

Symptoms Caused by Lead Poisoning ARE Reversible

The Flint Michigan, lead-poisoning crisis brings a serious health problem to the foreground which had been brewing for decades, especially in many American cities. Lead poisoning and toxic metal poisoning in general is a causal factor in a wide range of psychiatric and medical problems. Prevention of lead exposure through public health environmental and occupational remediation efforts has resulted in significant improvements in overall lead poisoning, but for those who incur psychiatric and medical disorders as a result of lead poisoning, very few detoxification or other treatment options exist in the US Healthcare System other than supportive pharmacological interventions to modify symptoms.

If lead causes significant medical and psychiatric symptoms, why are treatments which detoxify lead not widely promoted or available? The answer to this perplexing issue stems from studies such as the randomized, double-blind, placebo-controlled TLC study¹ which compared the effects of lead chelation with the drug Succimer, also known as DMSA. DMSA is a standard and well-accepted medical treatment for lead poisoning, as it binds to heavy metals and removes them from the body. The TLC study demonstrated that DMSA was successful in marginally lowering lead levels. Since lead toxicity is well-known to lower IQ scores, impair neuropsychological function, to adversely affect behavior, cause AD/HD and other childhood spectrum disorders like autism, stunt physical growth and raise blood pressure, one might expect that the lowering of lead levels would result in improvements in these symptoms and conditions.

But unexpectedly, the TLC study reported that there was no improvement in these conditions after 3 years of DMSA treatment, even though lead levels themselves were found to be lowered. The TLC study unfortunately led to a

1 <http://www.niehs.nih.gov/research/atniehs/labs/epi/studies/tlc/index.cfm> This study was sponsored by the Kennedy Krieger Institute (KKI) and the National Institute of Environmental Health Sciences (NIEHS), a division of the National Institutes of Health

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general consensus throughout the medical community that since DMSA appeared to be ineffective, then all drug treatments, and for that matter, any therapeutic intervention that lowers lead levels will not reverse the untoward medical and psychiatric symptoms caused by lead poisoning. Therefore lead poisoning is assumed to be **irreversible!** And based on this specious conclusion, all efforts to address lead toxicity in the US have virtually exclusively been dedicated to the prevention of lead exposure.

Those of us in the integrative, functional and precision medicine community who routinely detoxify lead in our patients, and who most assuredly do witness the disappearance of and/or marked modification of the symptoms of lead-caused medical and psychiatric disorders as a result of our treatments, applaud such preventive efforts. However, the notion that chelation of toxic metals is ineffective in the reversal or elimination of the symptoms of lead caused medical or psychiatric disorders, **starkly contradicts** my 4 decades of clinical observations and that of my colleagues.

The conclusions of the TLC study about the clinical effectiveness of detoxification were also puzzling because they contradicted the findings of previous studies. As far back as 1964², DMSA had demonstrated improvements in clinical symptoms caused by lead toxicity. Neuropsychiatric improvements were found to occur with lead detoxification in a study published in 1984.³ And in 1993, before the TLC study commenced, DMSA was reported to successfully treat lead-toxicity-caused depression.⁴

² Simpson JA (1964) Response to treatment with chelating agents of anaemia, chronic encephalopathy, and myelopathy due to lead poisoning J. Neurol. Neurosurg. Psychiatr., **27**, 536.

³ Schottenfeld RS, Cullen MR (1984) Organic affective illness associated with lead intoxication. Am J Psychiatry. 141(11):1423-6

⁴ Frumkin H, Gerr F. (1993) Am J Ind Med. 24(6):701-6.

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One year after the TLC study was released, in 2001, a paper authored by Shannon et. al.⁵ entitled *Lead Poisoning Treatment - A Continuing Need*, published in the Journal Clinical Toxicology, pointed out many serious flaws in the TLC study. But over and above such study design flaws, it was later found that KKI performed low cost experimental scraping and vacuuming where children were to reside during the study and they did not apparently provide optimal lead abatement assistance. If so the study participants could have had ongoing significant exposure to lead while the study was underway, which would have undermined the effectiveness of DMSA and led to the unexpected lack of symptomatic improvements in lead-caused symptoms.

