The New Agent Orange: Roundup Poisoning and an Epidemic of Auto-immune and Neurological Disease

Stephanie Seneff
MIT CSAIL
February, 2019

Download These Slides

“A truth’s initial commotion is directly proportional to how deeply the lie was believed... When a well-packaged web of lies has been sold gradually to the masses over generations, the truth will seem utterly preposterous and its speaker, a raving lunatic.”

- Dresden James
Outline

• Introduction
• The California lawsuit: Glyphosate and non-Hodgkin’s Lymphoma
• Glyphosate as a Glycine Analogue
• Autoimmune Disease Epidemic
• How Glyphosate Affects the Gut Barrier
• Glyphosate, MMR and Autism
• Molecular Mimicry
• A Failed System and a Growing Food Movement
• How to Safeguard Yourself and Your Family
• Summary

Introduction
“Something very wrong is going on, something that is killing good people and causing untold suffering to families and communities around the world. Never has such a high percentage of the population been afflicted with so many tragic and wasting illnesses. In the past thirty years, a group of diseases has reached epidemic proportions in the United States and many other countries. These afflictions, often collectively referred to as diseases of civilization (DOC), include multiple sclerosis, Alzheimer’s disease, breast cancer, lupus erythematosus, rheumatoid arthritis, melanoma, and autism - a once rare birth defect. Because the incidence of these diseases has increased gradually over three decades, we are inclined to accept this as a natural, if unfortunate, part of modern life. But such a lethal trend is not natural; the changes that we have witnessed over the last generation are unprecedented in the history of medical science.”

Woodrow C. Monte, PhD. While Science Sleeps. 2011

Roundup and GMO Crops

GMO Roundup-Ready corn, soy, canola, sugar beets cotton, tobacco and alfalfa

What is glyphosate?
Roundup as a Desiccant/Ripener just before Harvest

Wheat, Oats, Barley, Rye, Sugar cane, Beans, Lentils, Peas, Flax, Sunflowers, Pulses, Chick Peas

Glyphosate!!

• Glyphosate is now the #1 herbicide in use in the U.S. and is increasingly used around the world
  – Developed and patented by Monsanto in the 1970’s
  – Introduced into the US food chain in 1974
  – Came out from under patent in 2000
  – Inhibits an enzyme in the shikimate pathway involved in the synthesis of tyrosine, tryptophan and phenylalanine (the three aromatic amino acids)

• Huge expansion of GMO corn, soy, cotton and canola crops has led to sharp increases in the last two decades
Glyphosate vs. Other Pesticides: Usage in the United States*

Shikimate Pathway Disruption

Glyphosate

Phenylalanine, tryptophan, tyrosine

Neurotransmitters, thyroid hormone

vitamin K

folate

Shikimate

chorismate

glyphosate
Paper Showing Strong Correlations between Glyphosate Usage and Chronic Disease


Genetically engineered crops, glyphosate and the deterioration of health in the United States of America

Nancy L. Swanson¹, Andre Leu², Jon Abrahamson³ and Bradley Wallet⁴

¹ Abacus Enterprises, Lummi Island, WA, USA
² International Federation of Organic Agricultural Movements, Bonn, Germany
³ Abacus Enterprises, Lummi Island, WA, USA
⁴ Crustal Imaging Facility, Conoco Phillips School of Geology and Geophysics, University of Oklahoma, USA

Corresponding author: andreleu.al@gmail.com
In 2015, WHO IARC declared glyphosate a “probable carcinogen”

**Quote from the Conclusion**

“Although correlation does not necessarily mean causation, when correlation coefficients of over 0.95 (with *p*-value significance levels less than 0.00001) are calculated for a list of diseases that can be directly linked to glyphosate, via its known biological effects, it would be imprudent not to consider causation as a plausible explanation.”

List Compiled by Prof. Don Huber

Diseases Increasing in Incidence (Epidemic)
(after Fox, 2012; Antoniou et al., 2012; Samsel & Seneff, 2013; Swanson, 2013)

- Allergies, Asthma
- Alzheimer’s
- Arthritis
- Atopic dermatitis
- Autism
- Autoimmune diseases
- Bipolar, Autism deficit (ADHD)
- Birth defects
- Bloat (fatal)
- Bowel disease
- Cancer (some)
- Celiac disease
- Chronic fatigue syndrome
- Colitis
- Crohn’s
- Dementia
- Diabetes
- Diffuse diarrhea
- Gluten intolerance
- Indigestion
- Infertility
- Inflammatory bowel disease
- Irritable bowel disease
- Leaky gut syndrome
- Liver abnormalities
- Miscarriage
- Morgellon’s (NEW)
- Multiple sclerosis
- Obesity
- Pancreas abnormalities
- Sudden Infant Death Syndrome
- Parkinson

Decreasing IQ scores after 1975*

“scores increased by almost 3 percentage points each decade for those born between 1962 to **1975** -- but then saw a steady decline among those born after 1975.”

