"Autism Spectrum Disorders:
An Update of Federal Government Initiatives and
Revolutionary New Treatments of Neurodevelopmental Diseases "

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Autism, The Misdiagnosis of Our Future Generations

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Over the last 15 years, the incidence of Autism has rapidly increased in the industrialized nations with the United States and the United Kingdom having the sharpest rise.

> *The incidence of Autism has increased from approximately 1 in 10,000 in 1990 to 1 out of 166, representing over a 5,700% increase in just the last 15 or so years. In some states, the incidence is now 1 in 80 and we now have over 1.5 million children diagnosed with Autism in the United States.*

A lot of attention has been given regarding the link between mercury and autism, with mercury being the possible factor underlying the etiology of this condition. The issue of whether mercury plays a role in Autism or other neurodevelopmental disorders has been the subject of long debate and extreme political discourse but the evidence is overwhelmingly obvious to even the simplest of intellects, once the data is objectively reviewed.

The prevalence of mercury in our society is endemic in nature. The association of mercury with chronic disease in the US "medical literature" exists but is very anemic. However, when searching under Toxline under the Agency for Toxic Substances and Disease Registry (ATSDR), a division of Centers for Disease Contorl (CDC), one finds all scientific literature which also includes didactic literature, NOT just the "medical literature". Not surprisingly to advanced researchers and physicians, the association of mercury to chronic diseases is well documented in the didactic scientific literature.

The search for the association between mercury and cardiovascular disease, the number one killer in the industrialized world, revealed 358 scientific papers exemplifying the relationship. The search for the association between mercury and cancer, the number two killer in the industrialized world at the time of this writing, revealed 643 scientific papers exemplifying the relationship. Both of these conditions represent 80% cause of all deaths in the industrialized world, according to the WHO (World Health Organization) as published in 1998. But the association of mercury with neurodegenerative diseases is the most significant, with the references numbering 1445.

The inevitable question is how do we get exposed to mercury? The sources surround us, from mercury amalgams in our teeth, to the contamination of our water sources, inhalation of combustion from fossil fuel, fish that we consume, contaminated water supplies, virtually all vaccinations, and via breast milk, just to name a few. So if mercury is so devastating, why is it allowed to be in our flu shots, vaccines, foods, etc.? This is the "million dollar" question, although it is quite evident to the well informed that the answer will be found somewhere along the money trail.

Increased exposure to mercury through thimerosal containing vaccines is one of the most important issues at hand. Thimerosal (also known as Marthiolate sodium, Mercurothiolate, Thiomersalate and a host of other names) is the common name of a substance known as ethyl mercurithiosalicylic acid. The overburdening knowledge that thimerosal is converted to ethyl mercury (a substance reportedly hundreds, if not a thousand times more destructive than inorganic mercury) in less than one minute after being introduced into the body, should give great concern to those appointed to protect the public. Yet, it is virtually ignored. Why is this highly toxic substance still allowed to be a constituent of our vaccines used to inoculate our precious children, our own future generations?

For example, the MSDS (material safety data sheet) on thimerosal from Eli Lilly, documented on their own letter head as far back as July 13, 1991 clearly states that thimerosal is a "product containing a chemical known to the State of California to cause birth defects or other reproductive harm". Yet Eli Lilly continues to use thimerosal in the manufacturing process for vaccines.

> *Further more, we inoculate our children starting on the day they are born, introducing multiple vaccines with exponentially higher contents of mercury (thimerosal) into their vulnerable and delicate physiologies, with full knowledge that their biliary systems are in a state of development for the first year of life and represent the primary method of normal mercury excretion in a non-challenged system. Under the heading of "Health Hazard Information", the Eli Lilly MSDS goes on to say:*
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> > ***"Effects, including signs and symptoms of exposure: Topical allergic dermatitis has been reported. Thimerosal contains mercury. Mercury poisoning can occur and topical hypersensitivity reactions may be seen. Early signs of mercury poisoning in adults are nervous system effects, including narrowing of the visual field and numbness in the extremities. Exposure to mercury in utero and in children can cause mild to severe mental retardation and mild to severe motor coordination impairment."***

However, the vaccine issue must not overshadow the cumulative mercury exposure experienced by the patient during gestation and early infancy. These additional exposures besides the vaccine history include but are certainly not limited to dietary mercury content, dental amalgam fillings which contribute greatly to the maternal mercury load, Rhogam (immunoglobulin) administration to mother during gestation, inoculations for tetnus toxoid, exposure to combustion of fossil fuels, water contamination, and mercuric compounds used in skin products.

There is absolutely no reason for the use of a mercury based preservative in the use of human vaccinations. Even the American Veterinarian Society had thimerosal removed from animal vaccinations due to the known toxicity of mercuric compounds over 15 years ago. Unfortuantely, as a society we are virtually ignorant to the severe biological burden which mercury places on our physiology.

The CDC reported findings from the NHANES study in 2003 regarding the disturbing fact that 1 out of 6 women of child bearing age were found to be toxic for mercury. It is a widely accepted fact that during gestation, the vast majority of nutrients are diverted to the fetus to support growth. As the nutrient and mineral supply is being shunted from the mother to the fetus, it should be intuitively obvious that all divertible substances including those that are beneficial and potentially harmful, will also be preferentially diverted to the fetus. This was further confirmed at the EPA's National Forum on Contaminants in Fish when EPA biochemist Kathryn R. Mahaffey reported researchers in the last few years had conclusively shown mercury levels in a fetus's umbilical cord blood are 70 percent higher than those in the mother's blood. It becomes painfully clear that if 1 out of every 6 women giving birth in our country has toxic levels of mercury, some if not most of that mercury is being shunted to the developing fetus. The maternal mercury load therefore must significantly contribute to the prenatal mercury levels, even more disturbing when recognizing and accounting for the exponentially devastating effect this concentrated mercury shunting would have on a developing brain.