Studies and position papers⁶ were published which questioned if the experimental “cleaning” was enough to keep children safe, but that misses the point. Continued lead exposure during a well-funded clinical trial pollutes the data. The possibility of continued lead exposure could explain why the impaired IQ scores, impaired neuropsychological function and behavior problems, such as AD/HD and other childhood spectrum disorders like autism, stunted physical growth and elevated blood pressure did not improve in the TLC study.

In 2012, The Yost Legal Group filed a class action on behalf of the children enrolled in the TLC Study who were supposedly poisoned in the experimental properties used in the study. The case is working its way through the court system.

⁵ Shannon M et. al. (2001) Lead Poisoning Treatment—A Continuing Need (Commentary), *Clinical Toxicology*, 39(7), 661–663, Regional Center for Poison Control and Prevention Serving, Massachusetts and Rhode Island, Boston, Massachusetts

⁶© Buchanan DR, Miller FG (2006) Justice and Fairness in the Kennedy Krieger Institute Lead Paint Study: the Ethics of Public Health Research on Less Expensive, Less Effective Interventions, *Am J Public Health*. 96(5): 781–787.

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Even low levels of lead exposure has been shown to have an independent and enduring effect on neuropsychological development in childhood.⁷ Consequently, I have found that those who take lead treatment seriously and routinely provide such treatments are concerned with 2 kinds of lead levels in children; zero or not zero.

If the US Healthcare System has generally accepted the findings of flawed research like the TLC study, that all lead-lowering treatments don't work, then it is understandable why most conventional practitioners have concluded that even the measurement of lead levels is a relatively worthless diagnostic test. Why measure it if you are wasting your time trying to do anything about it?

Animal studies on lead toxicity tell a very different story. A study by Stangle⁸ published in 2007 in Environmental Health Perspectives, found that chelation does work after all, at least in rats – but interestingly when DMSA was given to non-lead toxic rats, it “Produces Lasting Cognitive Impairment.” This interesting finding will be discussed later. Even Vitamin C chelation therapy is effective in animal studies⁹.

In a study published in 2007, children tested in the original TLC were eventually shown to exhibit improvement, perhaps as a result of finally getting away from being continuously intoxicated with lead.¹⁰

⁷ Baghurst PA et. al. (1992) Environmental Exposure to Lead and Children's Intelligence at the Age of Seven Years-The Port Pirie Cohort Study, N Engl J Med, **327**:1279-1284

⁸Stangle DE et. al. (2007) Succimer Chelation Improves Learning, Attention, and Arousal Regulation in Lead-Exposed Rats but Produces Lasting Cognitive Impairment in the Absence of Lead Exposure, Environmental Health Perspectives, 115 (2), 201-209.

⁹ Barbary EA et. al. (2011) Treatment with vitamin C ameliorated the alterations in p53 and Bcl2 caused by lead-induced toxicity, Animal Biology **61** 111–125.

¹⁰ Bhattacharya A, Shukla R, Auyang ED, Dietrich KN, Bornschein R (2007). Effect of succimer chelation therapy on postural balance and gait outcomes in children with early exposure to environmental lead. Neurotoxicology 28, 686-695.

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“Long-term effect on locomotion and gait improved. In a subsample of 161 children in the TLC trial, children treated with Succimer performed better than the placebo group in locomotion and gait tests carried out when they had reached at least the age of 60 months, but it was uncertain how long these effects would persist.”

Studies¹¹ contradicting the TLC conclusions continued to emerge. Improvements were noted in visual memory performance, gross motor speed, and visual discrimination speed. And finally, in 2009, Bradberry et. al.¹² authored the seminal paper which is congruent with my clinical impressions of that of many of my integrative medicine colleagues. DMSA chelation does in fact work to improve the medical and psychiatric symptoms caused by lead toxicity.