“What specific environmental factors cause changes in intelligence remains relatively unexplored.”

*Rory Smith, CNN.

Glyphosate was introduced on the market in 1975

Glyphosate in Human Urine: U.S. Southern California*

Glyphosate reduces sperm motility and sperm count*

*FO Owagboriaye et al. Experimental and Toxicologic Pathology 2017 Sep 5;69(7):461-468.

Glyphosate Damages Second Generation*

- Pregnant rats exposed to glyphosate starting at day 9 of gestation
- Two exposure levels (low, high), both levels considered to be safe according to regulators
- Neither the rats nor their offspring showed any obvious effects
- The second generation offspring from both exposed groups showed delayed growth, lower fetal weight and length and a higher incidence of abnormally small fetusus
- Most surprising: there were three cases (each from a different mother) among the second generation offspring with major fetal abnormalities (conjoined fetuses and abnormal limb development)

*MM Milesi et al. Archives of Toxicology June 9, 2018 [Epub ahead of print]
America’s Children are in Trouble!

- It is now "normal" for a kindergarten child to have 12 colds every year and for a baby to have nine
- Fourfold increase in childhood obesity
- Double the asthma rate since the 1980's
- "Chronic illnesses" rose from 1.8% in 1960 to 7% in 2004
  - Today, 43% of US children are chronically ill
- 1 in 6 children in the USA has a neurodevelopmental disability
  - 1 in 38 boys are autistic
- US has the worst neonatal death rate of all industrialized countries
- Today's children in the US will have a shortened life span compared to their parents

Source: http://www.vaccineviolence.com/

The California Lawsuit: Glyphosate and non-Hodgkin’s Lymphoma
Dewayne “Lee” Johnson vs Monsanto: Glyphosate & Non-Hodgkin’s Lymphoma*


Details of the Lawsuit*

- Johnson was a groundskeeper for the school district in Benicia, CA, just north of San Francisco.
- He was diagnosed with non-Hodgkin’s lymphoma (NHL) in 2014, at age 42.
- In 2015, WHO’s IARC classified glyphosate as "probably carcinogenic to humans"
- Donna Farmer, Monsanto’s "product protection lead" said in email to colleagues:
  – "You cannot say that Roundup does not cause cancer."
- Timothy Litzenburg, one of Johnson’s lawyers, said:
  – "so much of what Monsanto has worked to keep secret is coming out."

“We’re going to see for the first time evidence that nobody has seen before, evidence that has been in Monsanto’s files that we’ve obtained from lawyers and the people in Monsanto... I don’t think it’s a surprise after 20 years Monsanto has known about the cancer-causing properties of this chemical and has tried to stop the public from knowing it, and tried to manipulate the regulatory process.”

-- Robert F Kennedy, Jr.
Co-counsel for Johnson

“If we get a large award in this case, it could easily threaten the future financial viability of the company.”

-- Robert F Kennedy, Jr.
Co-counsel for Johnson
Monsanto Loses Landmark Roundup Cancer Trial, Set to Pay USD 289 Million in Damages

Monsanto has lost a landmark cancer trial in San Francisco and has been ordered by the judge to pay over USD 289 Million in total damages to the former school groundskeeper Dewayne Johnson, a California father who has non-Hodgkin's lymphoma, which was caused by Monsanto's glyphosate-based weedkiller Roundup.

Bayer Stock Prices

Johnson Verdict
Verdict Upheld in Higher Court: October 22, 2018

Damages reduced to $78 Million

Bayer to sell businesses, cut jobs after Monsanto deal*

“Chief Executive Werner Baumann is under pressure to boost Bayer’s share price after a drop of more than 35 percent so far this year, dragged down by concern over more than 9,000 lawsuits it faces over an alleged cancer-causing effect of Monsanto’s Roundup weed killer.”

Ludwig Burger

November 29, 2018

“In vitro evaluation of genomic damage induced by glyphosate on human lymphocytes”*

- In vitro exposure of human lymphocytes to glyphosate at levels of 0.5, 0.1, 0.050, 0.025 and 0.0125 μg/ml
- 0.5 is considered an "acceptable daily exposure level"
- Chromosomal aberrations and micronuclei frequencies were significantly high at all except the lowest exposure levels.


Lymphocytes are the cell type that transforms into cancer cells in non-Hodgkin’s lymphoma

*In vitro evaluation of genomic damage induced by glyphosate on human lymphocytes”*

- In vitro exposure of human lymphocytes to glyphosate at levels of 0.5, 0.1, 0.050, 0.025 and 0.0125 μg/ml
- 0.5 is considered an "acceptable daily exposure level"
- Chromosomal aberrations and micronuclei frequencies were significantly high at all except the lowest exposure levels.

