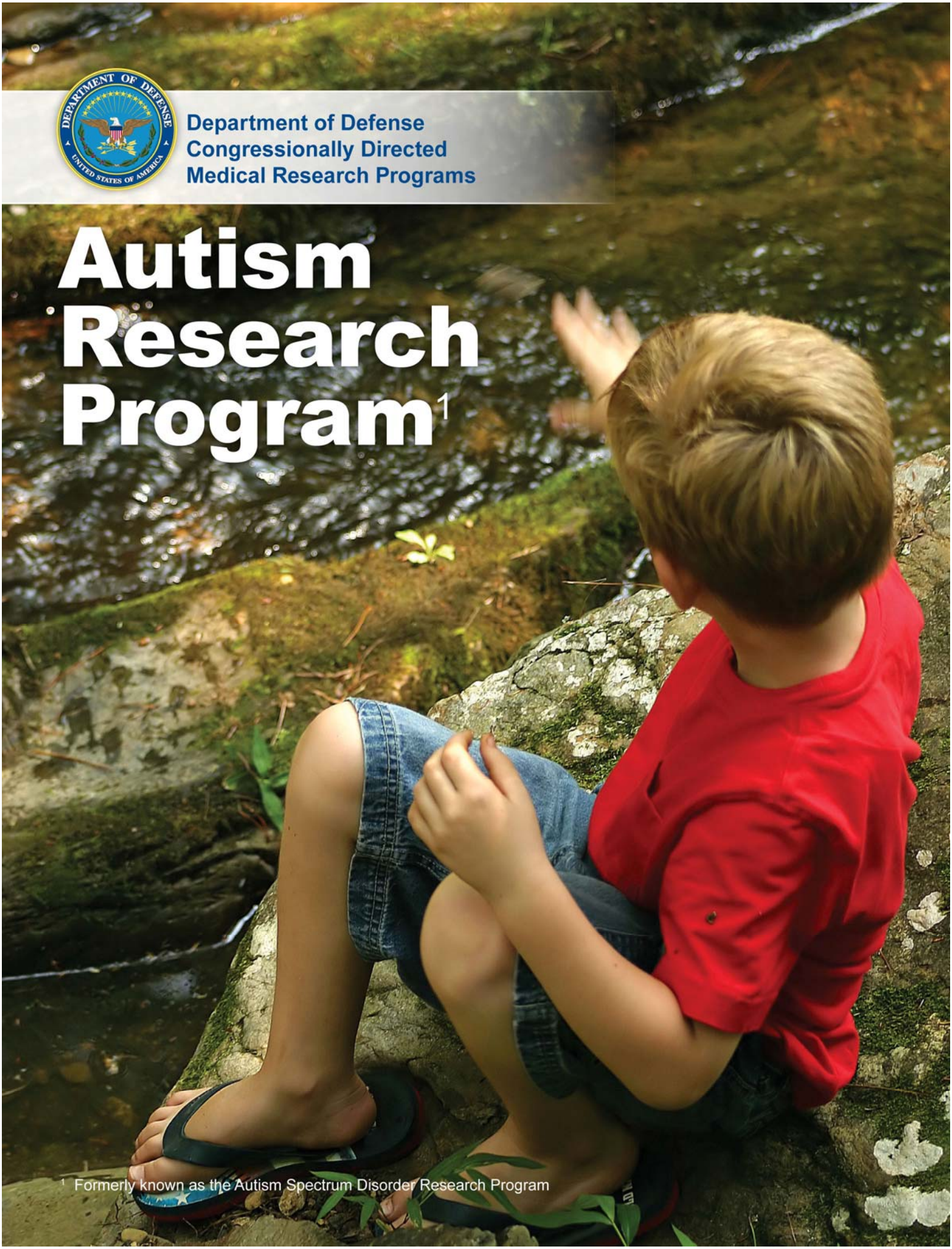
Department of Defense
Congressionally Directed
Medical Research Programs

Autism Research Program[1]