Furthermore, according to an "Autism Alarm Release" reported in early 2004 by the US Department of Health and Human Services (DHHS), the Centers for Disease Control (CDC) and the American Academy of Pediatrics, one of out ever 6 children born in the United States suffer from some type of developmental disorder and/or behavioral problem. It does not take a proverbial "rocket scientist" to make a correlation between the 1 of 6 children having neurological problems and 1 of 6 mothers being mercury toxic. Virtually all neurological issues with children that occur post partum are associated with some level of mercury, including, but not limited to ADD, ADHD, PDD and ASD.

On July 14, 2005, a well respected, privately funded, non-profit research organization known as the Environmental Working Group (EWG), released a report entitled "BodyBurden, The Pollution in Newborns". The EWG tested umbilical cord blood from newborn babies for 413 industrial chemicals, pollutants and pesticides and found 287 of these substances present in the samples obtained. Mercury was detected in all samples and of the 287 substances found, 180 are known to "cause cancer in humans or animals, 217 are toxic to the brain and nervous system, and 208 are known to cause birth defects or abnormal development in animal tests." Selected components of the executive summary of the report, felt to be pertinent, are provided below.

> ***"In the month leading up to a baby's birth, the umbilical cord pulses with the equivalent of 300 quarts of blood each day, pumped back and forth from the nutrient- and oxygen-rich placenta to the rapidly growing child cradled in a sac of amniotic fluid. This cord is a lifeline between mother and baby, bearing nutrients that sustain life and propel growth.***
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> ***Not long ago scientists thought that the placenta shielded cord blood — and the developing baby — from most chemicals and pollutants in the environment. But now we know that at this***

critical time when organs, vessels, membranes and systems are knit together from single cells to finished form in a span of weeks, the umbilical cord carries not only the building blocks of life, but also a steady stream of industrial chemicals, pollutants and pesticides that cross the placenta as readily as residues from cigarettes and alcohol. This is the human "body burden" — the pollution in people that permeates everyone in the world, including babies in the womb.

In a study spearheaded by the Environmental Working Group (EWG) in collaboration with Commonweal, researchers at two major laboratories found an average of 200 industrial chemicals and pollutants in umbilical cord blood from 10 babies born in August and September of 2004 in U.S. hospitals. Tests revealed a total of 287 chemicals in the group. The umbilical cord blood of these 10 children, collected by Red Cross after the cord was cut, harbored pesticides, consumer product ingredients, and wastes from burning coal, gasoline, and garbage.

Of the 287 chemicals we detected in umbilical cord blood, we know that 180 cause cancer in humans or animals, 217 are toxic to the brain and nervous system, and 208 cause birth defects or abnormal development in animal tests. The dangers of pre- or post-natal exposure to this complex mixture of carcinogens, developmental toxins and neurotoxins have never been studied.

Chemical exposures in the womb or during infancy can be dramatically more harmful than exposures later in life. Substantial scientific evidence demonstrates that children face amplified risks from their body burden of pollution; the findings are particularly strong for many of the chemicals found in this study, including mercury, PCBs and dioxins. Children's vulnerability derives from both rapid development and incomplete defense systems:

- *A developing child's chemical exposures are greater pound-for-pound than those of adults.*
- *An immature, porous blood-brain barrier allows greater chemical exposures to the developing brain.*
- *Children have lower levels of some chemical-binding proteins, allowing more of a chemical to reach "target organs."*
- *A baby's organs and systems are rapidly developing, and thus are often more vulnerable to damage from chemical exposure.*
- *Systems that detoxify and excrete industrial chemicals are not fully developed.*
- *The longer future life span of a child compared to an adult allows more time for adverse effects to arise.*

The 10 children in this study were chosen randomly, from among 2004's summer season of live births from mothers in Red Cross' volunteer, national cord blood collection program. They were not chosen because their parents work in the chemical industry or because they were known to bear problems from chemical exposures in the womb. Nevertheless, each baby was born polluted with a broad array of contaminants.

U.S. industries manufacture and import approximately 75,000 chemicals, 3,000 of them at over a million pounds per year. Health officials do not know how many of these chemicals pollute fetal blood and what the health consequences of in utero exposures may be. Had we tested for a broader array of chemicals, we would almost certainly have detected far more than 287. But testing umbilical cord blood for industrial chemicals is technically challenging. Chemical manufacturers are not required to divulge to the public or government health officials methods to detect their chemicals in humans. Few labs are equipped with the machines and expertise to run the tests or the funding to develop the methods. Laboratories have yet to develop methods to test human tissues for the vast majority of chemicals on the market, and the few tests that labs are able to conduct are expensive. Laboratory costs for the cord blood analyses reported here were $10,000 per sample.

A developing baby depends on adults for protection, nutrition, and, ultimately, survival. As a society we have a responsibility to ensure that babies do not enter this world pre-polluted, with 200 industrial chemicals in their blood. Decades-old bans on a handful of chemicals like PCBs, lead gas additives, DDT and other pesticides have led to significant declines in people's blood levels of these pollutants. But good news like this is hard to find for other chemicals.

The Toxic Substances Control Act, the 1976 federal law meant to ensure the safety of commercial chemicals, essentially deemed 63,000 existing chemicals "safe as used" the day the law was passed, through mandated, en masse approval for use with no safety scrutiny. It forces the government to approve new chemicals within 90 days of a company's application at an average pace of seven per day. It has not been improved for nearly 30 years — longer than any other major environmental or public health statute — and does nothing to reduce or ensure the safety of exposure to pollution in the womb.

Because the Toxic Substances Control Act fails to mandate safety studies, the government has initiated a number of voluntary programs to gather more information about chemicals, most notably the high production volume (HPV) chemical screening program. But these efforts have been largely ineffective at reducing human exposures to chemicals. They are no substitute for a clear statutory requirement to protect children from the toxic effects of chemical exposure.

In light of the findings in this study and a substantial body of supporting science on the toxicity of early life exposures to industrial chemicals, we strongly urge that federal laws and policies be reformed to ensure that children are protected from chemicals, and that to the maximum extent possible, exposures to industrial chemicals before birth be eliminated. The sooner society takes action, the sooner we can reduce or end pollution in the womb."