Glyphosate as a Glycine Analogue

The Basics of Protein Synthesis

Template strand

DNA

Transcription

RNA

Translation

Glycine

Glyphosate
Glyphosate is a non-coding amino acid analogue of glycine

What If Glyphosate Could Insert Itself Into Protein Synthesis by mistake???

Any proteins with conserved glycine residues are likely to be affected in a major way.
What If Glyphosate Could Insert Itself Into Protein Synthesis by mistake???

Multiple species of microbes have independently solved the glyphosate problem in the shikimate pathway by mutating a specific glycine residue in EPSP synthase to alanine. This mutation forms the basis for the GMO Roundup-Ready crops.

Only Glyphosate Works!*

“More than 1,000 analogs of glyphosate have been produced and tested for inhibition of EPSP synthase, but minor structural alterations typically resulted in dramatically reduced potency, and no compound superior to glyphosate was identified.”

Hypothesis:
These other molecules failed to work as an amino acid analogue of glycine, because they were not amino acids.

*T Funke et al. PNAS 2006; 103(35): 13010-13015.
Quote from Monsanto Study (1989)*

- Study exposed bluegill sunfish to carbon-14 radiolabelled glyphosate
- Measured radiolabel in tissues greatly exceeded measured glyphosate levels
- Proteolysis recovered more glyphosate  
  – 20% yield → 70% yield

"Proteinase K hydrolyses proteins to amino acids and small oligopeptides, suggesting that a significant portion of the 14C activity residing in the bluegill sunfish tissue was lightly associated with or incorporated into protein.”


Some Predicted Consequences*

- Neurological diseases
- Neural tube defects
- Celiac disease
- Impaired collagen → osteoarthritis
- Steatohepatitis (fatty liver disease)
- Obesity and adrenal insufficiency
- Impaired iron homeostasis and kidney failure
- Insulin resistance and diabetes
- Cancer
- Autoimmune diseases

Some Predicted Consequences*

- Neurological diseases
- Neural tube defects
- Celiac disease
- Impaired collagen → osteoarthritis
- Steatohepatitis (fatty liver disease)
- Obesity and adrenal insufficiency
- Impaired iron homeostasis and kidney failure
- Insulin resistance and diabetes
- Cancer
  - *Autoimmune diseases


Autoimmune Disease
Epidemic
Autoimmune Disease: An Invisible Epidemic*

“Taken together, the number of people suffering from autoimmune diseases is 24–50 million Americans, 16% of the US population. To put it in perspective, autoimmune disease prevalence equals heart disease and cancer combined.”


Autoimmune Disease Statistics*

- Autoimmune Disease (AD) is a major health problem
- Annual direct health care costs for AD in US estimated to be ~$100 billion
- At least 23.5 million Americans suffer from one or more autoimmune diseases
- Among the top-10 causes of death in females under 64 years old
- Immunosuppressant treatments have devastating side effects

*https://www.aarda.org/autoimmune-information/autoimmune-statistics/
"Results: There were significantly more cases than expected of ALS associated with a prior diagnosis of asthma, celiac disease, younger-onset diabetes (younger than 30 years), multiple sclerosis, myasthenia gravis, myxedema, polymyositis, Sjögren syndrome, systemic lupus erythematosus, and ulcerative colitis."
Why do we have an epidemic in autoimmune disease in America today?

Hypothesis

• Glyphosate exposure sets up a weakened immune system, a leaky gut barrier and a leaky brain barrier
• Glyphosate contamination in proteins makes them hard to break down
• Person develops overactive antibody response to foreign protein contaminated with glyphosate and, through molecular mimicry, this leads to autoimmune disease
• This easily explains gluten intolerance and other food allergies
• And it eventually leads to more serious problems like ALS
"In this paper, we propose that glyphosate, the active ingredient in Roundup®, plays a role in ALS, mainly through mistakenly substituting for glycine during protein synthesis, disruption of mineral homeostasis as well as setting up a state of dysbiosis. Mouse models of ALS reveal a pre-symptomatic profile of gut dysbiosis."
Food Allergies

All of these foods can be expected to be contaminated with glyphosate, given how they’re produced.
In our study, with the largest case number reported thus far, the results supported the significant association between ASDs [autism spectrum disorders] and allergic diseases.”


Collagen and Gelatin

- 25% of the protein in our body is collagen
- 25% of the amino acids in collagen are glycines
- Glyphosate substitution for glycine will disrupt triple-helix formation and lead to diseases of the vasculature, joints and bones
- Gelatin is derived from collagen in bones and ligaments sourced from cows and pigs fed glyphosate-contaminated GMO Roundup-Ready feed
Drugs and Autoimmune Disease*

- Drugs that treat autoimmune disease have a huge problem with side effects
  - They suppress the immune system, and increase risk to tuberculosis, invasive fungal infections and lymphomas (cancers of the immune system)
- Humira is a TNF-alpha inhibitor, which blocks the immune response
  - It costs about $3,100 per month
  - U.S. prescriptions for Humira have taken off in recent years: 1.5 million in 2011; 2.4 million in 2015.
  - It was linked to more than 209,000 adverse event reports since 2013, including more than 4,200 deaths.

