



# ACTION FOR TASMANIAN AUTISTIC CHILDREN

Celebrate the difference!

JULY-AUGUST 2015

## **EDITORIAL:**

### **THE FUTURE FOR AUTISM AND OTHER BRAIN DISORDERS IS BECOMING CLEARER, AND UNLESS THERE ARE CHANGES IN AUSTRALIA'S APPROACH, WE WILL BE LEFT OUT IN THE COLD+**

When you go to your doctor with an illness, you describe your symptoms to her and she will recognise the medical disorder that is indicated by these symptoms. She may then send you for tests to confirm her diagnosis. Once the diagnosis is confirmed, she does not treat the symptoms, she treats the biological causes of your medical problem.

**The only area of medicine that is not treated in this manner is the area of brain disorders!**

This situation was brought about by our lack of understanding of how the brain works. As we did not understand the workings of the brain, there was no other course open to us than to treat the symptoms of brain disorders as they appeared.

All this changed in April 2003 with the publication of the full human genome. In the twelve years since then, there have been tremendous strides in our understanding of brain disorders. Today, the cost of a full genome wide scan is under \$1000, and is still going down. I recently read an article on new algorithms that have brought the time required for a genome-wide scan conducted with new super-computers from hours to minutes!

The greater knowledge that has been gained into the biological (genetic) causes of autism

has led scientists to conclude that many of the diagnostic criteria approved by the DSM and ICD10 (the European equivalent of the DSM) did not coincide with the biological evidence that science was accumulating. This led to the announcement by the US National Institute of Mental Health (NIMH) that they would no longer fund research on the DSM criteria, and that they were setting up a new system Research Domain Criteria (RDoC), to be based on the underlying biological causes of brain disorders.

In this endeavour, they found themselves constrained by the lack of tools available to examine the intricate workings of the brain. So the NIMH began its BRAIN initiative to devise new tools that could accomplish this task. The NIMH was soon joined by the European Union, Japan and other nations.

There have been remarkable, almost science fiction results, recently reported. For instance scientists at Peking University recently reported on their use of the CRISPR/Cas9 genome editing tool. A fertility clinic had identified that sperm they had stored had a gene that caused a blood disease that would kill any child born from its use. The scientists, using the CRISPR/Cas9 tool, cut out the mutated gene and replaced it with a non-mutated gene. In a number of experiments, they reported a 17% failure rate to remove the whole gene. While the sperm with the altered genes was not used, the ability to carry out such an operation has been proved.

There is now a moratorium on further work in this area so that guidelines and ethical considerations can be resolved before further work in this area continues. However, the high failure rate has been resolved by 2 further reports from the US that have seen modification of the CRISPR

tool so that it can enable genetic editing with unprecedented resolution.

Even more remarkable is a report from Stanford University in California of the formation of 'human' cortical spheroids developed from human stem cells derived from the skin of patients. Like the developing brain, the neurons form layers and 'talk' with each other via neural networks.

There is now the potential to eliminate the use of animal testing in research.

In the 12 years since the completion of the Human Genome Project was completed, our knowledge of the brain's working and its genetic mutations has increased dramatically, but what then is the next step?

A recent article by Thomas Insel, the Director of NIMH, and Bruce Cuthbert, the Director of the NIMH RDoC unit, in *Nature* magazine, in which they tied the RDoC project to the new initiative announced in President Obama's *State of the Nation* address to Congress when he said 'Tonight I am announcing a new precision medicine initiative.'

What is precision medicine?

'Precision medicine describes a new approach to the prevention, diagnosis and treatment of diseases. It helps deliver treatment based on the particular variant of the disease by taking the genetic make-up of the ill person into account.

It is underpinned by two key areas of knowledge that have been developing rapidly in the recent past. The first is our understanding of the function of human genes and their role in the development of and the progression of certain diseases. And the second is the recognition that diseases characterised - and therefore diagnosed - by a particular set of signs and symptoms may arise through fundamentally different biological mechanisms.'

For those who want to explore this new initiative further, I have provided links to a series of articles on this matter at the end of

this editorial.

Now, let us explore where autism fits into this new initiative. How can we develop individual treatments for all those with autism, with its many different forms and causes?