Mercury causes damage by various mechanisms which include: competitive and noncompetitive inhibition of enzyme activity by reversibly or irreversibly binding to active sulfur, binding at the sites off and displacing other divalent cations, like magnesium, zinc, copper, and manganese causing a disruption of enzyme systems, disrupting critical electron transfer reactions, and complexing molecules and inducing a change in structure or conformation which causes them to be perceived as foreign by the body's immune defense and repair system (hapten reactions) resulting in hypersensitivity that can potentiate or exacerbate autoimmune reactions. Mercury alters biological systems because of its affinity for sulfhydryl groups which are functional parts of most enzymes and hormones. Tissues with the highest concentrations of sulfhydryl groups include the brain, nerve tissue, spinal ganglia, anterior pituitary, adrenal medulla, liver, kidney, spleen, lungs heart and intestinal lymph glands. But most relevant to us for the purposes of this hearing is that mercury has been clearly shown to causes a denudation of the neurofibrils resulting in direct and devastating damage to the neuronal cells.

Children diagnosed with Autism suffer from acute mercury toxicity secondary to huge exposure while in utero (maternal amalgam load, dietary factors, maternal inoculations, Rhogam injections, etc.) and early on in life (vaccinations preserved with thimerosal, etc.). Adults diagnosed with Alzheimer's suffer from chronic, insidious mercury toxicity secondary to exposure over a long time (amalgam load, inhalation of mercury vapors, combustion of fossil fuels, dietary factors, etc.). By addressing and eliminating the mercury "spark", these secondary "fires" become far easier to clinically manage and the improvements realized from the treatment of the resulting imbalances become easier to maintain.

Children with Autism (mercury toxicity) have many resulting imbalances in their systems, including but not limited to significant allergies, opportunistic infections such as systemic

candidiasis, hormonal imbalances, gastrointestinal dysbiosis, immune dysfunctions such as immuno-suppression or significant allergies, nutritional deficiencies, etc. However these are what I refer to as the "fires" of autism. All these, and other "fires" of autism result from one major "spark". Mercury! Successfully addressing these "fires" will accomplish transient improvement but until the "spark" (mercury) that constantly re-ignites these "fires" has definitively been eliminated, any improvement will be short lived at best. Mercury is NOT the fire. It is however, the spark that ignites and constantly re-ignites these "fires". Mercury is the underlying common denominator and exacerbates the destructive nature of other metals and compounds, contributing in various ways to all the problems from which these children suffer.

Once again, the most relevant issue remains that mercury has clearly been shown to causes a denudation of the neurofibrils resulting in direct damage to the neuronal cells. In addition, mercury exposure leads to many secondary clinical problems resulting from the aforementioned mechanisms of damage, such as immunosuppression, allowing for opportunistic infections, allergies, GI dysbiosis, etc. Addressing all other issues in children with Autism or PDD is analogous to attempting to put out fires without addressing the cause of the fire itself. The fire will keep re-igniting unless the "spark" is eliminated. It is the elimination of this "spark", ie mercury, for which we now have an easy and effective solution. Along with some supportive therapies, Autism and certain other chronic neurodegenerative diseases such as Alzheimer's can be fully and permanently reversed if appropriately treated. This is NOT theory. It has already been clinically validated on a repetitive basis and the evidence is irrefutable.

The reason for some individuals to have severe damage from mercury where others do not have serious adverse neurological deficits extends due to various factors which include biological individuality and genetic predisposition. In addition, factors such as the type of toxicity exposure the individual was exposed to makes an enormous difference. Was it inhaled, ingested, injected or exposed on their skin? What type of mercury exposure did the individual receive? Was it organic or inorganic mercury? If it was organic, was it ethyl mercury or methyl mercury? How frequent was the exposure to the source of toxicity? Was there a significant maternal load present prior to birth? Was the situation exacerbated by the mother being inoculated, or having Rhogam administration either during gestation or even, prior to conception? How many vaccine administrations took place and over what period of time? What about the diet? How about the proximity to industrial sites, and exposure to combustion of fossil fuel? As you can see, the variables are extensive. But the treatment is essentially the same. The only difference is the extent of continuity of treatment.

First however, let us answer the question why some people are affected while others show no manifestations of mercury toxicity, despite living in the same environments. In our case, the discussion will be limited to mercury, which is considered to be the second most toxic metal known to man but this explanation is applicable to most other heavy metals as well. Most individuals exposed to mercury as well as other heavy metals, have the ability to at least begin the process of eliminating these heavy metals out of their system. But not everyone has this ability and the extent of variability in the ability of an individual to detoxify their systems will determine the severity of the symptoms of toxicity. Slides #10 to #14 show the typical individual who can get rid of mercury with appropriate treatments. Despite having been exposed to severe levels of mercury vapor, this patient named Robin T. was able to detoxify once

appropriately treated with DMPS. Her mercury level was almost 22 fold greater or 2200% more than what is considered to be safe but with appropriate treatments, her levels returned to normal and her symptoms of mercury toxicity resolved in a relatively short period of time.

However, patients with impaired detoxification pathways do not show similar results on testing. Their bodies are unable to release the mercury and/or other metals and on testing, the mercury does not appear. The basis of our treatment protocol for children diagnosed with autism was determined by my clinical observation that certain individuals were unable to detoxify mercury like the vast majority of people appear to have the ability to do so. Slides #16 to # 21 show the case of Karen D. who showed no appreciable levels of mercury despite appropriately being "challenged" with DMPS by two different physicians over a year apart. In Karen D.'s case, she could not detoxify her system effectively despite being treated appropriately with the correct diagnostic methods.

