



CHILDHOOD AUTISM RISKS FROM GENETICS AND THE ENVIRONMENT

Issue 2

CHARGE Study Newsletter

February 2004

Message from Irva Hertz-Picciotto, Principal Investigator CHARGE Study - This last year has been an exciting one for the CHARGE study. As many of you know, the CHARGE Study is a project of the Children's Center for Environmental Health, which also includes laboratory studies of animal behavior and of biochemical and physiologic changes in autistic children. In our second newsletter, you can read about the highlights: Recruitment into the CHARGE Study is in full swing, with close to twenty families completing the study protocol each month. This includes our three groups of participants: children with autism, children with developmental delay or mental retardation, and children selected from the population at large. As we go to press, close to 170 families are eligible and 95 families have enrolled (p.3).

We have also launched a major outreach effort, and are in the process of adding staff for this sole purpose (p.2-3). A fund has been established for donations to the study (p.4), statistical programmers and recruitment staff have been hired (p.3), and we expect to be able to report our first preliminary descriptive results this summer. Meanwhile, laboratory work on dysregulated metabolism of tryptophan and lipids is underway (p.4).

You can also read about the activities of our Community Advisory Council (p.1), and learn about recent and upcoming events locally and nationally (p.2). Finally, we invite you to visit our website <http://BeInCharge.ucdavis.edu!>

A LOOK AT THE COMMUNITY ADVISORY COUNCIL'S ROLE IN THE CHARGE STUDY

By Marianne Toedtman R.N., M.S.
Outreach and Resource Manager
Cure Autism Now Foundation

In April, 2002, I received a call from a fellow parent asking that I serve on the Community Advisory Council (CAC) for the CHARGE study. I gladly accepted the position, knowing that I wanted an opportunity to be part of the first ever, large scale study to examine autism in relation to environmental exposures and genetic factors.

Since then, I have had the opportunity to meet with committee members and provide input and direction for

the study. The CAC is the primary means by which the CHARGE study seeks community input.

The CAC has been involved since the conception of the study and meets biannually to review progress. The council is composed of 26 members, including parents of children with autism, representatives from three autism advocacy organizations, service providers, directors and staff of the CA Regional Centers, the Medical Director of M.I.N.D., the Senior Psychologist at the California Department of Developmental Services, and other members of the community.

Family Participation - Perhaps the most important topic the council has faced this past year is how to maximize participation of families in California in the study. Some of the most recent family recruitment discussions have included:

- Designing communication and outreach materials for families
- Development of a community outreach component for the study
- What families can expect from participation in the study
- Structuring clinic visits to make them family-friendly

One of the most serious problems facing the autism community (parents and professionals) is the terrible gap between the rate of increase in autism and the rate at which we are acquiring scientific knowledge. Families now have an opportunity to change all of that. Through participation in studies like CHARGE, knowledge will be gained & treatments will be discovered. Family participation in the CHARGE study should be given the highest priority by the California community.

Largest study of its kind - Researchers at the University of California Davis are planning to study 2,000 children, including 700 children with autism, to see if there are genetic patterns or patterns of chemical exposure in children with autism that are not found in the general population.

Family Recruitment for the CHARGE study takes place through the CA Regional Centers where a family is provided brochures, a letter of information, and

encouragement to participate. If you are wondering about whether to take part in the CHARGE study, please raise your questions with your regional center case worker, or call us toll free in California at: **1-866-550-5027**.



Marianne Toedtman, CAC Representative

Her email is: marianne@cureautismnow.org

THE CENTER FOR CHILDREN'S ENVIRONMENTAL HEALTH

Upcoming IMFAR Meeting- The 2004 International Meeting for Autism Research (IMFAR) will be held on May 7-8 at the Hyatt Regency Hotel in Sacramento. Dr. Isaac Pessah, UCD Center for Children's Environmental Health Director is organizing the IMFAR mini-symposium entitled, *Autism, Genes & Environment*. Dr. Irva Hertz-Picciotto, CHARGE Study Principal Investigator, will chair this special mini-symposium, designed to present cutting-edge research in the area of genetic-environmental interactions and how they may influence social behavior and relate to autism and other neurological disorders.

National Events - In response to growing public health concerns regarding rising rates of autism, the U.S. Congress instructed the Department of Health and Human Services and the Department of Education to sponsor the first Autism Summit Conference on November 19-20, 2003. The Conference was held in Washington D.C. and was attended by 650 federal officials, researchers, and autism advocates. It included general keynote sessions from public officials, as well as targeted sessions that covered three main content areas: services for individuals with autism across the lifespan, early screening and diagnosis, and biomedical research.

This conference complements the activities of the several government organizations that have been participating in the Interagency Autism Coordinating Committee since its inception in 2001. The IACC was

formed in response to a mandate of the Children's Health Act of 2000. Congress instructed the IACC to develop a 10-year agenda. The research roadmap was introduced at the Autism Summit. The goals include characterization of autism spectrum disorders and their associated genetics, the development of effective screening techniques for early detection and the study of the role of environmental factors in the disease.