**Autism is a highly complex genetic disorder.** For instance, one gene that we are certain is involved with autism carries the genetic code for producing proteins. This gene is involved in the production of **1,700** proteins. Given that the mutation of this gene can be either a duplication or a deletion, and this produces significantly different effects on the production of proteins, you can see that working this out is not easy. Scientist believe that to be able to accomplish this task they will need to process and study hundreds of thousands of individual genomes, if not a million.

Is this then a feasible proposition? Even with the costs coming down to under a \$1000 and the time for a scan reducing to minutes, it will be a massive task. But imagine if you could visit your GP and she had a device the size of a smart phone plugged into a computer and could scan your whole family with it?

It is not there yet, but scientists in Canada and the UK have for the first time have sequenced de novo the full genome of a living organism using Oxford nanopores MINI ONTM device, a genome sequencer that can fit in the palm of your hand! Researchers are now moving on to sequence genomes in increasingly more complex organisms, which eventually will include humans.

With electronic health record systems, and the proper privacy guidelines it may not be as big a problem as it appears. The speed of autism research is quickening. Earlier in this editorial I mentioned research using human stem cells that had produced a working human brain cortex. Before I complete this editorial, I want to mention a further development arising from this research, where scientists in the National Institute of Health in Baltimore used a special container with two sections separated by a removable barrier. They grew

stem cells from the neo-cortex and the mid-brain separately in this, and when the barrier was removed the neurons formed connections between the two brain regions! The possibilities that are opened up mean that we may be able to create such spheroids using stem cells from people with autism and be able to compare them with those without the condition.

In the past 12 years then, the pace of scientific advancement in this area is speeding up dramatically. In 10 years from now we will have many of the answers, and precision medicine will be able to treat the many types of autism that have been identified.

As these various forms of autism have been teased out, we will be able to match new interventions with them. However in Australia, in spite of the National Standards Committee in the US finding that ABA interventions for autism are the only ones at this stage that are evidence based, they are not available under our Health Service.

Australia has between 20 to 30 Board Certified Behavioural Analysts all of whom had to enrol in courses in America as no university in Australia offers such a course. It will be a tragedy if this is still the case in 10 years time, not only for the families dealing with autism, but also for Australian taxpayers who bear the costs of the present ineffective methods.

## **WILL AUSTRALIA BE LEFT BEHIND? SCIENCE IS MOVING TOWARDS A BROADER AND DEEPER UNDERSTANDING OF BRAIN DISORDERS, YET WE LINGER IN THE PAST.**

Unfortunately when it comes to autism, Australia has an abysmal record of choosing the wrong path. It is now more than 50 years since Lovaas published the results of his initial work using ABA (Applied Behavioural Analysis) interventions conducted with children from institutions in California. In Australia we continue to ignore the growing bank of evidence that shows that ABA is the

one method of treatment that has proven itself over and over again.

ABA has come a long way since the first interventions conducted by Lovaas. ABA methods have been developed to a far more sophisticated level than were initially used. Intervention programmes for the very young have been trialled and proven. Programmes are now being developed for the many older children and adults who have missed out on early intervention.

In the United States more than forty states have enacted legislation to compel health insurers to cover ABA interventions for those with autism. Furthermore, the US has prioritised research into brain disorders, recognising the impact it has on modern health issues. Massive funding is being channelled into this research so that effective diagnosis and treatment of all brain disorders can be formulated.

This stands in stark contrast to the situation in Australia. We have a diabolical habit in this country of ignoring the advancement of treatments for brain disorders, especially autism.

In Australia, there is only one state that has broken free from our usual habit of disregarding evidence-based research. Tasmania, a small state with just over a half a million population, under the leadership of the present Tasmanian Liberal Government is beginning to introduce evidence-based ABA programmes into its schools.

The failure of previous governments in Tasmania to adopt evidence-based practices, has meant that there are only a handful of people in this state trained in evidence-based ABA. For this reason, the Tasmanian government has turned to an American based Internet programme - *Rethink(Autism)* - to slowly build the expertise needed to train teachers and teachers' aides in modern ABA methodology.