Karen D. was 34 years old when she presented to me with multiple complaints including pain, glactorhea (milk coming out of her breast), ataxia (abnormal gait while walking), dysphagia (painful swallowing), inability to articulate with a new onset of stuttering, arrhythmia, chest pain, myalgias (muscle aches), artharalgias (joint pain), hirtuism (facial hair), cephalgia (headache), insomnia (inability to sleep), fatigue, malaise (general feeling of sickness), depression, anxiety and suicidal ideations due to being unable to "live like this anymore." On presentation, the patient had notified me she had seen 16 other physicians in the previous 5 years and if I could NOT help her, she would "take care" of the problems herself because she could no longer live this way. The level of mercury measured during each of Karen D.'s tests was inversely proportionate to the amount of mercury remaining in her system. It is important to note that this patient received treatments every week but the test results were obtained only every 20 weeks. Despite this disparity between treatments and testing, we see a dramatic and steady increase in mercury levels on testing, directly correlated with significant clinical improvements and alleviations of symptoms.

Karen D. needed to have persistent treatment for a period of almost 2 years, as seen on slides #16 to #21. However, as you will notice, Karen's mercury levels continued to exponentially RISE until her last test which shows the results dramatically drop. What is most interesting is that as the test results revealed a consistently ***increasing*** level of mercury while the patient began to dramatically improve on a clinical basis. The reason the levels of mercury actually rose in each subsequent test, is that this testing method only determines how MUCH mercury and/or other metals we are able to remove. As treatment continued, we were effectively able to remove a greater quantity of mercury during each and every treatment.

The answer to the question of why some people are able to effectively release mercury and/or show absolutely no manifestations of mercury toxicity despite having lived in the same exact environments and had the same level of exposure to metals while others are severely affected with serious clinical manifestations, is not as difficult to answer as one would initially believe when the multiple variables are considered, which include the types of exposure, methods of exposure, duration of exposure, the biological individuality and genetic predisposition. Each one of these variables introduces numerous additional possibilities into the equation. For instance, if we discuss just the genetic predisposition for the inability to excrete metals, we are faced with

numerous possibilities. Drs. Michael Godfrey, et al, reported one such variable explaining the variability of individuals in detoxifying mercury in a landmark paper published in the Journal of Alzheimer's Disease in 2003, entitle "Apolipoprotein E Genotyping as a Potential Biomarker for Mercury Neurotoxicity".

> ***"Apolipoprotein-E (apo-E) genotyping has been investigated as an indicator of susceptibility to heavy metal (i.e., lead) neurotoxicity. Moreover, the apo-E epsilon 4 allele is a major risk factor for neurodegenerative conditions, including Alzheimer's disease (AD). A theoretical biochemical basis for this risk factor is discussed herein, supported by data from 400 patients with presumptive mercury-related neuro-psychiatric symptoms and in whom apo-E determinations were made. A statistically relevant shift toward the at-risk apo-E ε 4 groups was found in the patients (...0 001). The patients possessed a mean of 13.7 dental amalgam fillings and 31.5 amalgam surfaces. This far exceeds the number capable of producing the maximum identified tolerable daily intake of mercury from amalgam. The clinical diagnosis and proof of chronic low-level mercury toxicity has been difficult due to the non-specific nature of the symptoms and signs. Dental amalgam is the greatest source of mercury in the general population and brain, blood and urine mercury levels increase correspondingly with the number of amalgams and amalgam surfaces in the mouth. Confirmation of an elevated body burden of mercury can be made by measuring urinary mercury, after provocation with 2,3, dimercapto-propane sulfonate (DMPS) and this was measured in 150 patients. Apo-E genotyping warrants investigation as a clinically useful biomarker for those at increased risk of neuropathology, including AD, when subjected to long-term mercury exposures. Additionally, when clinical findings suggest adverse effects of chronic mercury exposure, a DMPS urine mercury challenge appears to be a simple, inexpensive procedure that provides objective confirmatory evidence. An opportunity could now exist for primary health practitioners to help identify those at greater risk and possibly forestall subsequent neurological deterioration."***

The Apo E genotype is just one example of the variable defining genetic predisposition for the inability to clear metals. For example, other genetic predispositions for the inability to clear metals besides Apo E would include a deficiency of MTHFR (methyl tetrahydrofolate reductase enzyme), glutathione reductase enzyme deficiency, or a broad spectrum methylation defect. But for each one of these defined components and biomarkers showing a genetic predisposition for the inability to excrete metals, there are probably a 100 other genetically influenced pathways and predisposition factors that modern science has simply not uncovered yet. And this is only relevant for the metals. Further confabulating variables introduced into the picture would include the persistent organic pollutants and the burden they invoke on the biological system, the extent of which has already been discussed.

Until the spark is eradicated, the fire will continue to re-start and damage the brain and result in further "fires" in vital areas such as the immune system. And the only solution for these non-eliminators is to effectively remove the mercury while repairing and enhancing the damaged elimination and detoxification pathways. It is important to note that this patient received treatments every week but the test results were obtained only every 20 weeks. Despite this disparity between treatments and testing, we see a dramatic and steady ***increase*** in mercury levels on testing, directly correlated with significant improvements clinically and alleviations of symptoms.

We started treating children with Autism first in 1996. By 1997, we were being referred patients by a pediatric neurologist, who was following a mutual patient and observed significant changes in the child's behavior after implementation of our treatments. However, by the end of 1998,

taking care of children with special needs proved more than I wished to handle. Although we had far better success than the traditional approach, our treatments had not been responsible for "normalizing" any children or returning them to a "neurotypic" state. The emotional component was also overwhelming, just having to deal with the pain and frustration of the parents of these children. As a result, we stopped accepting new patients with the diagnosis of Autism or any type of developmental delay before the start of 1999.

On January 25, 1999, my son Abid Azam Ali Buttar was born. By the time he was 14 or 15 months old, he was already saying "Abu" which means father in Arabic, and a few other words such as "bye bye". But by the age of 18 months, my son had not only failed to progress in his ability to speak, but had also lost the few words he had been saying. As he grew older, I began to worry more and more that he was suffering from a developmental delay. He exhibited the same characteristics that so many parents with children that have developmental delays have observed, such as stemming, walking on tip toes, and lack of eye contact. Sometimes I would call to him but his lack of response would convince me there must be something wrong with his hearing. Certain sounds would make him cringe and he would put his hands on his ears to block the obvious discomfort he was experiencing. He would spend hours watching the oscillation of a fan. But through all this, when he would make eye contact with me, his eyes would say, "I know you can do it Dad". The expression he would give me, for just an instant, would be that of a father encouraging his son.