“DMSA chelation therapy increased lead excretion on average by a factor of 12 and rapidly reversed lead related symptoms (largely neurological and gastrointestinal) in a case series of 17 lead-poisoned adults; these authors also reviewed effectiveness of DMSA.”

Below I will outline a far more comprehensive and rational plan than mere DMSA for lead detoxification. Since the conclusions of the TLC study have been shown to be questionable, and DMSA alone is effective in reversing lead-caused medical and psychiatric symptoms, and when this far more comprehensive and personalized treatment is understood, it should be obvious to the reader that policies which deny treatment to those who have been injured by lead toxicity are utterly irrational, dangerous and cruel. One hopes that at the end of the day, when the residents of Flint are again drinking relatively lead- and toxin-free water,

¹¹ Chuang HY, K.-Y. Chao KY, Tsai SY (2005) Reversible neurobehavioral performance with reductions in blood lead levels-A prospective study on lead workers, *Neurotoxicology and Teratology*, 27(3), 497–504.

¹² Bradberry S, Sheehan T, Vale A. (2009) Use of oral dimercaptosuccinic acid (succimer) in adult patients with inorganic lead poisoning. *The Quarterly Journal of Medicine*. 2009;102(10):721–732.

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and all of the media hype has died down, that rational voices will prevail. Unless the lead poisoned individuals in Flint are treated, many will indeed be doomed to irreversible chronic medical and psychiatric disorders.

Rationale of Lead Detoxification Treatment

DMSA is effective because of the molecular affinity of sulfur and with lead and many other toxins. The first two letters in DMSA or DM stands for “dimercapto.” Mercapto radicals or the free radicals derived from mercaptans are sulfur molecules attached to some other molecule. However, most experienced and knowledgeable clinicians like myself do not recommend beginning the detoxification of lead or other toxic metals with DMSA. DMSA and other relatively aggressive treatments can shock the autonomic nervous system by suddenly shifting toxic metals around in the body, and may even carry toxic metals deeper into the organs and the nervous system. This is another reason why the TLC study may have been ineffective.

A gentler and kinder approach is recommended. For centuries our ancestors have capitalized on this molecular affinity between sulfur and lead by detoxifying in hot, volcanic, sulfur water, which is still available today at hundreds of spas all around the world. Essentially, the sulfur in the water binds to the toxic metals in the largest organ in the body, the skin. Setting up your own sulfur spa can be done inexpensively at your home with Epsom salt baths. I recommend to my patients that they add a few cups of Epsom salts, which is magnesium sulfate, to a bath full of water that is sufficiently warm to cause sweating, and that they soak for about 30-45 minutes repeating it every day if possible.

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A multimineral supplement, 1-2 twice a day, is advised for those who use the Epsom Salt baths on regular basis, as many of the nutrient minerals are lost with the lead and other toxic metals.

The “skin on the inside,” the gastrointestinal tract, which like the “skin on the outside” of the body, is a surface tissue and actually was embryologically derived from the “skin on the outside.” To clean out the heavy metals on the inside skin (the GI tract), I recommend to my patients that they take other sulfur containing substances which, like Epsom salts, only penetrate a little ways and are generally not well absorbed and will not “drag” lead and other toxins through the GI tract into the bloodstream and deeper organs. Like the Epsom salt baths, the initial objective is to simply “wash off” the lead toxins on the surface of the GI tract with food supplements such as chlorella and spirulina, and seaweed foods like Dulse or Kombu.

For my patients, I use the analogy of the approach that housecleaners use to clean a very dirty house. They just make it livable first, get the job started, with a “surface cleaning,” and then later, the professional cleaners will do a deeper cleaning job to get the dirt under the sofas and behind the piano.

