** Identify other ongoing studies that can be used to these ends.
4. **Study the safety and efficacy of interventions (e.g., nutritional, pharmacological, neurobehavioral, and environmental) during periconceptional, pregnancy, and lactational periods.** Encourage studies of early interventions in high risk and affected children, and develop interventions for problems that develop later in life. Whenever possible, biomarkers should be collected for later analysis. Identify barriers to intervention.
5. **Elucidate biological mechanisms that contribute to ethanol teratogenesis in a range of experimental models and in humans, including mechanistic links to biomarkers and treatment.** Pursue mechanistically-driven design and testing of therapies that antagonize or mitigate the effects of prenatal ethanol exposure.

In all of the above, explore ways to partner with other NIH institutes, government agencies (VA, SAMSHA, CDC), other countries (e.g., Canada), and healthcare systems (HMOs, Kaiser) to accomplish these aims. Engage a range of disciplines from molecular genetics to social psychology that address neurodevelopmental problems of children. Support the routine collection and banking of biomaterials, such as hair, meconium, serum, cells, and DNA for future analysis. Consider whole genome analysis (SNPs).