It is the increase in numbers of people with brain disorders, and our inability to

understand them and develop appropriate treatment for them, that has caused the collapse of state disability systems, forcing us to turn to a national scheme. For instance, when Willow Court in Tasmania closed in late 2000, we dismantled a system of segregating the intellectually disabled into asylums that had been in place for 174 years. In the 15 years since then, the growth of brain disorders has over-run the capacity of 2 different state disability schemes.

Other states have had similar experiences, and as a result, we are now turning to a new Federal disability scheme, the National Disability Insurance Schemed (NDIS). Already, the signs are that this scheme is not providing evidence-based services for those with brain disorders, and we can already see that it is travelling down the same doomed path to failure that previous state schemes followed.

## How large, then, is the problem that Australia faces?

The Australian Bureau of Statistics tells us the number of Australians with a disability is 18.5% of the population - a total of 4.2 million people. Just over a half a million of those have physical disabilities and approximately **3.5 million have some sort of brain disorder.**

People with physical disabilities were starved of support under the various state disability schemes because of the ever-increasing number of people with autism and other brain disorders. These ever-increasing numbers drained state budgets and at the same time reduced the money available for those with physical disabilities. The initial sign up to the NDIS has dramatically improved support for physically disabled people.

However, the same cannot be said for the 3.5 million who have brain disorders, and who comprise 80% of those with disabilities. Before the scheme began, the previous Federal government set up a Productivity Commission Inquiry and requested that they report on whether early intervention was affordable. The Productivity Commission report on this recommended a two-tier

structure, with those with higher needs receiving greater financing. Those with autism were to be in the higher level, thus making early intervention affordable.

This has not eventuated. The NDIS appears to be making the same mistakes as were made by its predecessors under the State schemes. Indeed, in some cases the NDIS is proving less flexible than State schemes.

The concept of a **National** scheme to cover people with brain disorders is illogical when the major institutions where changes are required are **State** responsibilities. I refer of course to our Health and Education systems.

Where the Health System is concerned, let us be clear on one fact. Autism and other brain disorders are **MEDICAL** conditions. The brain is an organ of the body just as are the heart, lungs, liver etc.

In the US, which has a private health care system, evidence based early intervention services for autism are covered by State Health Insurance in over 40 States. Those who cannot afford private health insurance are covered by Medicaid under the Obama Health Reforms. Major teaching hospitals have units that treat autism and its major co-morbidities. They have extensive research facilities that carry out research on autism.

In Australia, if you are concerned that your child is not meeting their developmental guidelines, you are initially told to 'wait and see if they improve'. Eventually you will be referred to a psychologist, a psychiatrist or a paediatrician. If your child is diagnosed, they are not sent for further tests to confirm the diagnosis, or to a clinic for treatment, you are instead **referred to Centrelink to sign up for a Disability Pension.** At this point you are referred to a Gateway Service to obtain respite care from minimally-trained carers. When the parents are worn out from 24 hour care for their child, the child ends up in a Group Home, again under the care of minimally-trained carers.

Our National Health Scheme has abrogated its responsibility for one of the most complex

medical conditions that there is. This failure has left families wide-open to an industry that promotes and sells all sorts of nostrums and cures for autism. There is a Conference Industry of so-called experts that promotes all sorts of unproven treatments for autism.

The other area of State responsibility is that of Education. When a child with autism enters school at 5 years of age without any intervention taking place, their health problems, and their behaviors and their obsessions have had time to solidify, and therefore are far more difficult to change. As well as the 3 main behaviours that they must have to be diagnosed - impairment in social interaction, impairment in communication, and repetitive behaviours - approximately 30% will have no language at all.

*Apraxia*, which causes the stilted and strange speech of autistic children, is reported to affect 80% of children with autism. Many will have a auditory delay, where their brains process language at a slower rate than normal. When a teacher has commenced a second sentence, they are still processing the first sentence, and struggle to understand. This is why so many autistic children fail in the classroom and other situations - instructions become a blur and they revert to behaviours to escape the situation.

This is just the start. Certain sounds and sensations cause extreme discomfort, causing the child to react negatively. Many have food sensitivities, which means they have poor nutrition, which in turn causes many problems, including eating disorders. It is estimated that 50% of people with eating disorders also have autism, and those with autism, because of their repetitive behaviours, comprise the group most likely to die from this disorder.