The rationale for this Phase I, surface cleaning approach, is that it pulls lead from the inside to the outside. This technique generates an osmotic pressure gradient across tissue planes allowing lead to flow from deeper tissues out to the surface. Generating an osmotic pressure gradient across tissue planes in the opposite direction, such as the prescribing of powerful chelators early in the clinical treatment, is clinically contraindicated as it can cause serious side effects and often results in a failure of lead toxicity treatments. Furthermore, the autonomic nervous system can become disturbed, and resists the mobilization of lead by

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attempting to keep lead sequestered in various tissues such as the fat to prevent lead from further damaging vital organs.

Clinically, it is important to understand that osmotic pressure gradients across tissue planes generates a flow of lead from deeper tissues such as the blood and lymphatics out to the surface, and later, the lowered blood and lymphatic concentrations of lead gradually generates an osmotic pressure gradient differential that “pulls” lead from the deeper organs out to the blood. This is the safe, effective and well-recognized way to begin the detoxification of lead out of the organs and the brain.

Novice clinicians have found out the hard way - that if they aggressively bind the lead with agents like DMSA in the beginning of treatment, THE LEAD CAN BE CARRIED BY DMSA INTO THE BRAIN, in the wrong direction from the outside to the inside. This is yet another reason that the TLC study failed to show clinical improvements and also why in the animal study noted above¹³, the subjects that did not have organ damage from lead, did worsen with DMSA. Some patients are very sensitive to this autonomic arousal caused by “pushing” lead deeper into the body and clinical judgment is needed to design treatment plans which go one phase at a time and are individualized to the pace of the patient’s capacity to detoxify.

If the patient’s response to Phase I appears to be uncomplicated, then after a month or so I recommend beginning Phase II and consuming higher doses of sulfur containing foods and supplements such as garlic, lipoic acid, MSM, NAC, parsley, onions etc. The health food store can provide additional

¹³ Stangle DE et. al. (2007) Succimer Chelation Improves Learning, Attention, and Arousal Regulation in Lead-Exposed Rats but Produces Lasting Cognitive Impairment in the Absence of Lead Exposure, *Environmental Health Perspectives*, 115 (2), 201-209.

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recommendations and I generally recommend the dosages listed on the supplement containers. However, if a sufficient Phase I “surface cleaning” has not transpired, premature entry into Phase II can cause side effects, which is simply an autonomic reaction to driving lead deeper into tissue planes and organs. The general mantra is “start low and go slow.” I have encountered patients who are not able to complete Phase I for 6 months.

During Phase II, the medication EDTA, another lead chelator, can usually be safely prescribed, as it generally does not penetrate across the blood brain barrier or into the organs and cause autonomic nervous system arousal, a reaction that DMSA is notorious for causing. However, if Phase I has not been completed, and the osmotic pressure gradients across tissue planes allowing a flow of lead from deeper tissues such as the blood and lymphatics to the skin and GI tract has not been completed, autonomic reactions even to EDTA can occur.¹⁴

After a month or so in Phase II, I generally recommend that my patients begin Phase III, by taking cilantro tinctures, one of the best chelators known. Cilantro penetrates very deep into organs, but like DMSA, runs the risk of pulling lead and especially mercury into the brain if it is used too early in the detoxification process.

The quarantining of lead and other dangerous substances into connective tissue, the brain, body organs and fat may pose clinical challenges to detoxification. Energy medicine approaches like acupuncture or AET (allergy elimination therapy) can help to free toxins up so that the various sulfur-based conjugation and chelation strategies can bind lead, inactivate it, make it more water soluble

¹⁴ (1995) Treatment guidelines for lead exposure in children. American Academy of Pediatrics Committee on Drugs. *Pediatrics* 96:155–160; 1995.