*usatoday.com/story/news/nation-now/2017/03/19/analysis-reports-drug-side-effects-increase-fivefold-12-years/99384190/
Chronic Pain*

“The list of different types of chronic pain syndrome seems to be growing every day, including complex regional pain syndrome, failed back syndrome, fibromyalgia, interstitial cystitis, myofascial pain syndrome, postvasectomy pain, vulvodynia, pelvic pain syndrome – and on and on.”

*P. 42, Anna Lembke, Drug dealer, MD
John’s Hopkins U Press, Baltimore, MD

US Department of Health and Human Services Data on Pain-Killer Drug Abuse*

• Drug overdose is the leading cause of injury death in the United States
  – Heroin, morphine, and prescription pain relievers
• More people died from drug overdoses in 2014 than in any previous year on record
• More than 6 out of 10 involved an opioid drug
• More than 650,000 opioid prescriptions are dispensed every day

*http://www.hhs.gov/opioids/about-the-epidemic/
US Department of Health and Human Services Data on Pain-Killer Drug Abuse*

- Drug overdose is the leading cause of injury death in the United States – Heroin, morphine, and prescription pain relievers.
- More people died from drug overdoses in 2014 than in any previous year on record.
- More than 6 out of 10 involved an opioid drug.
- More than 650,000 opioid prescriptions are dispensed every day.

*http://www.hhs.gov/opioids/about-the-epidemic/

According to PBS Evening News (Sept. 29, 2017), 64,000 deaths in the U.S. were attributed to opioid drug overdose in 2016.

This number increased to 72,000 in 2017 (up 10% from previous year) (Reported August 16, 2018).

How Glyphosate Affects the Gut Barrier
# Glyphosate and the Gut: Digestive Enzymes

- Glyphosate has been found as a contaminant in digestive enzymes trypsin, pepsin and lipase*.
- Trypsin impairment prevents proteins like gluten in wheat from being digested.
- Undigested proteins induce release of zonulin which opens up gut barrier**.
- Zonulin lingers because trypsin is defective.

---


---

### A Scenario

![Diagram showing the effect of glyphosate on the gut and brain]

- Glyphosate in wheat
- Leaky brain barrier
- Autoimmune disease
- Zonulin released
- Leaky barrier
- Gliadin
- Trypsin defective
**Glyphosate and Celiac Disease**


**Glyphosate and the Gut: Pathogen Overgrowth**

- Glyphosate is an antimicrobial agent that preferentially kills beneficial microbes, allowing pathogens to flourish in the gut *
- Immune cells invade the gut and release inflammatory cytokines
  - This causes increased risk to inflammatory bowel diseases such as Crohn’s and ulcerative colitis

Pathogen Overgrowth in Poultry Microbes Exposed to Glyphosate*


Celiac Disease, Glyphosate and Non Hodgkin’s Lymphoma

- Glyphosate preferentially kills Bifidobacteria*
- Bifidobacteria are depleted in celiac disease**
- Celiac disease is associated with increased risk to non Hodgkin’s lymphoma***
- Glyphosate itself is also linked directly to non Hodgkin’s lymphoma****

****M. Eriksson et al., Int J Cancer. 2008 Oct 1;123(7):1657-63.
We propose that acetate produced by protective bifidobacteria improves intestinal defence mediated by epithelial cells and thereby protects the host against lethal infection. [e.g., E coli]


Inflammatory Bowel Disease

*Figure 20, NL Swanson et al. Journal of Organic Systems 9(2), 2014, p. 25.
Evidence linking autism to Clostridia overgrowth*

- 14 autistic children with gut disorder compared to 21 controls
- Significant increase in *Clostridia* species in the gut in autistic children
- Associated with reduced tryptophan levels and increased expression of inflammatory markers
  - Tryptophan is a product of the shikimate pathway, which glyphosate blocks
  - Macrophages in inflamed tissue take up tryptophan, reducing bioavailability to the brain
- Proposed role for antibiotics
  - Glyphosate is a patented antimicrobial agent (2010)

*RA Luna et al., Cellular and Molecular Gastroenterology and Hepatology 2017;3(2): 218-230

---

**CASE REPORT**

Elevated Urinary Glyphosate and Clostridia Metabolites With Altered Dopamine Metabolism in Triplets With Autistic Spectrum Disorder or Suspected Seizure Disorder: A Case Study *

*William Shaw, PhD*

- Triplets: two boys, one girl. Both boys have autism and girl has seizure disorder
- Very high levels of glyphosate in urine in all three
- *Clostridia* overgrowth due to glyphosate disruption of gut microbes
  - Clostridia produce toxins HPHPA and p-cresol, which block the conversion of dopamine to norepinephrine.
  - Damage to neurons in the brain through oxidative stress