[1] Formerly known as the Autism Spectrum Disorder Research Program

Vision

Improve the lives of individuals with autism spectrum disorders **now.**

Mission

Promote **innovative research** that advances the understanding of autism spectrum disorders and leads to **improved treatment outcomes.**

The Disease

Autism is a complex developmental disorder that recent evidence indicates may affect as many as 1 in 166 children. With this prevalence rate, it is estimated that in the United States there are approximately 500,000 individuals between the ages of 0 and 21 years who have autism.[2]

The manifestations of autism vary widely from mild to severe, leading to their general classification as autism spectrum disorders (ASDs). ASDs are characterized by serious impairments in social, emotional, and communication skills as well as the presence of unusual behaviors and physical manifestations such as sleep disorders and depressed immune function.

Only about 10 percent of individuals with ASDs develop autism secondary to a known genetic disorder. The cause of ASDs in the remaining individuals is not certain. However, progress is being made on several fronts. Like autism itself, the answer to this question will likely be multifaceted.

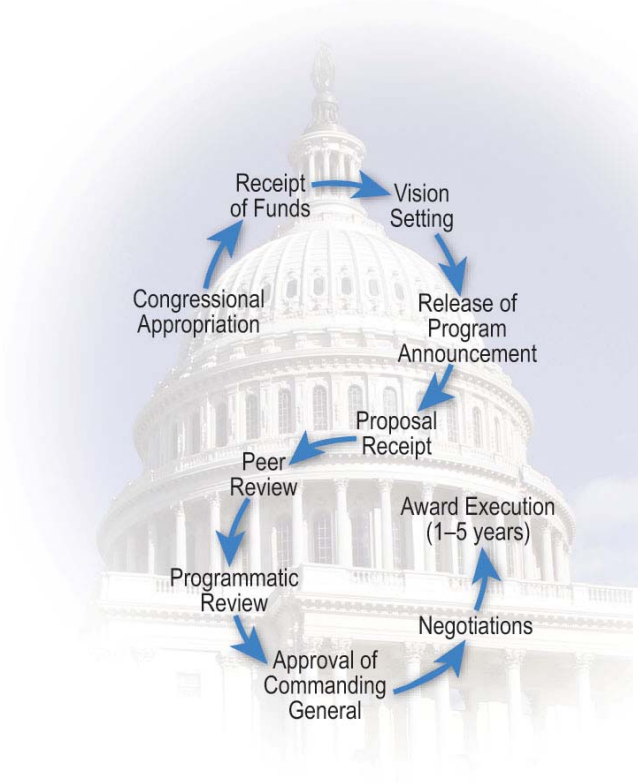
[2] http://www.cdc.gov/ncbddd/autism/

CDMRP History

The Office of the Congressionally Directed Medical Research Programs (CDMRP) represents a unique partnership among the public, Congress, and the military. The CDMRP was established within the U.S. Army Medical Research and Materiel Command in 1993 when Congress, in response to grassroots advocacy efforts, tasked the Department of Defense (DOD) with developing and managing an innovative breast cancer research program. Since 1993, the CDMRP has grown to include programs aimed at other major diseases and health issues, including ovarian and prostate cancers, neurofibromatosis, military-relevant health (e.g., psychological health/traumatic brain injury), and ASDs.

Two-Tier Proposal Review Process

Like all CDMRP programs, proposal review and funding recommendations in the Autism Research Program (ARP) are based on a two-tier review model recommended by the National Academy of Science's Institute of Medicine. The first tier is a peer review of proposals against established criteria for determining scientific and technical merit. The second tier is a programmatic review, conducted by the Integration Panel (an advisory board of leading scientists, clinicians, and consumer advocates), that compares proposals against each other and recommends submissions for funding based on scientific merit, relative innovation and impact, portfolio balance, and overall program goals. The two-tier model has received high praise from the scientific community, advocacy groups, and Congress.



Consumer Advocate Participation

Consumer advocates (consumers) represent the voice and vision of individuals affected by ASDs. Consumers for the ARP are family members of individuals living with autism or autistic individuals who are active participants in an autism-related support, outreach, or advocacy organization. A unique feature of the ARP is that consumers are active participants in virtually all aspects of program execution. Consumers work collaboratively with leading scientists and clinicians in setting program priorities, reviewing proposals, and contributing their unique perspectives and a sense of urgency to program processes. Consumers also serve as liaisons between their constituencies and the scientific community and increase awareness about the ARP in the consumer community.