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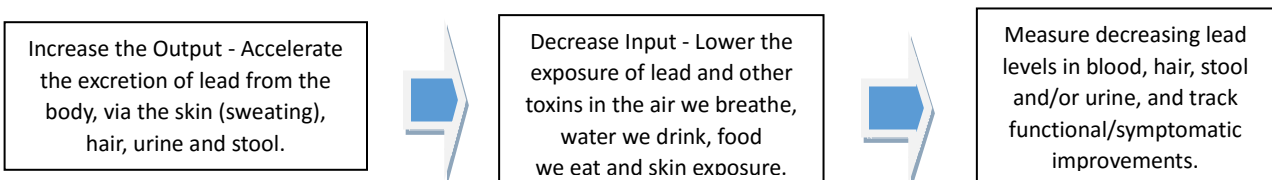
and facilitate excretion. Energy treatments appear to be helpful for lead detoxification in any phase of treatment.

Phase IV is reserved for those who have glutathione SNPs or single nucleotide polymorphisms which present obstacles to the normal detoxification process noted above. These glutathione SNPs should arouse clinical suspicion if Phase I, II and III are pursued and subsequent measurements of lead levels or the lead-caused medical and psychiatric symptoms do not abate. Three glutathione SNPs especially need to be circumvented so that the detoxification of lead described here can work.

Summary of Treatment Protocols

Phase 1

The removal of lead and other toxicants from the body is best done in stages. The process involves both the lowering of contact with lead (input), carefully monitoring levels in the body via laboratory testing, and gradually increasing the rates of excretion (output) according to the simple diagram below. This lead treatment protocol provides recommendations which I generally prescribe for my patients, but it can vary from person to person as care is personalized to the unique needs of each patient. Check with a healthcare professional before starting this or any treatment protocol.



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Phase I

1) During this Phase and all phases of lead detoxification, please make efforts to lower lead exposure (above diagram, left box). Your public health professionals excel in this area and can help you greatly mitigate and minimize further exposure to lead and other toxins.

2) As the content of any water we drink is subject to contamination at times, I recommend purchasing Zero Water units (<https://www.zerowater.com/>) , and the larger Zero Water pitchers come with a gauge which you can use to test the water you drink for potential pollutants. The water you drink should test zero TDS (total dissolved solutes).

3) Epsom salt baths. Lead and many other toxic substances naturally bind to sulfur, and Epsom salt (magnesium sulfate) baths can help to remove lead from the largest organ in the body, the skin. As explained in the video (<http://internationalacademyofprecisionmedicine.org/programs/lead-poisoning-treatment>) and above, soaking in bathwater which is warm enough to cause sweating for 30-45 minutes can be very effective in detoxification.

4) Along with this approach, the consumption of supplements and foods, such as Chlorella, Dulse, Nori, Kombu and Spirulina, (which are very nutritious foods in their own right), helps to remove toxic metals from the GI tract.

Inexperienced clinicians who begin lead detoxification services for their patients soon discover that an aggressive approach can markedly worsen the symptoms caused by lead toxicity. As described above, this paradoxical effect occurs because many agents which bind to lead and other toxins “drag” them into the body and even into organs, which is the wrong direction and can cause toxicity

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and autonomic reactions. This is also the reason that many dentists do not like to remove mercury fillings. Without taking the special precautions that biological or holistic dentists take, the symptoms can be made much worse.

Use of Epsom Salt baths and sea vegetables, both of which do not appreciably penetrate into deeper tissues, can perform a “surface cleaning.” This sets up a gradient of concentration from deeper tissues to the surface, and begins the flow outward, as opposed to binding toxins and carrying them into deeper tissues. Phase I should be used for about 4 weeks in preparation for Phase II, but this time period can vary markedly from patient to patient.

Antioxidant therapies¹⁵ are generally helpful in all stages of lead detoxification. Lead and all toxins are generally pro-oxidants and they tend to “steal” electrons for healthy tissues and create oxidative stress. Much of the individualized vulnerability to oxidative stress is based on genomic variables, so higher doses of Vitamin C (2000 mg. twice a day) and sometimes up to bowel tolerance are recommended. Berries are important to include in the diet as they have very high ORAQ values.