The oceans of tears that I cried and the hours that I spent trying to determine what was happening to my son are no different than that of any other parent in the same situation. The only difference was that I was one of only a 190 some doctors throughout the US board certified in clinical metal toxicology. And if this was metal related as was a theory that I had read, I should know how to fix this problem. I tested him and re-tested him and tested him again, searching for mercury. Slides # 23 to 27 show the results of my son's test and how his system showed no appreciable levels of mercury. But the older he became, the more obvious it became that my son was not developing as he was meant to be developing. My son was not meant to be this way and that was the only one thing that I knew for certain. From the time Abie lost his speech which was around 18 months or so, until 36 months of age, he had absolutely no verbal communication except for the one syllable that he would utter, "deh", on a repetitive basis.

About the same time while desperately searching for the cause of the same ailment that had afflicted so many of my own patients previously, I had been invited to present a lecture regarding some of our research on IGF-1 and the correlation with cancer. I had notified the conference that I was too busy to present this lecture but when I learned that Dr. Boyd Haley was also scheduled to present at this conference, I changed my schedule and agreed to lecture just so I could meet and discuss my son's situation with Dr. Haley. That meeting turned out to be one of the key elements which resulted in our development and subsequent current protocol for treating children with autism, autism like spectrum and pervasive developmental delay. My son was the first one who went through this protocol once safety had been established. Dr. Haley told me of a study that had at the time, not yet been published.

Just before the turn of the century, Holmes, Blaxill and Haley did a study assessing the level of mercury measured in the hair of 45 normally developing children versus 94 children with

neurodevelopmental delays diagnosed as Autism using DSM IV criteria. The finding showed that the Autistic children had 0.47 parts per million of mercury in their hair where as the normally developing children had 3.63 parts per million, more that 7 times the same level of mercury as the Autistic children. Opponents of the mercury-neurodegeneration camp used this opportunity to state that this study clearly showed that mercury had NOTHING to do with Autism or any other neurodegenerative condition. However, they completely missed the point of the study. For the reader, the conclusion of the study is obvious, and in part, is reproduced below.

> ***"The reduced levels of mercury in the first baby haircut of autistic infants raise clear questions about the detoxification capacity of a subset of infants. Despite hair levels suggesting low exposure, these infants had measured exposures at least equal to control population, suggesting that control infants were able eliminate mercury more effectively. In the case of autistic infants, those in our sample were exposed to higher levels of mercury during gestation, through dental amalgams or Rho D immunoglobulin injections in the mother. The addition of multiple postnatal exposures to mercury in childhood vaccines would have more severe consequences in infants whose detoxification capacity is reduced or who may be closer to a dangerous threshold exposure. In the case of control infants, mercury hair levels were strongly affected by exposure levels, suggesting that detoxification and excretion played an important role in ensuring normal development in children with elevate toxic exposure relative to peers. If reduced overall mercury elimination is related to hair elimination, then autistic infants will retain significantly higher levels of mercury in tissue, including the brain, than normal infants. In light of the biological plausibility of mercury's role in neurodevelopmental disorders, our study provides further insight into one possible mechanism by which early mercury exposures could increase the risk of autism.."***

These findings were published in the International Journal of Toxicology in 2003. Understanding these findings, along with my clinical experience with the case of Karen D. as previously detailed, led me to the conclusion that a more aggressive method of treatment was necessary compared to the DMSA and various other treatments I had to date employed in the attempt to document high levels of mercury in my son, which up to this point, had not been successful. The first two attempts with DMPS as a challenge treatment were unsuccessful, the first due to difficulty catching the urine since Abie was only 2 years old at the time, and the other due to loss of the urine specimen while being delivered to the laboratory. The third try with DMPS, which represented the 6th test we did on my son with all previous tests showing no appreciable levels of mercury, resulted in the findings on slide #29, the results that were reported to me on his 3rd birthday. His mercury level was over 400% that of safe levels. It is important to note that this level was only indicative of what we were able to "elicit or sequester" out of him. His actual levels were far greater.

I started Abie's treatments on his 3rd birthday, using a rudimentary version of the current TD-DMPS (DMPS in a transdermal base) that my partner, Dr. Dean Viktora and I had played around with a few years previously. By the age of 41 months, 5 months after initiating treatment with

the TD-DMPS, my son started to speak, with such rapid progression of his speech that his speech therapist was noted to comment how she had never seen such rapid progress in speech in a child before. Today at the age of 5, Abie is far ahead of his peers, learning prayers in a second language, doing large mathematical calculations in his head, playing chess and already reading simple 3 and 4 letter words. His attention span and focus was sufficiently advanced to the point of being accepted as the youngest child into martial arts academy when he was only 4. His vocabulary is as extensive as any 10 year old's, and his sense of humor, power to reason and ability to understand detailed and complex concepts constantly amazes me. This was the preliminary basis for the initiation of our retrospective study which came about as a result of the extraordinary results obtained in the treatment of my son Abie, and the subsequent treatment of 31 other children treated in the same manner.

The retrospective Autism study consisted of 31 patients with the diagnoses of autism, autism like spectrum, and pervasive developmental delay. Inclusion criteria was simple, including an independent diagnosis of the above mentioned conditions from either a neurologist or pediatrician, and the desire of the parent to try the treatment protocol using TD-DMPS. All patients reviewed had been sequentially treated as they presented to the clinic and only those patients whose parents who did not wish to be treated with the TD-DMPS were not included. As a side note, of all the parents presented with this option of treatment with DMPS, only one did not wish to be treated with DMPS. Some of the older children (over the age of 8) were treated with IV administration of DMPS and their data was obviously not included in this retrospective analysis. However, it's important to note how willing parents were to get their children better.