The majority of people with autism have fine motor problems. This means that participation in many games and sports are difficult for them. They also lack so seriously in social skills, that participation in group sports is impossible for them, and they miss out on physical exercise as they need to participate in individual rather than team sports.

People with autism share many of the same genes as those with bi-polar disorder, OCD and schizophrenia. These are disorders that commence in the late teens and early 20s. Higher education is frequently impossible for these people.

Thirty percent of children with autism also have epilepsy, and many of these have a form of epilepsy that cannot be stabilized using current drugs. So teachers are faced with children having epileptic seizures in their classrooms. For the child, these constant seizures means that they can totally lose anything they have learnt prior to the most recent one.

Faced with all these problems, in every state in Australia our education system is in crisis. We have the example in the recent case in the ACT where an autistic child was placed in a cage built in a classroom. In WA there are recent reports of padded cells being built in schools into which autistic children are locked. Ex-Disability Commissioner Graeme Innes has called for a broad enquiry into the education of children with a disability.

In every State there is a trend for parents to remove their children from school and adopt Home Education for them. The number of suspensions from schools is constantly rising. Early this year, *The Australian* newspaper published an interesting story. For the first time, education officials have released figures on the impact of autism on their schools. The article revealed that

‘... the number of autistic children in WA schools has more than tripled in 8 years to 4,000 students. In NSW, the nation’s biggest public schooling system, teachers are dealing with 14,000, a 160% increase since 2008. In Queensland, 12,709 State School students - or 2.5% - have been diagnosed as being on the autism spectrum, up from 4,620 a decade ago.’

**SO MUCH FOR THE FURPHY THAT THERE IS NO INCREASE IN THE NUMBERS OF PEOPLE WITH AUTISM, JUST BETTER DIAGNOSIS.**

The failure of policies dealing with brain disorders that have been adopted by successive State and Federal governments, is now costing tax-payers dearly. The clear purpose of the article in *The Australian*, and the reason that State Education Departments have released these figures, is to obtain public support to force the Federal Government to release billions of dollars of funding recommended in the Gonksi Report. ATAC finds it impossible, however to support this drive to obtain such funding **unless** it is directed into evidence-based programmes for autistic children in these schools.

Without this condition into the provision of Gonksi funding, we are likely to see more cages, more padded cells, and more suspensions. Money alone is not the solution, as it **must be** directed into effective programmes based on scientific research proven to work for children with autism.

These are not the only costs to the taxpayer. Disability Pensions cost billions and are consistently growing as the numbers of those with autism grow. In addition, Government grants to Service Providers to provide respite are growing.

All this expenditure would be justified if the results showed improvements for those with autism. However, the latest ABS report shows that people with autism **have the lowest employment levels of ANY disability group, and the worst educational results of any disability group. What is even more worrying for the taxpayer is that the numbers of those with autism are still rising each year.**

The greatest cost to the taxpayer occurs when those with autism have to go into assisted care. It is now, as the growth in numbers of those with autism within the school system begins to flow out of schools and into the wider community that we **MUST** make changes to our approach. The cost of caring for these people in group homes will cripple our economy for many years.

## WHERE DO WE GO TO FROM HERE?

When **Willow Court** in Tasmania closed approximately 15 years ago, I was involved with the negotiations that took place at that time. At one of the meetings I asked the government psychiatrist how the people in Willow Court and the Royal Derwent Hospital were to be housed in the future. It was explained to me *that with the new drugs available, GPs would be able to diagnose and prescribe for those with mental health problems. Those with disabilities would be moved into the new purpose-built Group Homes provided by government and private providers.* As the numbers of those with disabilities were not particularly high, in future children could be kept in their homes and parents would have support provided in the home. Respite centres would be available to give parents a break when needed. This would not be a problem as numbers were very low, for example, autism occurring at a rate of 1 in 15,000. Mainstream schooling would be able to cope with the few extra children with extra resources.

**They got it wrong on all counts!!!** The new drugs only work on 1 in 3 people. The 1 in 15,000 with autism is now more than 1 in 100. Indeed, a recent report stated that brain disorders affected 18.5% of Australians. The cost of adopting this drug regimen is enormous and it only works for one in 3. Building new group homes to cater for the enormous increase in those with autism is not far off with the larger numbers beginning to leave school will double, even triple, the need for them. And as discussed, schools themselves are already in crisis.