Characterizing autism spectrum disorders will be fulfilled through the "Autism Phenome Project," which will provide comprehensive biomedical and behavioral characterization of autism. The National Alliance for Autism Research (NAAR) has partnered with NIH to create the Autism Genome Project, which will be tasked with identifying autism-linked genes

CHARGE investigators and other M.I.N.D. Institute researchers, under the direction of David Amaral, PhD, are developing the clinical and biomedical infrastructure to undertake the M.I.N.D. Autism Phenotyping Project, built upon the foundation of the CHARGE study.

Under the category of screening, the Autism Society of America, in collaboration with CDC, will develop a national childhood developmental disabilities screening program. The 10-year goals of the project are to screen every child for autism before age three, reduce the number of undiagnosed children entering the school system by 50% and increase child access to treatment and services. With regard to the role of the environment in autism, action items include identifying factors such as viruses, medications, lifestyle factors and environmental chemicals "that contribute to the development of autism," as well as isolating "non-genetic causes of autism" and their genetic interactions.

The conference can be viewed by archived webcast at: <http://www.tvworldwide.com/events/nimh/031119/>.

CHARGE STUDY UPDATE

Southern California - To streamline our clinic processes and enhance the clinic experience of our CHARGE families, UCLA spent much of last summer navigating UCLA's Institutional Review Board. Since our success in June 2003, we have seen 32 families in our clinic and are anticipating approximately 15 more in the next month.

We welcomed new research staff last spring, James Earhart and Joanna Mussey, and Angela French has been serving as Project Coordinator, handling scheduling as well as biological sample collection. Fortunately, Soryl Markowitz, M.S.W. has joined our team as CHARGE's Community Liaison, responsible for communicating with local Regional Centers as well as parent organizations to help enhance study participation.

Along with UCLA's newly-formed Center for Autism Research and Treatment (CART) this outstanding team is hopeful that we will enlist the help of many more families throughout Southern California in the upcoming year. For more information on CART and CHARGE please visit www.autism.ucla.edu.



**Soryl Markowitz - Southern California
Community Outreach**

Northern California - The Northern California site has added the General Population Recruitment, Survey and Data Entry unit. The unit will be responsible for all Spanish and English general population recruitment activities and interviews necessary for the Environmental Exposure Questionnaire for both Northern and Southern California. The unit is comprised of three full time staff (Carola Gutierrez de King, Karen Tang and Laura Garcia.). We also recruited two programmer analysts (Lora Delwiche and Paula Krakowiak) to process and analyze the mountains of clinical, laboratory, psychological, and questionnaire data that are currently being collected on each CHARGE study family. Finally, Rachel Shefelbine was brought on board to complete psychometric assessments for our Spanish speaking families.