All 31 patients were tested for metal toxicity using four different tests: urine metal toxicity and essential minerals, hair metal toxicity and essential minerals, RBC metal toxicity, and fecal metal toxicity, all obtained from Doctor's Data Laboratory. These tests were performed at baseline, and repeated at 2 months, 4 months, 6 months, 8 months, 10 months, 12 months, and then every 4 months there after. All 31 patients showed little or no level of mercury on the initial baseline test results. Slide #37 shows an example of a baseline test result of one participant in the study showing very little mercury. In addition, all study patients had chemistries, CBC with differentials, lipid panels, iron, thyroid profiles and TSH drawn every 60 days. Further specialized testing also included organic acid testing (OAT test) from Great Plains Laboratory and complete diagnostic stool analysis (CDSA) from Doctor's Data Laboratory. If indicated, IgG mediated food allergy testing was also obtained but was not routinely performed.

Compared to the baseline results all 31 patients showed significantly higher levels of mercury as treatment continued. Slide #39 shows significantly higher mercury levels in this same study patient after two months of treatment with the TD-DMPS, with results showing approximately a 350% increase from previous baseline levels. The improvements in the patients in the study correlated with increased yield in measured mercury levels upon subsequent testing. Essentially, what was noted was that as more mercury was eliminated, the more noticeable the clinical improvements and the more dramatic the change in the patient.

The manifestations of this evidence for clinical improvements included many observations but were specifically quantifiable with some patients who had no prior history of speech starting to speak at the age of 6 or 7, sometimes in full sentences. Patients also exhibited substantially

improved behavior, reduction and eventual cessation of all stemming behavior, return of full eye contact, and rapid potty training, sometimes in children that were 5 or 6 but had never been successfully potty trained. Additional findings reported by parents included improvement and increase in rate of physical growth increased, as well as the child beginning to follow instructions, becoming affectionate and social with siblings or other children, seeking interaction with others, appropriate in response, and a rapid acceleration of verbal skills. The results in many of these children has been documented on video and other physicians involved with this protocol have been successfully able to reproduce the same results.

DMPS, or dimercaptopropane – 1 sulfonate, is a primary chelator for mercury and arsenic. Slide 42 shows the chemical structure of DMPS. DMPS has pitfalls as well as advantages. The pitfalls include oral dosing which is the usual recommended dosing because it is approximately 50% to 55% absorbed by the gastrointestinal mucosa. As a result of already compromised gastrointestinal function and dysbiosis noted in most of these children, there is also be a decreased absorption of the DMPS when dosed orally, and with the severe gut vacillations prevalent in our society, DMPS by mouth becomes impractical. Most of the children that have taken the DMPS orally for more than 1 week continuously, begin complaining of abdominal pain, cramping and other GI distress. We tried the oral DMPS for almost 6 weeks before eliminating it as a possible therapeutic method. Intravenous methods of application were not an option in children so young, although is the preferred method I have used in my clinical practice for my adult patients with mercury toxicity.

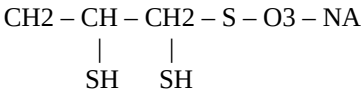
All study patients were also monitored for renal function, and mineral depletion. The key to success with this study was the constant and continuous "pull" of mercury by being able to dose it every other day and the compliance of patient and parents. Each patient was put on a protocol consisting of the transdermal DMPS (TD-DMPS). Transdermal DMPS is DMPS conjugated with a number of amino acids, delivered in highly specialized micro-encapsulated liposomal phospholipid transdermal base with essential fatty acids. The frequent dosing is one of the most important components of the TD-DMPS. It is important to note that DMPS is highly oxygen reactive and is very unstable when exposed to air. This and many other issues of delivery, stabilization, and oxidation have all been successfully identified and resolved over the last two years with the final result now pending patent. In addition, certain other components have been added to the TD-DMPS to potentiate the efficacy of treatment, such as the addition of various amino acids and glutathione.

There are a number of agents that have been demonstrated to have clinical utility in facilitating the removal of mercury from someone who has demonstrated clinical signs and symptoms of mercury toxicity. The most important part of this systemic elimination process, however, is the removal of the source of mercury. Once this has been completed, treatment for systemic mercury detoxification can begin. The following is a summary of the most effective agent with the best safety profile we have so far found (combination of GSH with DMPS) as well as the most commonly used agent (DMSA).

A. <u>DMPS</u>

1. The chemical name is Sodium 2,3 dimercaptopropane-1-sulfonate, this water soluble dimercaprol has 2 active sulfhydryl sites that form complexes with heavy metals such as zinc, copper, arsenic, mercury, cadmium, lead sliver, and tin.

2. The chemical structure of DMPS is:



3. DMPS was developed in the 1950's by the Soviets as an antidote for the chemical warfare agent Lewisite.

4. It became commercially available in 1978, being produced by the German pharmaceutical company Heyl.

5. There has been extensive research in both safety and effectiveness of this drug in the 50 years of its existence and it is now considered to be the most effective therapy for the treatment of mercury toxicity, as mercury is bound to sulfur groups throughout the body and is therefore difficult to remove. The sulfur groups on this compound readily unseat the mercury from its attachment to sulfur in our tissues, then this compound is excreted through the kidneys unchanged.

6. DMPS is widely available throughout the United States as a compounded bulk drug and has been recognized by the FDA in that capacity.

7. DMPS is very safe when used properly. Side effects are very rare, but may include allergic reactions such as skin rashes. Most important is to monitor and supplement with appropriate doses of zinc and copper as these minerals are bound readily by DMPS in the same way as it binds mercury. This should be done prior to commencement of any DMPS treatment regimen, then periodically throughout the process.

8. DMPS can be taken orally, as over 50% is absorbed. Most trained chelation physicians in the United States utilize intravenous challenges, whereas most European physicians will challenge with oral DMPS.

9. Currently, there are a number of different professional medical organizations that teach physicians the appropriate methods of effectively chelating toxic metals. These include the International College of Integrative Medicine, American College for Advancement of Medicine and Integrative Therapeutics in Anti-Aging to name a few. These organizations periodically conduct workshops on mercury toxicity specifically with emphasis on both basic science knowledge and clinical evaluation and treatment.

