

I. WHEN SHOULD I BE CONCERNED?

ASPIRATIONAL GOAL: CHILDREN WITH OR AT RISK FOR ASD WILL BE IDENTIFIED BY 24 MONTHS AND RECEIVE APPROPRIATE INTERVENTIONS

	# Years of Funding Needed	Cost Estimates	Comments
Short-Term Objectives			
Develop, with existing tools, at least one efficient diagnostic instrument (e.g., briefer, less time intensive) that is valid in diverse populations for use in large-scale studies by 2011.	2	\$2,500,000	Estimate: \$2.5M (doubling initial estimate of \$1.25M for 3 yrs, \$400K/yr, as supplement to existing grants)
Validate and improve the sensitivity and specificity of existing screening tools for detecting ASD through studies of the following community populations that are diverse in terms of age, socio-economic status, race, ethnicity and level of functioning by 2012. -School aged children -General population (vs. clinical population)	3	\$5,000,000	Estimate: \$5M (for 2 supplements to 2 current efforts over 3 yrs, \$400K/yr)
Long-Term Objectives			
Validate a panel of biomarkers that separately, or in combination with behavioral measures, accurately identify, before age 2, one or more subtypes of children at risk for developing ASD by 2014.	5	\$30,000,000	Estimate: \$30M (over 5 yrs; supplements to existing studies might lower estimate)
Develop five measures of behavioral and/or biological heterogeneity in children or adults with ASD, beyond variation in intellectual disability, that clearly relate to etiology and risk, treatment response and/or outcome by 2015.	5	\$40,000,000	Estimate: \$40M (5 yrs, 2000 people, enable look at heterogeneity)
Identify and develop measures to assess at least three continuous dimensions of ASD symptoms and severity that can be used to assess response to intervention for individuals with ASD across the lifespan by 2016.	5	\$1,500,000 - \$10,000,000	Estimate: uncertain, \$1.5M-10M , pending talks with experts in the field
Effectively disseminate at least one valid and efficient diagnostic instrument (e.g., briefer, less time intensive) in general clinical practice by 2016.	5	\$5,000,000 - \$10,000,000	Estimate: \$5-10M (validation, dissemination, uptake and utilization)

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II. HOW CAN I UNDERSTAND WHAT IS HAPPENING?

ASPIRATIONAL GOAL: DISCOVER HOW ASD AFFECTS DEVELOPMENT WHICH WILL LEAD TO TARGETED AND PERSONALIZED INTERVENTIONS

	# Years of Funding Needed	Cost Estimates	Comments
Short-Term Objectives			
Establish an international network of brain and other tissue (e.g., skin fibroblasts) acquisition sites with standardized protocols for phenotyping, collection and distribution of tissue by 2010.	2	\$5,000,000	Estimate: \$5M (expand brain bank to include other specimen types, possibly fund more international efforts at the bank)
Support at least four research projects to identify mechanisms of metabolic and/or immune system interactions with the central nervous system that may underlie the development of ASD during prenatal-postnatal life by 2010.	4	\$6,000,000	Estimate: \$6M (4 yrs)
Launch three studies that specifically focus on the neurodevelopment of females with ASD by 2011.	5	\$8,000,000	Estimate: \$8M (Launch new projects, 5 yrs)
Long-Term Objectives			
Complete a large-scale, multi-disciplinary, collaborative project that longitudinally and comprehensively examines how the biological, clinical, and developmental profiles of children, youths, and adults with ASD change over time as compared to typically developing individuals by 2020.	12	\$50,000,000 - \$100,000,000	Estimate: \$50-\$100M (\$139M for 11 yrs, 5 grantees, including supplements to intramural and extramural efforts, with longitudinal component vs. \$25M for a cross-lag design over 5 yrs vs. 2 \$40M initiatives)

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III. WHAT CAUSED THIS TO HAPPEN AND CAN THIS BE PREVENTED?

