

**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	Interested Organizations	Comments
<b>Short-Term Objectives</b>				
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	NIH - lead role Autism Consortium Autism Speaks Autism Research Institute	None.
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	Autism Consortium NICHD Autism Speaks	It may be beneficial to include new tools. Consider adding "new or" before "existing"
<b>Long-Term Objectives</b>				
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	NICHD - lead role Autism Speaks Southwest Autism Research and Resource Center Autism Research Institute CDC (for stored biospecimens)	Validating a panel by 2014 is not realistic. Recommend replacing "Validate" with "Identify."
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	NIH/Autism Coordinating Committee - lead role Autism Consortium Autism Speaks	None.
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	NIH/Autism Coordinating Committee - lead role Autism Speaks	Objective is unclear. Consider inserting "by practitioners and/or parents" after "can be used."
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	CDC - lead role Autism Research Institute Autism Speaks Reach out to Department of Education Reach out to HRSA	Need to clarify what is meant by "general." Consider replacing "general clinical practice" with "clinical practices involved in diagnosis."

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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	Interested Organizations	Comments
<b>Short-Term Objectives</b>				
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	NIH/Autism Coordinating Committee - lead role Autism Speaks	None.
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	NIH/Autism Coordinating Committee - lead role Autism Speaks NIEHS NIMH	Consider adding more studies and increasing funding.
Launch three studies that specifically focus on the neurodevelopment of females with ASD by 2011.	5	\$8,000,000	No volunteers	Consider combining this with the next objective.
<b>Long-Term Objectives</b>				
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	NIH/Autism Coordinating Committee - lead role Autism Speaks CDC	Consider combining with previous objective by inserting "male and female" before "children."

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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	Interested Organizations	Comments
<b>Short-Term Objectives</b>				
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	NIH/Autism Coordinating Committee - lead role CDC NIEHS Autism Research Institute Autism Speaks	None.
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	NIMH - lead role Autism Consortium Autism Speaks Simons Foundation	None.
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	\$2,000,000	NIEHS - lead role	Not realistic to validate measures by 2011. Consider replacing "validate" with "identify."
<b>Long-Term Objectives</b>				
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	NIH/Autism Coordinating Committee - lead role	Not realistic to achieve this objective by 2012. Consider changing date to 2015.
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	NIEHS - lead role Autism Speaks	None.
Identify genetic risk factors in at least 50% of children with ASD by 2014.	6	\$30,000,000	NIEHS - lead role Autism Speaks Reach out to Southwest Autism Research and Resource Center	None.
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	\$40,000,000	CDC - lead role NIEHS NIMH NINDS	None.

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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	Interested Organizations	Comments
<b>Short-Term Objectives</b>				
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	NIMH - lead role Autism Speaks Autism Consortium	None.
Support three randomized controlled trials that address co-occurring medical conditions associated with ASD by 2010.	3	\$7,500,000	Autism Research Institute NIH Autism Speaks	None.
Conduct five randomized controlled trials of early intervention for infants and toddlers by 2011.	5	\$15,000,000	NIH/Autism Coordinating Committee - lead role	None.
Launch three randomized controlled trials of interventions for school-aged and/or adolescents by 2012.	5	\$14,000,000	NIMH - lead role Autism Speaks Organization for Autism Research	None.
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.	5	\$5,000,000 - \$7,500,000	NINDS - lead role NIMH Autism Consortium	None.
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	NIH/Autism Coordinating Committee - lead role Autism Speaks Autism Research Institute Reach out to National Center for Complementary and Alternative Medicine	None.
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	NIH/Autism Coordinating Committee - lead role Reach out to Easter Seals Reach out to Department of Education Reach out to Autism Society of America	None.
<b>Long-Term Objectives</b>				
Complete randomized controlled trials in humans on three medication targeting core symptoms by 2014.	5	\$12,000,000	NIH - lead role Autism Speaks Autism Consortium	Consider replacing "humans" with "people with ASD of all ages."
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	NIH/Autism Coordinating Committee - lead role Autism Speaks	None.

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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	Interested Organizations	Comments
<b>Short-Term Objectives</b>				
Initiate a "state of the states" assessment of existing state programs and supports for people and families living with ASD by 2009.	2	\$600,000	IACC Services Subcommittee - lead role	None.
Support two studies that assess how variations and access to services affect family functioning in diverse populations by 2012	3	\$900,000	NIMH - lead role	None.
<b>Long-Term Objectives</b>				
Test four methods to improve dissemination of effective interventions in diverse community settings by 2013.	5	\$6,300,000	IACC Services Subcommittee - lead role NIMH	None.
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	NIMH - lead role	None.

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**VI. WHAT DOES THE FUTURE HOLD?**

**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*

	<b># Years of Funding Needed</b>	<b>Cost Estimates</b>	<b>Interested Organizations</b>	<b>Comments</b>
<b>Short-Term Objectives</b>				
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.	<b>2</b>	<b>\$1,200,000</b>	NIH - lead role through National Database for Autism Research (NDAR)	None.
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.	<b>3</b>	<b>\$1,500,000</b>	Autism Society of America - lead role NIH Reach out to Easter Seals	None.
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.	<b>5</b>	<b>\$5,000,000</b>	NIMH - lead role Autism Speaks	None.
<b>Long-Term Objectives</b>				
Develop at least two community-based interventions with individual specificity that improves outcomes, as measured by educational, occupational, and social achievements by 2015.	<b>5</b>	<b>\$8,000,000</b>	NIMH - lead role Input from IACC Services Subcommittee	None.
Develop and have available to the research community means by which to merge or link administrative databases that allow for the tracking the involvement of individuals living with ASD research in health care, education, and social services by 2018.	<b>1</b>	<b>\$500,000</b>	CDC - lead role CMS Reach out to HRSA Reach out to Department of Education	This will be a major task and it is not clear how best to proceed. Consider revising as a short-term objective to conduct a needs assessment of how to merge databases by 2009.

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