More information on how to serve as a consumer reviewer in the ARP can be found at http://cdmrp.army.mil/cwg/role

"The Department of Defense's Congressionally Directed Medical Research Programs have significantly contributed to the overall autism research needs. The funding process involves parents of affected children from the formulation of the mission statement to the final program consideration for funding. This process adds a valuable perspective to funding decisions not based solely on scientific merits."

Alice Kau, Ph.D.
National Institute of Child Health and Human Development
FY07–FY08 Integration Panel Member

Program Background

The CDMRP began managing the DOD ARP in response to the fiscal year 2007 (FY07) Appropriations Conference Committee Report No. 109-676, which provided $7.5 million (M) for research on ASDs. In the first year of the program, three award mechanisms were offered—Concept, Idea Development, and Clinical Partnership Awards—to promote innovative research that advances the understanding of ASDs and leads to improved treatment outcomes. In FY08, the ARP received a congressional appropriation of $6.4M, and two award mechanisms were offered, Concept Awards and Synergistic Idea Awards. The scientific areas in which awards were invested are summarized in Figure 1.

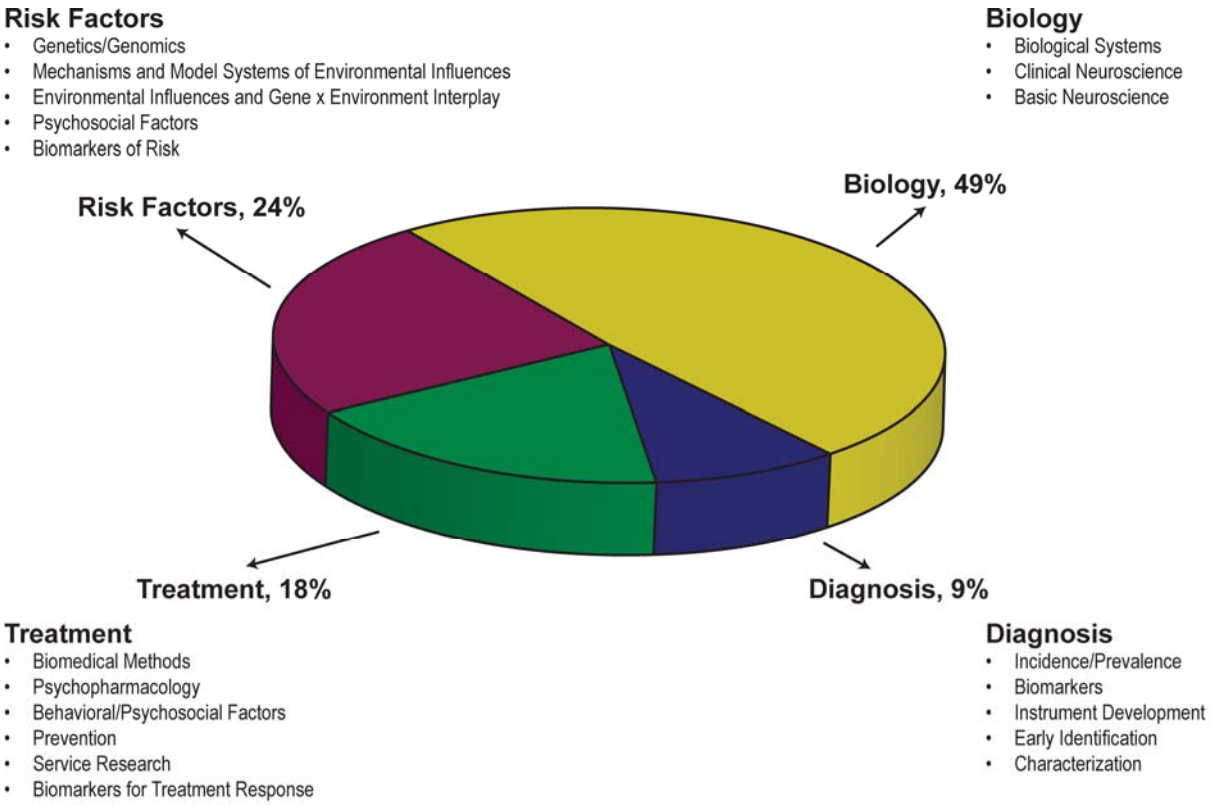


Figure 1. Primary Scientific Research Categories Reflecting Award Investment

Extraordinary People

The ARP partners with extremely dedicated individuals—not only consumer advocates, but also peer review panel members, Integration Panel (IP) members, and the scientific community—to improve the lives of individuals with ASDs.

Peer Review Panel Members

The primary responsibility of scientific peer review is to determine the scientific and technical merit of proposals submitted to the program. Scientific reviewers for peer review are selected for their subject matter expertise in ASDs and their experience with scientific peer review. Consumer reviewers are nominated by an advocacy or support organization, and they are selected on the basis of their commitment to advocacy, interest in science, and ability to represent the collective views of the autism consumer community.