*W. Shaw. Integrative Medicine 2017;16(1);50-57.
Recapitulation

- Glyphosate contamination in food proteins makes them hard to break down
- Glyphosate contamination in digestive enzymes makes them defective
  - Undigested proteins induce leaky gut barrier
  - Studies on poultry confirm glyphosate disrupts gut microbes
- Celiac disease is associated with increased risk to non-Hodgkin’s lymphoma, which is also linked to glyphosate exposure.
- Glyphosate induces overgrowth of Clostridia species in gut
  - Clostridia release toxins that induce an inflammatory response and prevent dopamine metabolism
  - Clostridia overgrowth can lead to autism
- Inflammation in the brain and excessive neurostimulation by dopamine damages neurons
“There isn’t enough institutional infrastructure to educate the growing numbers of children with autism and house the adults they are becoming. Young adults with autism are increasingly sent to nursing homes because there’s nowhere else to go.”

-- Louise Kuo Habakus  
*Founder and Chief Executive of Fearless Parent*
"We now know that autism is a multifaceted disorder associated with gastrointestinal inflammation, nutritional deficiencies, multiple food allergies and intolerances, impairments in liver detoxification and resultant accumulation of xenobiotics, the majority of which have neurotoxic and/or immunotoxic effects.”

*Dr. Alex Vasquez. Biological Plausibility of the Gut-Brain Axis in Autism
https://vimeo.com/235896380

**Autism, Glyphosate, Vaccine Reactions**

*Data readily available from the CDC, FDA (VAERS) and USDA*
Vaxxed/Unvaxxed Study*

- Children aged 6-12; home-schooled
- Vaccinated children were significantly less likely than the unvaccinated to have had chickenpox and pertussis
- However, the vaccinated had higher rates of allergies and autism, ADHD, and/or a learning disability than the unvaccinated

**MMR and Autism**

- Andrew Wakefield found a connection in 1998 in a now retracted publication*
- CDC claimed proof of no link in 2004 paper**
- Whistleblower, Dr. William Thompson, has now come forward:
  - Data supported significant increased risk for autism in black males with early vaccine
  - Demand for birth certificate hid this finding

** F DeStefano et al., *Pediatrics* 2004;113;259-266.

---

**Glutamate is an Additive in Vaccines!**

- Flu vaccines (FluMist), MMR (measles, mumps and rubella), Rabies vaccine and Varicella vaccine (chicken pox) all contain glutamate
- Anecdotal evidence links these vaccines with autism
- My own studies on VAERS revealed a correlation between autism and MMR*
- Glyphosate’s depletion of manganese prevents glutamate breakdown

* S. Seneff et al., *Entropy* 2012, 14, 2227-2253.
Glutamate Detoxification Depends on Manganese!

Glutamine synthetase

Ammonium and glutamate toxicity in the brain can arise because of insufficient manganese

“Alteration of Plasma Glutamate and Glutamine Levels in Children with High-Functioning Autism”*

<table>
<thead>
<tr>
<th>Amine acid</th>
<th>Control</th>
<th>HFA</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norm</td>
<td>328.1±91.6</td>
<td>390.3±350</td>
<td>0.145</td>
</tr>
<tr>
<td>α-Aminobutyric acid</td>
<td>18.4±3.8</td>
<td>16.7±1.4</td>
<td>0.671</td>
</tr>
<tr>
<td>Arginine</td>
<td>89.1±14.0</td>
<td>93.1±18.3</td>
<td>0.279</td>
</tr>
<tr>
<td>Asparagine</td>
<td>40.8±8.5</td>
<td>45.1±17.0</td>
<td>0.011</td>
</tr>
</tbody>
</table>

| Glutamate  | 20.9±4.5   | 27.9±7.4  | <0.002* |
| Glutamine  | 513.1±48.5 | 445.8±50.6| <0.0004**|

Glyphosate in Vaccines?

- For MMR, flu vaccine, and rabies vaccine, live virus is grown on gelatin derived from ligaments of pigs and fetal bovine serum
  - Cows and pigs are fed GMO Roundup-Ready corn and soy feed
- Gelatin is derived from collagen which is highly enriched in glycine and also contains glutamate
  - These two neurotransmitters excite the NMDA receptors in the brain
- Glyphosate stimulation of NMDA receptors could cause neuronal burnout

Glyphosate Excites NMDA Receptors in Hippocampus*,**, Excess glutamate in synapse leads to neuronal burnout

*D Cattani et al. Toxicology 2014; 320:34-45.
**D Cattani et al. Toxicology 2017 [Epub ahead of print]
Glyphosate Excites NMDA Receptors in Hippocampus*,**, 

Rats exposed to glyphosate perinatally exhibited depressive behaviors

Glutamate is elevated in the blood in association with autism, and blood glutamate levels correlate with brain glutamate levels.*

* D Cattani et al. Toxicology 2014; 320:34-45. 
** D Cattani et al. Toxicology 2017 [Epub ahead of print]

Most disturbing is the presence of glyphosate in many popular vaccines including the measles, mumps and rubella (MMR) vaccine, which we have verified here for the first time.