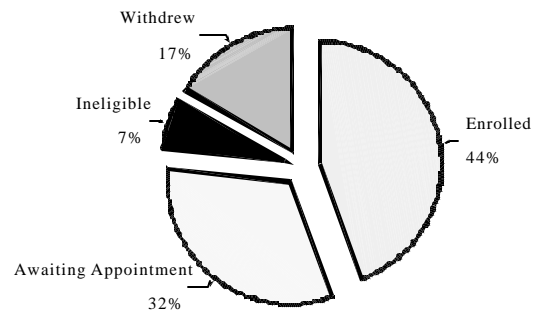


**Karen Tang, Carola Gutierrez de King and
Laura Garcia
Recruitment/Survey/Data Entry**

CHARGE STUDY DATA CORNER As of February 29, 2004

Families from Regional Centers

Interested in Participating

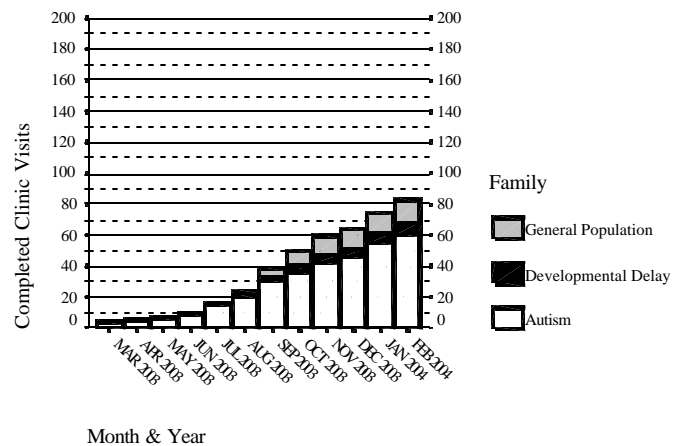


Children with Autism or Developmental Delay

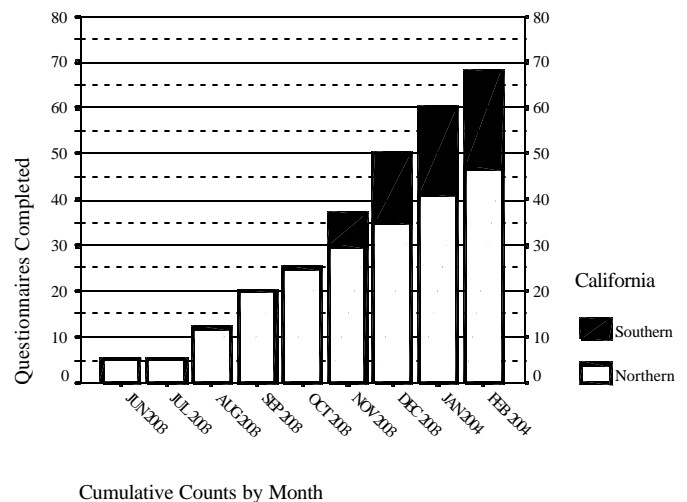
Total =167

Families Completing Clinic Visits

Child & Parent Modules



Environmental Exposure Questionnaire



CCEH – SCIENCE UPDATE

Urinary Metabolic Profiling and Metabolomics - Tools for the assessment of metabolic dysfunctions associated with autism. Written by Katja Dettmer Post Doctoral Fellow with the Everson Hall Mass Spectrometry Laboratory, Analytical Core for CCEH

The aim of this study is to develop and apply versatile analytical techniques for a broad metabolite screening to identify metabolic phenotypes and/or novel biomarkers in autism. Furthermore, quantitative analytical methods are developed and applied to measure metabolites that are related to specific metabolic pathways that might be impaired in autistic patients. We are profiling urinary tryptophan metabolites following indications that dysfunctions of tryptophan metabolism are associated with autism. For completeness, a range of urinary tryptophan metabolites holding information about critical metabolic branch points within different pathways will be quantitatively analyzed. Why is an understanding of abnormal tryptophan metabolism important to autism? Tryptophan is a precursor of the neurotransmitter serotonin. If a change in the metabolism of tryptophan exists in autistic children, it is likely to also alter levels of serotonin in the brain. Evidence for brain abnormalities in serotonin synthesis and metabolism of tryptophan in children with autism has been provided by research at Wayne State University. The sensitive methods for measuring tryptophan metabolism by the Analytical Core at the UC Davis Center for Children's Environmental Health is addressing the need to identify differences in key metabolic pathways associated with autism.

Within the study we also analyze neuropeptides with opioid-like behavior in urine of autistic children to investigate the opioid excess theory. This theory postulates that excessive amounts of opioid substances occur in urine of autistic patients as a result of incomplete breakdown of dietary proteins in the intestine. These neuropeptides are believed to produce the behavioral aberrations of autism.

Moreover, oxidized lipids derived from the arachidonic acid and linoleic acid cascades are analyzed in the samples. These metabolites are recognized as mediators of inflammatory and proliferative responses. This might be important since children with autism often manifest mild to moderate degrees of gastrointestinal inflammation. **For more information call CCEH at 530-754-8157 or visit their web site <http://www.vetmed.ucdavis.edu/cceh>.**

WANT TO BECOME INVOLVED?

We need parents and others to help us support families interested in participating in, and navigating through, this important study. Help can be as easy as talking to families on the phone about the study or providing support for things like child care during the clinic visit. The possibilities are endless! If you would like to volunteer, **please** call the toll free number below: **1-866-550-5027**

WANT TO DONATE TO A WORTHY CAUSE?

Anyone interested in supporting the CHARGE Study through a cash donation may do so by sending a check to the M.I.N.D. Institute. Not only can you deduct the donation, you will also receive the gratitude of all the families who volunteer for this important study. Your generosity will help us provide a gift to all children and support the families travel and expenses to come to our clinics. You will receive a letter from the Director of the M.I.N.D Institute thanking you for your tax deductible donation. Please make your checks payable to **The MIND Institute/Attn: CHARGE** and mail to:

UC Davis M.I.N.D. Institute
Health Sciences Advancement
4900 Broadway, Suite 1150
Sacramento, CA 95820

Don't forget to note "CHARGE Study" on your check or donation form. You may also donate electronically by going to the following web site:

<http://www.ucdmc.ucdavis.edu/mindinstitute/html/help/donations.html>

IMPORTANT DATES

April 3 – Kids on the Autism Spectrum Conference (Placer County)
Contact: Cindi Lang Ph:530.886.3634

April 3 – 3rd Annual Autism Collaborative Forum (San Joaquin Department of Education) Contact: Kimberley Andreassen-Groom
Ph: 209.468.9283

April 17 - Services, Treatment, Advocacy and Research (STAR) Parent Conference on Autism - Oakland CA Contact: Myra Alcaide
Ph: 510.622.4434

May 7-8 - International Meeting for Autism Research – Sacramento CA
Go to: <http://www.imfar.org/>

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