"I was honored to be chosen to be a Consumer Reviewer for the first year of CDMRP Autism Research Program grants. The experience was intense, even grueling at times, and yet the extraordinarily high quality of the CDMRP grant review process provided a welcome example of the grant review process done right. In fact, this was by far the best-organized and most ethical grant review I have ever participated in. After 10 years of participating in grant reviews, I appreciated the excellent overall organization, the meticulous attention to detail, and the expediency of the process that the CDMRP had put into place. Clearly a lot of thinking and experience had gone into the process."

Portia Iversen
Cure Autism Now Foundation and Autism Genetic Resource Exchange
FY07 Consumer Peer Review Panel Member

"CDMRP's process of having both scientific reviewers as well as consumer reviewers ensured that the highest quality and most relevant proposals are selected for funding. CDMRP is to be lauded for creating such an effective review process."

Dean E. Calcagni, M.D.
Autism Speaks
FY07 Consumer Peer Review Panel Member

Integration Panel Members

The ARP IP is composed of visionary scientists, clinicians, and consumer advocates who are committed to serving the interests of the ASD community. Individual panel members recommend program priorities, innovative investment strategies, and a broad portfolio of research projects for funding.

A listing of past and present ARP IP members is available at http://cdmrp.army.mil/arp/panel

"Innovative brain imaging research can be used to link abnormalities of anatomy, function, and chemistry to symptom expression and developmental course that will help unravel the mysteries of autism and allow us to develop targeted interventions. The ARP, through its focused funding and dedication to innovation, has the potential to bring novel imaging and other promising techniques to bear on diagnosis and treatment of the autism spectrum disorders."

Stephen Dager, M.D.
University of Washington
FY07–FY08 Integration Panel Member

Scientific Community

The scientific community is a driving force in the ARP's vision to improve the lives of individuals with ASDs. In the first year of the program, 22 renowned researchers across the United States were funded by the program.

A Prospective Multi-System Evaluation of At-Risk Infants with Autism

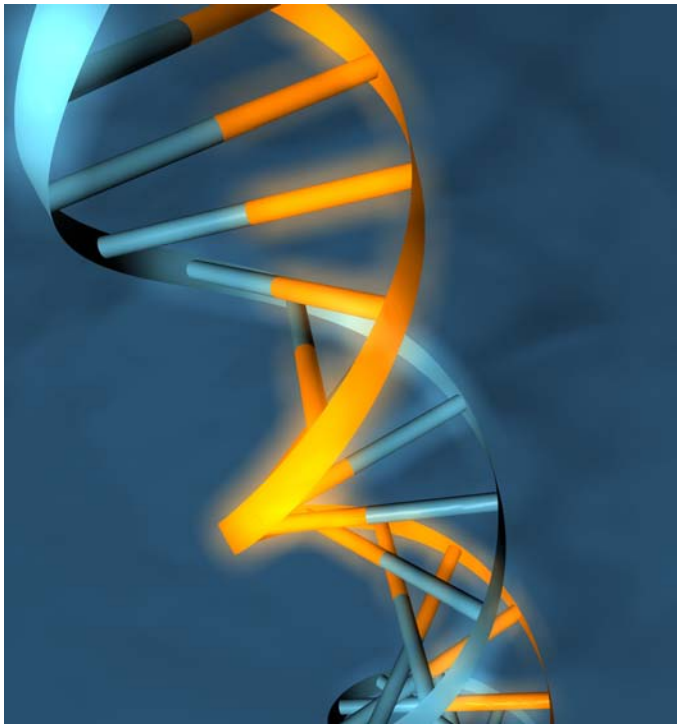
Martha Herbert, M.D., Ph.D.
Margaret Bauman, M.D.
Massachusetts General Hospital