It is quite clear that the needs of those with physical disabilities are completely different from those with brain disorders. Trying to force these disparate groups into accessing the same services is a recipe for disaster for **both** groups. It is a disaster for those requiring help, and it is also a disaster for the taxpayer. It is time for a complete break away from this outmoded model.

## We need to establish a separate NBDIS - a National Brain Disorders Insurance Scheme.

Let the function of the NDIS be to wholly cover the needs of those with physical disabilities, with appropriate funding to cover for the complete needs of these people, as was originally intended.

The role of the NBDIS should be to cater for the needs of those with **brain disorders** in Australia. This means **evidence-based** services need to be implemented throughout the country, with the NBDIS directing funds to State Health and Education bodies to implement evidence-based policies for those with brain disorders. This should eliminate all those programmes which have no evidence to support their effectiveness, and should ensure all moneys spent will be directed into effective proven programmes.

The NBDIS should be required to also bring Australia into those international research programmes targeting the cause of brain disorders. To achieve this it will need to build a register of all those families affected by brain disorders. This will allow Australian researchers to become part of the drive for precision medicine for brain disorders.

In addition, the NBDIS should be tasked with the retraining of medical professionals (neuro-scientists, psychologists, psychiatrists, paediatricians, General Practitioners). It should fund hospitals to set up specialist units to treat those with autism AND its many co-morbidities.

**Tax-payers should not be required to continue funding which is directed into schemes that are just continuations of past failures. The rest of the world is moving towards precision medicine for those with brain disorders, and Australia must become part of this movement.**



**Roger Law - Secretary ATAC**  
July 2015

## Further reading on the issues covered in this article - Click on the links on the following pages

[FACT SHEET: President Obama's Precision Medicine Initiative January 2015](#)

[How Obama's Precision Medicine Initiative Will Revolutionize Healthcare](#), George Dvorsky, io9 We Come from the Future, 21 January, 2015

[A New Initiative on Precision Medicine](#), Francis M Collins MD, *The New England Journal of Medicine*, 26 February, 2015

[Thomas Insel: Director's Blog: Something Interesting is Happening](#) *National Institute of Mental Health*, June 2015

[Precision medicine offers the hope of cures made just for you](#) *The Conversation*, Ingrid Winship, Timothy Smith

[Planning for US Precision Medicine Initiative underway](#), *The Lancet*, Sally Jaffe, June 2015

[Director's Blog: A Plan for Changing Times](#), *National Institute of Mental Health*, 26 March, 2015

[Brain disorders? Precisely](#). Bruce Cuthbert and Thomas Insel, *Science Magazine*, 1 May, 2015

[CRISPR/Cas9 and Targeted Genome Editing: A New Era in Molecular Biology](#), New England BioLabs, 2014

[New techniques improve specificity of CRISPR/CAS9 genome editing tools](#), *Medical News Today*, 20 July, 2015

[Gene therapy: End of CRISPR-CAS9 controversy](#), *Science Daily*, 10 February, 2015

[Simple technology makes CRISPR gene editing cheaper](#), *Science Daily*, 23 July, 2015

[Gene-sequence swap using CRISPR to cure haemophilia](#), *Science Daily*, 23 July, 2015

[Research team evolves CRISPR-Cas9 nucleases with novel properties](#), *Science Daily*, 22 June 2015

[Online tool boosts efficiency of popular gene editing method](#), *SFARI*, 22 July, 2015

[A patient's budding cortex - in a dish?](#), *Medical News Today*, 1 June, 2015

[Neuron spheres emerge from precisely prepared chemical soup](#), *SFARI*, 17 June, 2015

['Miniature Brains' Reveal An Outsized Secret About Autism](#), *Disability Scoop*, 17 July, 2015

Growing Eyes From Stem Cells, *Neuroscience News*, 1 June, 2015

Congressional action needed to optimize regulation of genomic tests, *Barbara Evans, University of Houston Law Centre*, 27 May

A clinical perspective on the relevance of research domain criteria in electronic health records. NCBI Public Medicine, April 2015