Phase 2

- 1) Everything that is recommended in Phase I should be continued during Phase II, which can often begin approximately 4 weeks after starting Phase I.
- 2) During Phase II a wide selection of sulfur foods, supplements and herbal preparations can be used. Even if lead is bound to the sulfur molecules in normal tissues, such as 3 of the 25 or so sulfur amino acids (cysteine, methionine and taurine), a constant state of turnover is in progress. Cells and

¹⁵ Gurer H, Ercal N (2000) Can Antioxidants Be Beneficial in the Treatment of Lead Poisoning? Free Radical Biology & Medicine, **29**, No. 10, pp. 927–945.

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tissues are continuously degenerating and regenerating and during this normal turnover process lead and other toxins become unattached from the tissues and cells they were bound to. If sulfur molecules are widely available from regular consumption sulfur-containing foods in the diet, they can bind to lead and other toxins before the lead has a chance to again react with the sulfur in normal tissues and cause harm. Once reacted, the toxin is relatively neutralized and becomes water soluble and flows out of the body via the urine, hair, stool and sweat.

Common sulfur-containing foods include parsley, onions, garlic and broccoli, so these should be consumed as much as possible. Common sulfur supplements which are regularly used to remove lead and other toxins include MSM (Methylsulfonylmethane), Vitamin C, thiamine (vitamin B1),¹⁶ NAC (N-acetyl cysteine)¹⁷ and ALA (alpha lipoic acid)¹⁸. Your health food store could offer many options at this Phase of lead detoxification.

3) Glutathione delivered orally or intravenously can be safely used in Phase II, but as it is expensive, it is often reserved as a Phase IV intervention to overcome certain genetic problems. As with EDTA, DMPS (2,3-Dimercapto-1-propanesulfonic acid), a prescribed chelating medication which is better known for its mercury removing effects, can also be used for lead. EDTA and DMPS are generally considered to be safer than DMSA because they do not cross cell membranes easily and therefore they have less potential to “drag” toxins deeper into the body and brain and generate autonomic reactions.

¹⁶ Kianoush S (2015) Recent Advances in the Clinical Management of Lead Poisoning, Med Iran **53**(6):327-336.

¹⁷ Gadea LV (2015) Efficacy Of N-Acetylcysteine 200 And 400 In The Treatment Of Lead Poisoning In Preschool Children, Informe Medico, **17** (2): 40 – 48.

¹⁸ Thuppil V (2012) Review Article - Future of Lead Chelation Distribution and Treatment JKIMSU, (2012), Vol. 1 (1) 6-23.

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Phase 3

All Phase 1 and Phase 2 approaches should be continued into Phase III which is simply the addition of Cilantro Tinctures (take as directed) and possibly DMSA (Dimercaptosuccinic acid), a prescribed chelation medication. Ideally, Phase I should have lasted about 4 weeks and Phase II should last about 4-6 weeks. Cilantro and DMSA penetrate deeply into tissues to dislodge lead. These are best prescribed intermittently, so that the autonomic nervous system gets a rest and does not begin to resist deeper detoxification. Also, lead has a chance to equilibrate as it slowly emerges from deeper tissues and organs. For instance, DMSA can be used for 1 week at a conservative adult dose of 100-200 mg. twice a day, then discontinued for a week. During the off week with DMSA, cilantro can be used. This one week on, one week off schedule staggering these 2 substances can be continued indefinitely until laboratory testing suggests that lead levels have fallen to zero.

Phase 4

If the above approaches are unsuccessful in removing lead or other toxins, you may have one or more genetic quirks that prevent normal detoxification. Genetic testing for 3 Glutathione SNPs (single nucleotide polymorphisms) may be needed.

This testing can be obtained at www.23andme.com and when you get the raw data, it can be converted with www.MTHFRsupport.com.