10. With the increased concern of mercury toxicity as an environmental health threat and in recognition of the need to increase basic science research and clinical treatment of heavy metal toxicity, the American Board of Clinical Metal Toxicology (ABCMT)

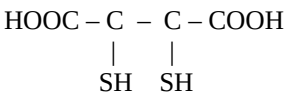
was recently formed as an evolution of the American Board of Chelation Therapy. This Board will now expand greatly the educational opportunities for physicians interested in this health problem and offer certification procedures that will expand even further the work that has already been done. ABCMT will certify physicians as being competent and proficient in clinical removal of heavy metal toxicity.

11. As a result of the work of these organizations, a general protocol for the use of DMPS has been established which most certified physicians follow.

B. <u>DMSA</u>

1. 2,3 dimercaptosuccinic acid is also a dithiol, like DMPS, and therefore is more effective than EDTA in removing mercury.

2. Structure:



3. This chelator is an oral agent that is reportedly effective in removing both lead and mercury and is used frequently to treat children.

4. DMSA removes mercury both by way of the kidneys, though urine, and the liver, through bile and then the intestines. It is however, only 20% absorbed through the gastrointestinal tract.

5. DMSA has several disadvantages relative to DMPS:
   a. DMPS remains in the body for a longer time than DMSA, therefore it is able to more thoroughly bind to mercury and eliminate greater amounts per treatment.
   b. DMPS acts more quickly than DMSA.
   c. DMPS is given intravenously, intramuscularly, or orally, and now, transdermally, while DMSA is strictly an oral preparation. Preliminary evaluation of DMSA transdermally showed no evidence of efficacy.

6. DMSA is now thought to be potentially harmful if used in patients with excessively high levels of mercury. Therefore, DMSA is recommended for use only late in the mercury elimination process after the peripheral tissue load of mercury has been reduced by DMPS.

In our observation, DMSA did not show efficacy in removing mercury or in clinical improvement in children diagnosed with autism or PDD. Slides #26 and #29 show a comparison in the effect of pulling out mercury, completed less than 30 days apart in my son's case. The yield of DMPS compared to DMSA for removal of mercury in this example was 10 to 1. There is an intriguing explanation provided by Boyd Haley, DSc, to support my clinical observations to the lack of efficacy observed with the use of DMSA in treating children with autism and developmental delays. DMSA stands for dimercapto-succinic acid. Succinic acid is a major

substrate in the citric acid cycle and DMSA is an analog of succinic acid with the only difference consisting of two sulfer groups in DMSA versus two hydroxyl groups (OH-) in succinic acid.

Therefore, DMSA would most likely act as an inhibitor of the enzyme in the citric acid cycle that uses succinic acid as a substrate. This would result in DMSA actually acting as a competitive inhibitor of succinic acid and in turn, would lead to a slowing down of, or inhibition of the citric acid cycle. Succinate produces FADH2 which is directly coupled to the electron transport chain and leads to ATP production. The competitive inhibition of this succinic acid by DMSA would thus, eventually result in an inhibition of ATP production leading to decreased energy utilization causing a significant burden and impaired ability of the physiological system to function correctly.

In our clinical experience, the only effective method that has resulted in the consistent, slow and safest method of removal of mercury resulting in the elimination of this "spark" in the pediatric population is the TD-DMPS that was originally formulated only for the purposes of treating my son's developmental delay. Since it's implementation, we have now successfully treated scores of patients, many of whom have completely recovered but all of whom have improved since the implementation of this treatment. These results have been duplicated by other physicians involved with the care of patients with neurodegenerative disease processes.

Slide 47 shows a newspaper article in the Charlotte Observer with a picture showing one of my patient's mother administering transdermal DMPS to her son's forearms. Slide 48 gives more information on metal toxicity and represents the focus of the majority of my post graduate medical career revolving around the issue of the effective clinical treatment of heavy metal toxicity.

Summary:

The underlying common denominator in chronic neurodegenerative disease seems to be either decreasing vascular supply (less blood to the brain) or accumulation of heavy metals, specifically mercury. The inability of an individual to eliminate toxic metals, especially mercury, is directly related to the level of neurodegeneration experienced. In the young patient population suffering from autism or pervasive developmental delay, the vascular supply is not an issue. The underlying pathology of children with autism and the geriatric population with Alzheimer's is of the same etiology, specifically mercury toxicity.

Both these patient populations suffer from the inability to excrete mercury as a result of a genetic predisposition resulting from various factors. This allele appears to be associated with the inability to get rid of mercury from the system. If these patient populations inhabited a complete mercury free environment, they would not have the problems associated with autism or Alzheimer's. When the mercury is successfully removed from their systems, these individuals begin to significantly improve due to a cessation of the destruction and denudation of the neurofibrils, as evidenced by steady improvement in cognitive function.

Mercury is the "spark" that causes the "fires" of autism as well as many other neurodegenerative diseases including PDD, ADD, ADHD and Alzheimer's. Autism is the result of high mercury

exposure early in life versus Alzheimer's where there is a chronic accumulation of mercury over a life time. A doctor can treat ALL the "fires" but until the "spark" is removed, there is minimal hope of complete recovery with most realized improvements being transient at best. Mercury is the underlying common denominator of all the problems from which these children suffer due to impairment of their excretory pathways. And the only solution for these non-eliminators is to effectively remove the mercury while repairing and enhancing the damaged elimination and detoxification pathways. Concomitantly addressing the GI tract is vital if the goal of treatment is to achieve permanent recovery.

Once the process of mercury removal has been effectively initiated, the source of damage is now curtailed and full recovery becomes possible. Complete recovery can now be attained and further enhanced by utilizing various additional essential therapies including nutrition, hyperbarics, etc. It is my hope and prayer, along with the hopes and prayers of all clinicians who are cognizant of these facts, that the US Congress will act quickly and decisively and put an end to this legalized and tolerated mass modern genocide by outlawing the use of mercury based preservatives in all childhood and adult vaccines.

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Full submission of testimony with supporting data and references to follow.

For an updated power point presentation with audio, available from the internet, the reader can go to www.nomercury.org and click on the research tab on the left hand side of the page. Follow the link to the presentation.