Children who receive an earlier autism diagnosis and receive intensive early interventions typically do better than those who are diagnosed at a later time. Additionally, many children with autism suffer from a host of associated medical complications. The connection between autism and the associated medical complications has not been fully explored. Drs. Martha Herbert and Margaret Bauman of Massachusetts General Hospital received an FY07 Clinical Partnership Award to developmentally track several autism-associated medical indicators in at-risk siblings. This study will lay the foundation for a systematic medical evaluation of every infant at risk for autism or showing signs of autism, potentially leading to earlier diagnosis. Additionally, it may provide insights into the proper treatment of medical complications; such insights could improve the quality of life for those with autism or help ameliorate the symptoms of autism itself since they may contribute to each other.

3D Facial Pattern Analysis for Autism

Ye Duan, Ph.D.
University of Missouri-Columbia

Clinical observations indicate that autism is a heterogeneous disorder, and there are no readily available means to differentiate subtypes within the patient population. Distinguishing the subtypes would aid in the development and utility of more individualized therapies and a better understanding of different etiologies. FY07 Concept Award recipient Dr. Ye Duan of the University of Missouri-Columbia proposes to determine if there is a consistent facial pattern in the core group of idiopathic autism patients, which is often referred to as essential autism. If such a pattern is confirmed, in addition to defining a subgroup of autism patients, Dr. Duan believes it also will indicate that essential autism is a neurodevelopmental syndrome and may provide a prescreening tool to assist in early diagnosis.



Y-Chromosome Regulation of Autism Susceptibility Genes

Yun-Fai Chris Lau, Ph.D.
Northern California Institute for Research and Education

Boys are disproportionately represented in the number of autism cases, suggesting a potential sex-based link to autism development. Recently, a study indicated that genes on the Y (male) chromosome may influence the function of suspected autism susceptibility genes in gonadal cells of the developing fetus. In his FY07 Concept Award, Dr. Yun-Fai Chris Lau of the Northern California Institute for Research and Education proposes to study the effect of the Y-chromosome-associated transcription factor called SRY on the expression of autism susceptibility genes in neurons, which may elucidate the mechanisms involved in the sexual dimorphism of brain development and physiology and potentially explain the gender difference in the clinical manifestation of autistic disorders.

Autism and Associated Neurobehavioral Functioning Among Patients in a Psychiatric Hospital

David Mandell, Sc.D.
University of Pennsylvania

Addressing an often neglected consumer community and area of research, Dr. David Mandell of the University of Pennsylvania, recipient of an FY07 Concept Award, proposes to examine adults in a psychiatric hospital to determine the prevalence of autism among patients who may have been misdiagnosed with other disorders. Dr. Mandell hypothesizes that many of the patients diagnosed with other disorders, such as schizophrenia, may actually be autistic but may have been previously misdiagnosed due to poor screening criteria or a lack of awareness of ASDs. While participants in the study potentially may receive immediate benefits through more appropriate treatment, the results also may benefit the entire community by aiding in the development of better methods to differentiate autism from other psychiatric disorders, particularly in adults.

For more information, contact
http://cdmrp.army.mil/arp
or
Ms. Gail Whitehead,
Public Affairs Coordinator
Gail.Whitehead@amedd.army.mil
(301) 619-7783