### Glyphosate Contamination in Vaccines (Parts Per Billion)*

<table>
<thead>
<tr>
<th>Company</th>
<th>Vaccine</th>
<th>Contaminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merck</td>
<td>ZOSTAVAX</td>
<td>0.62 Shingles</td>
</tr>
<tr>
<td>Merck</td>
<td>MMR-II</td>
<td>3.74 Measles, Mumps and Rubella</td>
</tr>
<tr>
<td>Merck</td>
<td>VARIVAX</td>
<td>0.56 Varicella, Chicken Pox</td>
</tr>
<tr>
<td>MERCK</td>
<td>PNEUMOVAX</td>
<td>ND Pneumococcal 18</td>
</tr>
<tr>
<td>MERCK</td>
<td>PROQUAD</td>
<td>0.66 Measles, Mumps, Rubella, Varicella</td>
</tr>
<tr>
<td>GSK</td>
<td>ENERGIX-B</td>
<td>0.34 Hepatitis B</td>
</tr>
<tr>
<td>Novartis</td>
<td>INFLUENZA</td>
<td>0.23 Flu</td>
</tr>
</tbody>
</table>


### Symptoms of Adverse Reactions to MMR before and after 2002*

#### More Common Before 2002

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Count Before 2002</th>
<th>Count After 2002</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>joint pain</td>
<td>126</td>
<td>65</td>
<td>0.036</td>
</tr>
</tbody>
</table>

#### More Common After 2002

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Count Before 2002</th>
<th>Count After 2002</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>hospitalization</td>
<td>71</td>
<td>319</td>
<td>0.00037</td>
</tr>
<tr>
<td>seizures</td>
<td>203</td>
<td>462</td>
<td>0.0014</td>
</tr>
<tr>
<td>shortness of breath</td>
<td>100</td>
<td>216</td>
<td>0.010</td>
</tr>
<tr>
<td>hives</td>
<td>324</td>
<td>504</td>
<td>0.011</td>
</tr>
<tr>
<td>mumps</td>
<td>5</td>
<td>51</td>
<td>0.014</td>
</tr>
<tr>
<td>abscess</td>
<td>51</td>
<td>120</td>
<td>0.022</td>
</tr>
<tr>
<td>autism</td>
<td>69</td>
<td>143</td>
<td>0.024</td>
</tr>
<tr>
<td>eczema</td>
<td>4</td>
<td>36</td>
<td>0.026</td>
</tr>
<tr>
<td>ear infection</td>
<td>16</td>
<td>56</td>
<td>0.031</td>
</tr>
<tr>
<td>anaphylactic shock</td>
<td>16</td>
<td>54</td>
<td>0.034</td>
</tr>
<tr>
<td>facial swelling</td>
<td>45</td>
<td>95</td>
<td>0.040</td>
</tr>
<tr>
<td>swelling</td>
<td>860</td>
<td>1018</td>
<td>0.048</td>
</tr>
</tbody>
</table>

Data analyzed from the VAERS database

*A Samsel and S Seneff. J Biol Phys Chem 2017;17:8-32*
Symptoms of Adverse Reactions to MMR before and after 2002*

More Common Before 2002

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Count Before 2002</th>
<th>Count After 2002</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint pain</td>
<td>126</td>
<td>65</td>
<td>0.036</td>
</tr>
</tbody>
</table>

More Common After 2002

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Count Before 2002</th>
<th>Count After 2002</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>hospitalization</td>
<td>71</td>
<td>319</td>
<td>0.00037</td>
</tr>
<tr>
<td>seizures</td>
<td>203</td>
<td>462</td>
<td>0.0014</td>
</tr>
<tr>
<td>shortness of breath</td>
<td>100</td>
<td>216</td>
<td>0.010</td>
</tr>
<tr>
<td>hives</td>
<td>324</td>
<td>504</td>
<td>0.011</td>
</tr>
<tr>
<td>mumps</td>
<td>5</td>
<td>51</td>
<td>0.014</td>
</tr>
<tr>
<td>eczema</td>
<td>69</td>
<td>143</td>
<td>0.024</td>
</tr>
<tr>
<td>ear infection</td>
<td>4</td>
<td>36</td>
<td>0.026</td>
</tr>
<tr>
<td>anaphylactic shock</td>
<td>16</td>
<td>54</td>
<td>0.034</td>
</tr>
<tr>
<td>Facial swelling</td>
<td>45</td>
<td>95</td>
<td>0.040</td>
</tr>
<tr>
<td>swelling</td>
<td>860</td>
<td>1018</td>
<td>0.048</td>
</tr>
</tbody>
</table>