Addendum:

Recently I was invited to present at an Autism conference held in Verona, Italy, by Dr. Bergenti, a neurologist who heads the Public Health department in Verona. He shared with me that he "had to invite" me because he had witnessed with his own eyes the substantial clinical improvements in patients using TD-DMPS. These changes were also noted by other staff members including the other neurologists and psychologists on his staff. In order to insure a balanced program, he also invited a reportedly well published pediatrician who was opposed to the idea of removing metals and routinely states that there is no "scientific evidence" supporting that mercury causes autism or even is a contributory cause. Fortunately for him, I was asked to present first so I could not respond to many of the absurdities and half truths stated during his lecture. But during the round table discussion that followed, all that needed to be said was said and it was clearly obvious by the enthusiastic response from the audience as to who they supported and with whom they agreed.

But what was most absurd, was that this reportedly well respected doctor who is well published, spent more than 30 minutes of his presentation quoting multiple epidemiological studies and various statistical data trying to convince the audience that a known neurotoxin injected into the body of new born babies was NOT responsible for causing neuronal damage. Think about that statement for just a second. My response to this physician was why don't doctors and researchers spend half the time used in defending the use of ethylmercury in the pediatric population, to effectively address the issues revolving around autism? If we did, we would have eradicated the poisoning of our children years ago. But instead, we spend an inordinate amount of energy conducting expensive studies, manipulating the data and jumping through statistical hoops to justify the use of mercury in humans, a substance considered to be the second most damaging substance known to man according to the Environmental Protections Agency (EPA).

The absurdity of inoculating a newborn with hepatitis B vaccine is a case in point that should make our regulatory bodies raise an eyebrow of concern while further infuriating the parents of children damaged by this iatrogenic and governmentally condoned act of mandatory vaccination. Hepatitis B, as even a 1st year medical student knows, primarily affects a select patient population with the highest risk in prostitutes, IV drug users and health care providers due to the exposure to blood products and exposure to this high risk population. It is also widely known and accepted that the Hepatitis B vaccination is only effective for 10 years. Are we really so concerned that our children will begin to prostitute themselves or start using IV drugs or for that matter, become a doctor or nurse during their first 10 years of life? The only reason that health care providers are inoculated for Hepatitis B in the first place is because they risk exposure to blood products of this high risk patient population while working in the hospital environment.

It is important to recognize that this argument is not the argument against vaccinations, but rather, one against the indiscriminant use and irresponsible manner in which vaccination programs have been implemented and promoted. This is an issue regarding a safe method of administering vaccinations at appropriate intervals against potentially destructive childhood pathogens to prevent childhood death. However, past track records show us that the vaccination program in our country has a history of improprieties and blatant mismanagement resulting in increased morbidity and mortality. An example of the above is clearly evidenced with the controversy surrounding whole cell pertussis vaccines versus acellular pertussis vaccines. Upon the advent of the acellular pertussis vaccine and cessation of the whole cell variety, the incidence of SIDS (Sudden Infant Death Syndrome) was dramatically reduced by 50%.

The viral, bacterial and fungal issues endemic in the autism spectrum disorder patients should come as no surprise to anyone. These microbes are opportunistic in nature and will certainly be found in any immunocompromised individual. Mercury has one of the most significant immunosuppressive effects of any substance found in nature and when combined with other metals, the destructive nature increase exponentially. It should come as no surprise that when you inject an immunosuppressive agent such as mercury into an individual who already has an impaired ability to eliminate (detoxify) such a toxic substance, and then you add an attenuated virus (vaccine), you will provide the perfect opportunity for this weakened virus to set up house. I believe that if you check these children diagnosed with ASD further, you will find other

significant biological burdens such as spirochetes, mycoplasma and parasites along with the increased viral, bacterial and fungal load.

The chronic nature of heavy metal accumulation within the biological system and the resulting implications are simply not recognized by the vast majority of the medical profession. Furthermore, the synergistic destructiveness of these heavy metals is completely unappreciated by conventional toxicologists. For example, a study published in the Journal of Toxicology and Environmental Health in 1978 by Schubert, Riley and Tyler showed the LD 1 of lead and LD 1 of mercury in the same population was 100% fatal. In order to appreciate the meaning of this study, it is necessary for the reader to understand some background information first.

LD stands for "lethal dose" and is measured from 1 to 100. An LD 7 of substance X would therefore indicate the amount of substance X necessary to kill 7 out of a 100 people to whom substance X was administerd.. An LD 73 of substance Y would thus indicate the amount of substance Y necessary to kill 73 out of a 100 people. What Schubert et al. showed was that if you take an LD 1 of lead (ie, sufficient amount of lead to kill one out of a 100 people) and an LD 1 of mercury (ie, sufficient amount of mercury to kill one out of a 100 people) and put both these into the same 100 patient population, you will kill all 100 individuals. The destructive nature of these metals and the synergistic nature of their induced damage gives the reader an idea of how truly dangerous these heavy metals can end up being.

For those who do not believe what you have read, your skepticism is understood. You've been told that if something sounds too good to be true, it usually is. But in the rare case, sometimes it IS true. This is one of those times. Do not believe everything you hear or read. I do not expect you to take my word for it. In fact, you should not believe anything that anyone says, including me. Chances are that if you were personally affected by what you have read, you are already a victim of listening and believing someone else that mercury amalgams in your teeth were safe or the vaccinations for your children were safe. If you have been personally affected, then you, of all people, should know the price of listening to the wrong information. Search for the truth yourself and be careful as to who you choose to believe.

For those who are in a position of influence such as doctors, governmental officials and public leaders, remember that your words carry more weight and the public is depending on your honesty and your knowledge. If you are not knowledgeable, do not speak and confuse those whose lives are being affected. But if you do give misinformation, be forewarned. You risk your own reputation and your stature as the public is more and more made aware of the truth.

For video evidence or to obtain further information, the reader is invited to go to either www.drbuttar.com or www.nomoreautism.com and view the proof with your own eyes. Look at the videos of children diagnosed with autism before treatment and after treatment and reach your own conclusion.