'Padded cells' at Perth schools reports among calls to disability abuse hotline, Hayley Roman, A4, 15 June 2015

Funds call as autism students numbers triple, *The Australian*, reprinted A4, 15 June 2015

Disability groups back call for inquiry into education of children with a disability, Graham Innes, *The Sydney Morning Herald*, reprinted A4, 8 April, 2015

Child reportedly contained in cage-like structure at ACT primary school, *The Canberra Times*, reprinted A4, 4 April, 2015

A new era for genetic interpretation, *Medical News Today*, 28 May, 2015

6646 school suspensions in Tasmanian schools, *Mercury* June 24, 2015

Canberra principal suspended after 'cage built for autistic student', *The Daily Telegraph*, April 03, 2015

Gene therapy clips out heart failure causing gene mutations, *Medical News Today*, 2 May, 2015

Doctors concerned anti-psychotics increasingly being prescribed as sedatives for troubled children, *ABC News*, 25 July, 2015

Using low-dose irradiation, researchers can now edit human genes *Science Daily*, 22 July, 2015

Health records and genetic data from more than 100,000 Californians power medical research, *Science Daily*, 19 June, 2015

Database highlights genetic overlap among brain disorders, *SFARI*, 29 April 2015

Injectable Device Delivers a Nano-View of the Brain, *Neuroscience News*, 8 June, 2015

ESPERITE (Euronext ESP) pioneers first treatment worldwide of Cerebral Palsy using two types of stem cells, *Medical News Today*, 21 February, 2015

Genomics among the biggest of big data, researchers say, *Medical News Today*, 8 July, 2015

Feds Put Millions Toward Training Special Educators, *Disability Scoop*, 17 June, 2015

One in three young adults with autism disconnected from work and school, *Science Daily*, 23 July, 2015

**FOR THOSE OF OUR READERS WHO ARE TEACHERS AND WHO ARE INVOLVED WITH THE EDUCATION OF CHILDREN ON THE AUTISM SPECTRUM, INCLUDING ALL THOSE WHO HOME-SCHOOL, THE LATEST EDITION OF *AUTISM SPECTRUM NEWS* IS DEVOTED TO THE EDUCATION OF AUTISTIC CHILDREN.**

We provide a link to the journal here so that you can peruse the issues at your leisure.

Click on the link below

[The Changing Landscape of Autism Education](#), *Autism Spectrum News*, Summer 2015 Edition □

## RESEARCH AND ARTICLES

### Congressional action needed to optimize regulation of genomic tests

“Latest generation genomic testing offers a chance for improvements in patient care, disease prevention and healthcare cost-effectiveness. A new report recommends that Congress incentivize development of massive data systems that doctors and regulators will need to make these tests safe and effective for patients. ”

[Click here](#) *Science Daily*, 27 May, 2015

### Early intervention program benefits young children with autism, improves parent-child interactions

“A parent coaching intervention brings meaningful benefits for preschool-aged children with autism-spectrum disorders (ASD), according to a clinical trial in the October Journal of Developmental & Behavioral Pediatrics, the official journal of the Society for Developmental and Behavioral Pediatrics. ”

[Click here](#) *Medical News TODAY*, 10 June, 2015



### Early treatment is key for children with Angelman syndrome

“Fixing the gene that’s faulty in Angelman syndrome ameliorates anxiety and motor deficits in a mouse model of the disorder, but only if done when the mice are young.”

[Click here](#) *Simons Foundation*, 8 May, 2015

### Syllables that oscillate in neuronal circuits - What neuroscience can say about speech processing in the brain

“In people with autism ... it is the speech information that is not divided up at the right place, which blocks speech deciphering. ... researchers noticed that gamma and theta waves activity did not engage synergistically in the group with autism: theta waves activity fails to track speech modulations and the regulation of gamma oscillations, essential for deciphering the detailed spoken content of words, does not occur. Language disorders which most autistic people suffer from could therefore be explained by an imbalance between slow and fast auditory oscillations, an anomaly which would prevent the interpreting of sensorial information and would compromise the ability to form coherent conceptual representations.”