*Data analyzed from the VAERS database

Recapitulation

- Vaxxed/Unvaxxed study reveals neurological and autoimmune disease prevalence among the vaxxed
- Glyphosate has been found as a contaminant in multiple vaccines, mostly those that contain live viruses
  - Likely due to glyphosate present in gelatin used as nutrient
- MMR vaccine may be causal factor in autism epidemic
  - CDC hid evidence of a link between MMR and autism
- Glyphosate and glutamate in MMR are synergistically neurotoxic through excitation of NMDA receptors
Molecular Mimicry

“Nobel Laureate Charles Richet demonstrated over a hundred years ago that injecting a protein into animals or humans causes immune system sensitization to that protein. Subsequent exposure to the protein can result in allergic reactions or anaphylaxis. This fact has since been demonstrated over and over again in humans and animal models.”
A Scenario

1. Child is vaccinated with MMR
2. Live measles virus infects gut
3. Measles haemagglutinin undigested
4. Induces leaky gut
5. Measles virus
6. Zonulin induces leaky brain barrier
7. Brain’s immune system produces antibodies
8. Autoantibodies attack myelin sheath

Measles Virus and Haemagglutinin*

- The measles virus synthesizes the protein haemagglutinin
  - Antibodies to haemagglutinin are essential following MMR vaccination to induce immunity
- Measles virus infects brain due to leaky barrier
- Haemagglutinin bears a sequence resemblance to myelin basic protein (MBP) → potential for autoimmune reaction
- MBP is essential for the formation of the myelin sheath surrounding nerve fibers
- Autoantibodies to MBP along with excessive levels of antibodies to measles haemagglutinin are linked to autism**

Autism and Measles Haemagglutinin*

- 125 autistic children and 92 control children
- 60% of the children with autism had high levels of antibodies to measles haemagglutinin specific to the MMR vaccine
  - 90% of these had autoantibodies to myelin basic protein (MBP)
- 0% of the control children had high antibody titers to either haemagglutinin or MBP
- There were no elevations in antibodies detected against any proteins in the mumps or rubella viruses


A Failed System and A Growing Food Movement
“It is no measure of health to be well adjusted to a profoundly sick society.”

-Jiddu Krishnamurti

“Is Agriculture’s Use of Glyphosate Feeding Lake O’s Explosive Algae Blooms?”*

• Sugar cane agriculture is extensive all around Lake Okeechobee in S. Florida, and glyphosate is used both to control weeds and as a desiccant

• Cyanobacteria can break down the C-P bond in glyphosate and use its phosphorus atom as a fuel source**


Cyanobacteria Feed Red Tide Algae

“Both the coastal red tide and the inland blue-green algae have beset South Florida through the summer, killing vast numbers of fish and other wildlife, including dozens of dolphins, manatees, sea turtles, sharks and eels.” *

- Cyanobacteria feed off of glyphosate (phosphorus source) and produce nitrates from nitrogen
- Red Tide algae flourish, supplied with nitrates produced by cyanobacteria **

** [https://www.sailorsforthesea.org/programs/ocean-watch/nutrients-feed-red-tide](https://www.sailorsforthesea.org/programs/ocean-watch/nutrients-feed-red-tide)

---

Corn for Ethanol Production*

U.S. Total Corn Production and Corn Used for Fuel Ethanol Production

Karen Perry Stillerman, July 17, 2018
Corn for Ethanol Production*
Excessive confidence in the accuracy of pre-market risk assessments and regulatory thresholds

Insufficient post-approval monitoring of actual impacts of multiple synergistic formulated pesticides

Inadequate tools to deal with failing pest management systems due to the emergence of widespread resistance among the weeds and insects

Lack of tools to stabilize or reverse rising risk trajectories, even when the steps needed are so well known

Superweeds Are Now a Huge Problem*

- 76.8% of samples submitted to a U of Illinois Plant Clinic from 10 states across the Midwest showed glyphosate resistance
- “GM crops are on the edge of failure in the U.S. as farmers are asked to fork out more and more money on herbicides to try to control the superweeds. We simply can’t afford it! It is near the end of the road for these crops and many of my friends in the Midwest are on the edge of turning back to conventional farming methods.”
  — Bill Giles, an Illinois farmer

*sustainablepulse.com/2017/02/04/farmers-losing-midwest-superweeds-fight-as-glyphosate-resistance-reaches-over-75/#
Fixing the Soil*

- Dirt is inert; soil is alive
- Missouri farmer JR Bollinger grew corn and soy on a former coal mine
- “We tried … all kinds of goodies: humates, … sea minerals, microbes, fish meal and biochar powder.”
  – Earthworms till the soil
  – Soil microbes are crucial for soil health
- Greatly reduce fertilizer needs and improve yield

*ecofarmingdaily.com/wormhole-customizing-biological-methods-large-scale-farming/

David Yarrow
Down the Wormhole: Customizing Biological Methods for Large Scale Farming
Belize Ag Report 2017;34:5-17.