1) If testing reveals that you have homozygous GSS SNPs (Glutathione Synthetase) you may not be able to synthesize glutathione at a normal rate. The gene encodes for an enzyme which is the last step in the synthesis of glutathione, where glycine is attached.

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Glycine deficiency, (not cysteine as is often suggested), is the most important amino acid to supplement, and I usually recommend one heaping tsp a day of glycine powder for adults, dissolved in water. Glutathione is arguably the most important natural conjugator of lead and heavy metals. I usually recommend that individuals with these SNPs also take magnesium glycinate 500 mg. - 4 caps or tabs twice a day and use glutathione spray as directed. Quicksilver may be the best brand. Glutathione should be measured and tracked in the blood through laboratory testing if possible and if values persistently remain low, intravenous glutathione should be considered.

2) If gene testing reveals that you have homozygous GSR SNPs, you may not be able to convert glutathione back into its active form once it has served its other purpose as an antioxidant. Individuals with these SNPs can't remove lead adequately because their glutathione tends to remain in its oxidized, inactive state.

I usually recommend: high doses of Vitamin C (up to bowel tolerance, three times a day, start with 1000 mg. three times a day, and keep increasing until loose stools begin, then back off), selenomethionine 200 mg. twice a day and lots of berries added to the diet. Selenium is a mineral cofactor that assists this enzyme.

3) If you have homozygous or even several heterozygous GST SNPs, (GSTM1, GSTM3, GSTP1), you may have an inadequate ability to attach glutathione to lead and other toxins. These SNPs may be the most important, since even those who synthesize and reduce glutathione properly, will not be able to attach it to lead, mercury or other toxins appropriately. Clinically, we have noticed that individuals with

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these SNPs tend to be most prone to becoming toxic with heavy metals like lead.

Individuals with GST SNPs need DMSA, DMPS and all forms of sulfur supplementation to aggressively assist in the chelation process. These treatments may be needed earlier in treatment (Phase II) because without an ability to attach glutathione to the toxins like lead and mercury, excretion will be limited.

These 4 Phases in lead detoxification have been shown through years of clinical experience to be effective in the detoxification of lead. These treatments along with other supportive strategies for lead toxicity, such as essential fatty acid supplementation to repair the brain, antioxidant therapies, acupuncture and other energy therapies to assist in the release of lead, neurotransmitter replenishment with amino acid precursors, and alteration of genetic expression by addressing other important SNPs, has been shown in my clinical experience and that of others to remediate and even eliminate the disabilities caused by lead toxicity.

The Flint Michigan problem could be a wake-up call, because the lead poisoning problem is not isolated to just that community. If enough people can apply the information I am presenting here, perhaps we can begin a national dialogue to turn this tragedy into a blessing.

In the meantime, Flint Michigan citizens are going to need to take matters into their own hands, apply the advice given here, regularly check lead levels, or better yet, seek out an experienced, integrative medicine healthcare provider who does this kind of work. And if serious medical problems such as lead-induced hypertension does become an issue, I would advise caution about taking potentially toxic drugs to treat the symptoms caused by another toxic substance.

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I would also advise caution about drug treatments of psychiatric syndromes like AD/HD and childhood spectrum disorders, proven in many published papers to be caused by lead.

Of course, emergency situations may necessitate medication, but long term, sustainable solutions to lead toxicity entail a comprehensive approach as outlined here. Only rational lead detoxification treatments are capable of affecting healthy solutions to lead-caused medical and psychiatric disorders. Other toxic metals, like mercury, cadmium, arsenic and aluminum, which can complicate and worsen the effects of lead toxicity needs to be included in the assessment of lead poisoning.

Medical Disclaimer

The statements herein have not been evaluated by the Food and Drug Administration (FDA). Any products or information mentioned are not intended to diagnose, treat, cure or prevent disease, and are simply presented as an educational resource.