[Click here](#) *Medical News TODAY*, 10 June, 2015

### Autism and rare childhood speech disorder often coincide

“Some children with autism should undergo ongoing screenings for Apraxia, a rare neurological speech disorder, because the two conditions often go hand-in-hand ... It’s estimated that one in 68 children in the United States has autism and one to two in 1,000 have apraxia. With increased recognition and improved evaluation measures, more children are being identified with autism and apraxia ...”

[Click here](#) *Science Daily*, 28 May, 2015

### Common glitches in chromosomes can cause cognitive problems

“More than 10 percent of people carry duplications or deletions of DNA that diminish their intellectual capacity, according to a study published 26 May in the *Journal of the American Medical Association*. The bigger the mutation, the more severe a person’s cognitive deficit.”

[Click here](#) *Simons Foundation*, 18 June, 2015

### Study examines association of genetic variants with cognitive impairment

“Individually rare but collectively common intermediate-size copy number variations may be negatively associated with educational attainment, according to a study. Copy number variations (CNVs) are regions of the genome that differ in the number of segments of DNA..”

[Click here](#) *Science Daily*, 26 May, 2015

### Feds (US) Put Millions Toward Training Special Educators

“With an eye on improving services for students with disabilities, the U.S. Department of Education is funnelling millions into programs to train new special educators.”

[Click here](#) *Disability Scoop*, 17 June, 2015

### Autistic children improved reading, brain activity after 10-week reading intervention

“Ten weeks of intensive reading intervention for children with autism spectrum disorder was enough to strengthen the activity of loosely connected areas of their brains that work together to comprehend reading, researchers have found.”

[Click here](#) *Science Daily*, 23 June, 2015

### **Researchers unravel a link between a genetic mutation and autistic behaviors - and then find a way to undo it**

“Scientists at the University at Buffalo have identified the mechanisms behind a genetic mutation that produces certain autistic behaviors in mice, as well as therapeutic strategies to restore normal behaviors .”

[Click here](#) *University at Buffalo News*, 28 May, 2015

### **Parent coaching may allay problem behaviors in autism**

“Although the findings need to be replicated, they raise hopes for a much-needed alternative to drugs for difficult behaviors in children with autism. By learning to spot and sidestep certain triggers, parents may be able to ease aggression and self-injury in their children without having to worry about side effects”

[Click here](#) *Simons Foundation*, 19 May, 2015

### **Lopsided brain activity marks motor deficits in autism**

“Uneven wiring in the brain’s motor circuitry predicts movement difficulties in children with autism, according to unpublished research presented yesterday at the 2015 International Meeting for Autism Research in Salt Lake City, Utah”

[Click here](#) *Simons Foundation*, 15 May, 2015

### **Autism: Value of an integrated approach to diagnosis**

“Researchers have combined three clinical, neuro-physiological and genetic approaches in order to better understand the brain mechanisms that cause autism.”

[Click here](#) *Science Daily*, 19 June, 2015

### **Youth on the autism spectrum who are overly sensitive to sensory stimuli brains react differently than youth who are not as affected by such stimuli**

“Using functional magnetic resonance imaging, a team of UCLA researchers has shown for the first time that children with autism spectrum disorder (ASD) who are overly sensitive to sensory stimuli have brains that react differently than those with the disorder who don't respond so severely to noises, visual stimulation and physical contact.”

[Click here](#) *Medical News TODAY*, 11 June, 2015

### **Individuals with social phobia have too much serotonin**

“Previous studies have led researchers to believe that individuals with social anxiety disorder/social phobia have too low levels of the neurotransmitter serotonin. A new study carried out at Uppsala University, however, shows that the situation is exactly the opposite. Individuals with social phobia make too much serotonin. The more serotonin they produce, the more anxious they are in social situations.”

[Click here](#) *Medical News TODAY*, 11 June, 2015

### **Some behavioral problems in autism may stem from poor health**

“Many children with autism have gastrointestinal problems, seizures and sleep disorders. A new study, published 24 May in Autism Research, suggests that these seemingly disparate conditions are interconnected and may lead to the children’s behavioral issues.”

[Click here](#) *Simons Foundation*, 11 June, 2015

## Brain structure abnormalities predict repetitive behaviors

“Among babies who go on to receive a diagnosis of autism at age 2, alterations in brain structures forecast the severity of repetitive behaviors.”