Sustainable Agriculture

“We say that every square meter of land that is worked with agro-ecology is a liberated square meter. We see it as a tool to transform farmers’ social and economic conditions. We see it as a tool of liberation from the unsustainable capitalist agricultural model that oppresses farmers.”

-- Miguel Ramirez
National Coordinator of Organic Agriculture Movement in El Salvador
From Uniformity to Biodiversity*

- "Industrial Agriculture:" crop monocultures and industrial-scale feedlots
  - Chemical fertilizers, pesticides, antibiotics → multiple negative outcomes
- Diversify farming landscapes: holistic strategies
  - Retain carbon in the ground, support biodiversity, rebuild soil fertility, sustainable high yields
- Political incentives must be shifted to promote ecofriendly agriculture.

*Emile A. Frison, REPORT 02. 2016
IPES Food: International Panel of Experts on Sustainable Food Systems

Solving Global Climate Change through Agriculture*

“Agriculture, with its unique ability to sequester carbon on … billions and billions of acres, is the only industry poised to reverse global warming. Improved management of cropping and grazing heals land, boosts soil fertility, prevents flooding, enhances drought resilience, increases the nutritional content of food and restores wildlife habitat — while sequestering carbon.

Small Organic Farms are the Answer

Bluebird Hill Organic Farm, North Carolina

Why the Food Movement is Unstoppable*

**Philosophy:** “The purpose of life is health and the optimal and most just way to attain human health is to maximise the health of all organisms, with the most effective way to do that being through food.”

**Practical consequence:** “It becomes the task of a food system, or any sub-part of it – such as a farm – to maximise the positive aspects of each component, so that the circle can become ever more virtuous.”

*Jonathan Latham.  
www.independentsciencenews.org/health/why-the-food-movement-is-unstoppable
How to Safeguard Yourself and Your Family

Go Organic!
Some Important Nutrients

- Curcumin
- Garlic
- Vitamin C
- Probiotics
- Methyl tetrahydrofolate
- Cobalamin
- Glutathione
- Taurine
- Epsom salt baths

Biochar, Bentonite and Zeolite to maintain healthy microbial distribution in poultry*

Anecdotal Evidence of Benefits of Fulvic Acid*

"In the last year I have become increasingly sick with ataxia, balance problems, muscle weakness, numbness in the hands and feet and a 'foggy' brain ...

To cut a long story short, Jim suggested *Fulvic Acid* as a detox.

At 10 days the effects started to 'kick in' and by 14 days it was as if a fog had been lifted from my brain. My muscle weakness has gone, I can walk for 2 hours and I can swim in the sea."

"It is a miracle."

*Shared by Nico DaVinci, personal communication concerning a patient

Extracts from Common Plants Can Treat Glyphosate Poisoning*

- Roundup is toxic to hepatic and embryonic cells at doses far below those used in agriculture and at residue levels present in some GM food.
- Extracts from common plants such as dandelions, barberry, and burdock can protect from damage, especially if administered prior to exposure.

*C Gasnier et al. Journal of Occupational Medicine and Toxicology 2011, 6:3
Eat Foods Containing Sulfur

- Sauerkraut and apple cider vinegar contain acetobacter, one of the very few microbes that can metabolize glyphosate
- Yogurt and kimchi probably do too
Kefir: Natural Probiotics*

- Kefir is a fermented milk product originating in the Caucasus mountains centuries ago
- Can be made from milk from cows, sheep and goats
- Slightly sour and carbonated
- One of the most potent probiotic foods available

*https://chriskresser.com/kefir-the-not-quite-paleo-superfood/

Recommendations from Dr. Zach Bush*

1. Get out into nature. Walk in the woods, barefoot, feel the sunshine – rich environment, breathe in the nutrients in the air
2. Eat probiotics (naturally fermented foods)
3. Eat organic food
   - Demand is dropping the price.
   - Thrive Market – order online
4. Eat more fruits and vegetables
5. Bathe in natural waters

*https://www.youtube.com/watch?v=jWqnkgYtqnw&feature=youtu.be
Conclusions

• We are at a crossroads where we can choose to get sicker and sicker while destroying the ecosystem, or we can choose to drastically change our agricultural methods towards renewable organic solutions.

• Grass roots bottom-up activities will institute a dramatic shift in food choices towards nutrient-dense organic whole foods instead of chemical-contaminated impoverished processed foods.

• A market-driven economy will force farmers to switch to organic methods if they want to sell their crops to informed and health-conscious consumers.

• This will lead to a dramatic reduction in health care costs and a vast improvement in the health of the population as a whole, of the nation, and of the earth.

Thank You for Listening!