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Review Article

How Do Vaccines Cause Autism?

Robert Oldham Young*

Department of Research, Innerlight, Biological Research and Health Education Foundation, USA

***Corresponding Author:** Robert Oldham Young, Department of Research, Innerlight, Biological Research and Health Education Foundation, USA.

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Abstract

The controversy surrounding the potential causal link between vaccines and autism has persisted for decades. This paper reviews evidence supporting associations between vaccines and autism-related medical conditions, focusing on mechanisms such as immune dysregulation, neuroinflammation, toxicological impacts of vaccine components like aluminum and mercury, and the effects of cumulative vaccine schedules. Historical, epidemiological, and experimental studies are analyzed to provide a robust scientific basis for understanding vaccine-autism causation. This research highlights gaps in current studies and emphasizes the need for further investigation into vaccine safety.

Keywords: Autism; Vaccines; Immune Dysregulation; Neuroinflammation; Aluminum Toxicity; Mercury; Vaccine Schedule; Unvaccinated Populations; Autism Spectrum Disorder; Vaccine Safety; pH Miracle Lifestyle

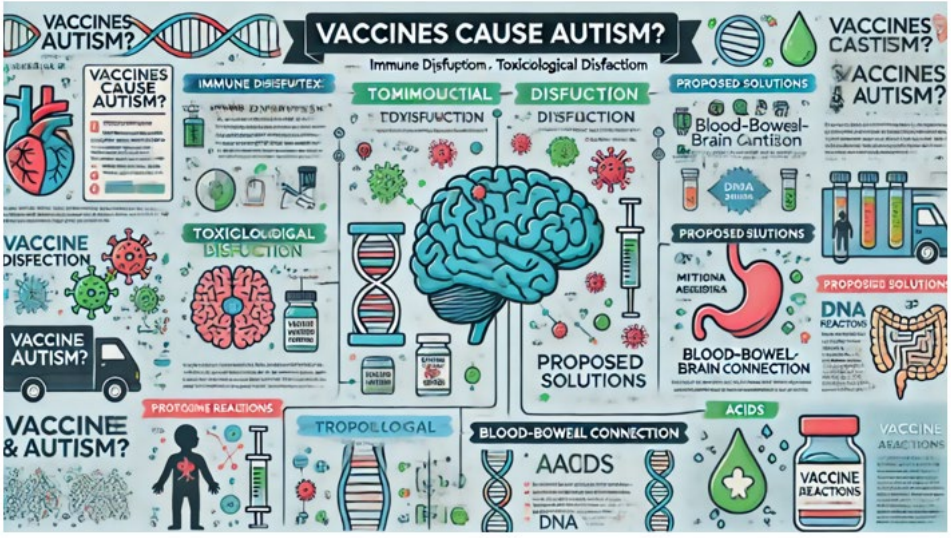


Figure a

Introduction

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition characterized by social, communication, and behavioral challenges. While the exact causes of ASD remain unclear, growing evidence links immune system dysregulation and environmental triggers to its development. Vaccines, designed to alter immune responses, have been hypothesized to contribute to autism, particularly in genetically susceptible individuals. Despite assertions from public health agencies, such as the American Academy of Pediatrics, that "vaccines are not associated with autism," numerous studies suggest otherwise. This paper examines these associations and the mechanisms through which vaccines may influence autism development [1].

Methodology

A comprehensive literature review was conducted to identify studies addressing the relationship between vaccines and autism. Sources included peer-reviewed journals, government reports, and historical documents. Key focus areas were vaccine ingredients, the cumulative vaccine schedule, and comparisons between vaccinated and unvaccinated populations. Additional information was drawn from over 70 articles published by the author on the blood-gut-brain connection and vaccine-autism links, accessible at phoreveryoung.wordpress.com [2].

Historical context of vaccine-autism link

1943: Initial observations

In his disorder-defining paper Autistic Disturbances of Affective Contact, Leo Kanner of Johns Hopkins University included the first report of vaccine-induced autistic regression. Case 3, "Richard M.," began developmental regression following a smallpox vaccination. This foundational report documented the temporal relationship between vaccination and the onset of autism-like symptoms [3].

1976: German case report

In 1976, Dr. H. Eggers published Autistic Syndrome (Kanner) and Vaccination Against Smallpox, documenting a case where a 15-month-old boy developed Kanner syndrome weeks after receiving the smallpox vaccine. Eggers noted that while direct causation was unlikely, vaccination could act as a trigger for susceptible individuals [4].