ASPIRATIONAL GOAL: CAUSES OF ASD WILL BE DISCOVERED THAT INFORM PROGNOSIS AND TREATMENTS AND LEAD TO PREVENTION/PREEMPTION OF THE CHALLENGES AND DISABILITIES OF ASD

	# Years of Funding Needed	Cost Estimates	Comments
Short-Term Objectives			
Initiate studies on at least five environmental factors identified in the recommendations from the 2007 IOM report "Autism and the Environment: Challenges and Opportunities for Research" as potential causes of ASD by 2010.	2	\$14,000,000	Estimate: \$14M (leverage EARLI, CHARGE, CDC studies, plus 2-3 small clinical studies, 2-3 grantees, 1-2 yrs, up to \$3M each/yr)
Coordinate and implement the inclusion of approximately 20,000 subjects for genome-wide association studies, as well as a sample of 1,200 for sequencing studies to examine more than 50 candidate genes by 2011.	4	\$40,000,000	Estimate: \$40M to start (\$64M for 20K subjects, 4 yrs, \$34M/yr vs. \$40M, not including re-sequencing costs)
Within the highest priority categories of exposures for ASD, validate and standardize at least three measures for identifying markers of environmental exposure in biospecimens by 2011.	3	\$600,000 - \$9,000,000	Estimate: \$600K-\$9M, 2-3 years (\$600K, plus additional dollars to validate, up to \$9M: \$3M over 3 yrs, includes assay development)
Long-Term Objectives			
Determine the effect of at least five environmental factors on the risk for subtypes of ASD in the pre- and early postnatal period of development by 2012.	5	\$10,000,000	Estimate: \$10M (\$2M/5 yrs)
Conduct a multi-site study of the subsequent pregnancies of 1000 women with a child with ASD to assess the impact of environmental factors in a period most relevant to the progression of ASD by 2014.	5	\$10,000,000	Estimate: \$10M (over 5 yrs)
Identify genetic risk factors in at least 50% of children with ASD by 2014.	6	\$30,000,000 - \$150,000,000	Estimate: \$30M-\$150M (\$30M for exotic genome sequencing, up to \$150M for whole genome analysis ~\$10K per subject)
Support ancillary studies within one or more large-scale, population-based epidemiological studies, to collect nested, case-control data on environmental factors during preconception, and during prenatal and early postnatal development, as well as genetic data, that could be pooled (as needed), to analyze targets for potential gene/environment interactions by 2015.	5	\$5,000,000 - \$40,000,000	Estimate: \$40M (Build on Denmark & SEED studies, adding \$1M for 6-7 sites, \$7-8M per year)

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IV. WHICH TREATMENTS AND INTERVENTIONS WILL HELP?

ASPIRATIONAL GOAL: INTERVENTIONS WILL BE DEVELOPED THAT ARE EFFECTIVE FOR REDUCING BOTH CORE AND ASSOCIATED SYMPTOMS , FOR BUILDING ADAPTIVE SKILLS AND, FOR PREVENTING THE DISABILITIES ASSOCIATED WITH ASD