[Click here](#) *Simons Foundation*, 26 February, 2015

## A Study finds many kids with delays need help with autism symptoms

“Our study demonstrates the importance of recognizing autism-related challenges among different types of children, including those with or without an autism diagnosis,” says lead author Lisa Wiggins. “Recognizing autism symptoms in early childhood may encourage interventions catered to the individual child and help researchers learn more about the various ways autism develops.”

[Click here](#) *Autism Speaks*, 17 June, 2015

## Longitudinal brain changes during transition from adolescence to adulthood found in ASD

“The atypical trajectory of cortical/brain development in autism spectrum disorder extends well beyond young childhood and into late adolescence and young adulthood ...”

[Click here](#) *Science Daily*, 11 June, 2015

## Primary care doctors unprepared to help adults with autism

“A survey of nearly 1,000 primary care physicians and other healthcare professionals across the U.S. found that most of them don’t have the training needed to care for adults with autism. ”

[Click here](#) *Simons Foundation*, 10 April, 2015

## Adults with autism are at risk for host of health problems

“Adults with autism are at an increased risk for diabetes, depression and a number of other health problems, according to a large survey of electronic health records published 24 April in *Autism*”

[Click here](#) *Simons Foundation*, 16 May, 2015.

## Family genetics study reveals new clues to autism risk

“A study of almost 2,400 children with autism, their parents and unaffected siblings has provided new insights into the genetics of the condition.”

[Click here](#) *Science Daily*, 12 May, 2015

## Large study quantifies high risk of autism for 'baby sibs'

“One in every five younger siblings of children with autism will end up being diagnosed with the disorder, according to the largest analysis to date of these ‘baby sibs.’”

[Click here](#) *Simons Foundation*, 15 May, 2015

## New study shows boys will be boys—sex differences aren't specific to autism

“Messinger said. “Children with ASD show typical differences between boys and girls, even though - by virtue of having ASD - they clearly have higher symptoms and cognitive difficulties ... Our results are important because they show that naturally occurring sex differences characteristic of all children are behind the sex differences we see in autism.”

[Click here](#) *Medical Xpress*, 9 June, 2015

### Researchers provide further insight into male bias of autism

“Autism spectrum disorder is more prevalent among males than females, with studies frequently reporting a 2:1 or 3:1 male to female bias. While the causes of this bias are still unknown, a series of new studies have revealed new insights into how the different genders affect the condition.”

[Click here](#) *Medical News TODAY*, 14 May, 2015

### Brain structure abnormalities in autism vary by gender

“A region of the brain involved in recognizing faces appears to be thinner than usual in women with autism and abnormally thick in men with the disorder”

[Click here](#) *Simons Foundation*, 16 May, 2015

### Differences in RORA levels in brain may contribute to autism sex bias

“ ... females without autism have a slightly higher level of RORA in the frontal cortex of the brain than males without autism, while the levels of the protein are comparably lower in the brain of both males and females with autism.”

[Click here](#) *Science Daily*, 27 May, 2015

### Power of girls to thwart autism shows up in sibling study

“Children whose older sisters are on the spectrum are at higher risk for autism than are those with affected older brothers, suggests a new study. The study also found that younger brothers of children with autism are at greater risk than younger sisters”

[Click here](#) *Simons Foundation*, 28 May, 2015

### Boys with autism inherit mutations from unaffected mothers

“Rare inherited mutations contribute to autism in about 10 percent of boys with the disorder, suggests a study published 11 May in *Nature Genetics*. These genetic glitches are primarily passed down from unaffected mothers, consistent with the idea that women are somehow protected from the disorder.”

[Click here](#) *Simons Foundation*, 1 June, 2015

IF YOU HAVE ANY FRIENDS OR OTHER CONTACTS WHOM YOU BELIEVE WOULD BE INTERESTED IN THIS PUBLICATION, PLEASE ASK THEM TO SEND THEIR EMAIL ADDRESS TO [atactas@gmail.com](mailto:atactas@gmail.com) AND WE WILL ADD THEM TO OUR MAILING LIST. THIS IS A FREE SERVICE.

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