	# Years of Funding Needed	Cost Estimates	Comments
Short-Term Objectives			
Launch four research projects that seek to identify biological signatures that measure significant improvement in ASD core symptoms across the lifespan by 2010.	4	\$7,000,000	Estimate: \$7M (\$1.5M per site)
Support three randomized controlled trials that address co-occurring medical conditions associated with ASD by 2010.	3	\$7,500,000	Estimate: \$7.5M (~\$400-500K per year for 3 studies)
Conduct five randomized controlled trials of early intervention for infants and toddlers by 2011.	5	\$15,000,000	Estimate: \$15M (\$3M/yr, 5 yrs)
Launch three randomized controlled trials of interventions for school-aged and/or adolescents by 2012.	5	\$14,000,000	Estimate: doubled initial estimate of ~\$7M (\$500K/site/year)
Standardize and validate three model systems (e.g. cellular and/or animal) that replicate features of ASD and will allow identification of specific molecular targets or neural circuits amenable to existing or new interventions by 2012.	3	\$1,500,000 - \$1,800,000	Estimate: \$1.5-\$1.8M (3 yrs, 3 studies)
Test safety and efficacy of five widely used interventions (e.g., nutrition, medications, medical procedures, etc.) that have not been rigorously studied for use in ASD by 2012.	5	\$15,000,000	Estimate: \$15M
Complete two multi-site randomized controlled trials of comprehensive early intervention that address core symptoms, family functioning and community involvement by 2013.	5	\$15,000,000	Estimate: \$15M
Long-Term Objectives			
Complete randomized controlled trials in humans on three medication targeting core symptoms by 2014.	5	\$7,500,000	Estimate: \$7.5M (\$500K/yr @ minimum)
Develop interventions for siblings of people with ASD with the goal of reducing risk recurrence by at least 30% by 2014.	5	\$6,000,000	Estimate: \$6M (\$1.2M/yr, 5 years)

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V. WHERE CAN I TURN FOR SERVICES?

ASPIRATIONAL GOAL: COMMUNITIES WILL IMPLEMENT HIGH QUALITY, EVIDENCE-BASED AND COST EFFECTIVE SERVICES AND SUPPORTS ACROSS THE LIFESPAN FOR PEOPLE WITH ASD

	# Years of Funding Needed	Cost Estimates	Comments
Short-Term Objectives			
Initiate a “state of the states” assessment of existing state programs and supports for people and families living with ASD by 2009.	1	\$300,000	Estimate: \$300K (supplements to state grants)
Support two studies that assess how variations and access to services affect family functioning in diverse populations by 2012	3	\$900,000	Estimate: \$900K (\$150K/yr)
Long-Term Objectives			
Test four methods to improve dissemination of effective interventions in diverse community settings by 2013.	5	\$6,300,000	Estimate: \$6.3M (\$1.25M/yr, 5 yrs)
Test the efficacy and cost-effectiveness of three evidence-based services for people with ASD of all ages in community settings by 2015.	5	\$7,500,000 - \$10,000,000	Estimate: \$7.5M-\$10M (\$9.5M for \$750K/site, two sites as supplements over 5 yrs vs. \$6.75M using existing infrastructure)

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VI. WHAT DOES THE FUTURE HOLD?			
<i>ASPIRATIONAL GOAL : ADVANCES IN INTERVENTION, EDUCATION, AND SERVICES WILL SUPPORT AND ENABLE INDIVIDUALS ON THE AUTISM SPECTRUM TO LEAD FULFILLING AND PRODUCTIVE LIVES IN THE COMMUNITY</i>			
	# Years of Funding Needed	Cost Estimates	Comments
Short-Term Objectives			
Develop and have available to the research community means by which to merge or link databases that allow for tracking the involvement of individuals in ASD research by 2010.	2	\$1,200,000	Estimate: \$600K (\$600K for linking with NDAR, \$500K/yr + additional \$100K)
Launch at least two studies to assess and characterize variation in adults living with ASD (e.g. social and daily functioning, demographic, medical and legal status) by 2011.	3	\$1,500,000	Estimate: \$1.5M
Conduct at least two clinical trials to test the efficacy and cost-effectiveness of interventions, services and supports to optimize daily functioning (e.g., educational, vocational, recreational, and social experiences) for adolescents, adults, or seniors living with ASD by 2012.	5	\$5,000,000	Estimate: \$5M (\$1M/yr, 5 yrs)
Long-Term Objectives			
Develop at least two community-based interventions with individual specificity that improves outcomes, as measured by educational, occupational, and social achievements by 2015.	5	\$8,000,000	Estimate: \$8M (5 years, 2 studies)
Develop and have available to the research community means by which to merge or link administrative databases that allow for tracking the involvement of individuals living with ASD research in health care, education, and social services by 2018.	1	\$500,000	Estimate: \$500K (supplement one grant, build on existing infrastructure)

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