1986: National childhood vaccine injury act

The National Childhood Vaccine Injury Act required the U.S. Department of Health and Human Services (HHS) to study vaccine-related conditions, including autism. Congress officially acknowledged autism as a potential adverse effect of vaccination, marking a pivotal point in the vaccine-autism debate [5].

1994–1999: Monkey Study at the University of Pittsburgh

Dr. Laura Hewitson and colleagues conducted a macaque monkey study to evaluate the effects of vaccines administered during the 1994–1999 childhood schedule. This research, published in Acta Neurobiologica Experimentalis, examined vaccines containing thimerosal and the MMR vaccine. The findings revealed significant changes in the amygdala and behavioral patterns in vaccinated monkeys, resembling autism symptoms observed in children. Gastrointestinal issues and differences in gene expression in gut tissues were also identified in vaccinated monkeys but were absent in unvaccinated controls [6].

1998: Wakefield study

In 1998, Dr. Andrew Wakefield and colleagues published a study in The Lancet exploring a potential link between the MMR vaccine, bowel disease, and autism. Although retracted, this paper brought widespread attention to the vaccine-autism hypothesis and spurred further research [7].

2000-2010 studies

Additionally, between 2000 and 2010, several studies investigated the vaccine-autism connection. For example, research conducted during this period focused on the potential effects of vaccines containing thimerosal on autism prevalence. A notable study by Geier and Geier (2003) examined dose-response relationships between thimerosal-containing vaccines and autism spectrum disorders, highlighting the need for further scrutiny [22].

Mechanisms of vaccine-induced autism

Immune dysregulation and neuroinflammation

Immune activation has been identified as a key driver of ASD. Cytokine dysregulation, particularly involving interleukin-6 (IL-6), has been implicated in neuroinflammation and behavioral abnormalities associated with autism [8]. Studies show that vaccines can induce prolonged immune activation, potentially contributing to neurological damage.

Toxicological impacts of vaccine adjuvants

Moreover, mercury, in the form of thimerosal, has been extensively studied for its neurotoxic effects. Research indicates that thimerosal exposure during critical developmental windows may contribute to mitochondrial dysfunction and neuroinflammation. This adds another layer of complexity to the potential role of vaccine adjuvants in autism development [23].

Aluminum, a common vaccine adjuvant, has been demonstrated to cross the blood-brain barrier and accumulate in brain tissue, leading to neurotoxicity. Research links aluminum exposure to glial cell activation, oxidative stress, and behavioral changes consistent with ASD [9].

Mitochondrial dysfunction and oxidative stress

Mitochondrial dysfunction, prevalent in individuals with autism, may be exacerbated by vaccine ingredients. Oxidative stress induced by vaccine adjuvants and preservatives, such as thimerosal, has been shown to impair cellular energy metabolism and contribute to neurological regression [10].

The blood, bowel, and brain connection

Emerging evidence highlights the interconnected role of the blood-gut-brain axis in the pathophysiology of autism. Disruptions in the gut microbiome, often caused by toxic environmental exposures such as vaccine adjuvants, heavy metals, and chemical pollutants, can influence systemic inflammation and blood-brain barrier integrity. Studies have demonstrated that alterations in the gut microbiota, particularly reductions in beneficial bacteria such as Bifidobacterium and Prevotella, are associated with increased gut permeability and neuroinflammatory responses [11,12]. These changes exacerbate the transport of toxic substances across the blood-brain barrier, compounding neural damage and autism-related symptoms [13].

Environmental factors such as chemical trails, water contaminants, and food preservatives have been shown to contribute to a chronic acidic state in the body, further disrupting cellular and immune functions. The synergistic effects of these exposures, combined with vaccine-derived toxins, exacerbate oxidative stress and inflammation, creating a cascade that leads to mitochondrial dysfunction and neurological impairments commonly observed in autism [14,15].

Vaccine-specific research

A study found that male infants vaccinated with the hepatitis B vaccine at birth had a threefold increased risk of autism compared to unvaccinated peers [16].

MMR vaccine

The 1998 study by Wakefield., *et al*. hypothesized a link between the MMR vaccine, gastrointestinal inflammation, and autism. Although the study was retracted, subsequent research continues to explore gastrointestinal and neuroimmune interactions in autism [17].

DTaP vaccine

Neurological adverse events, including seizures and autism-like symptoms, have been reported following DTaP vaccination. These effects are thought to result from immune activation and toxic exposure [18].

Hepatitis B vaccine

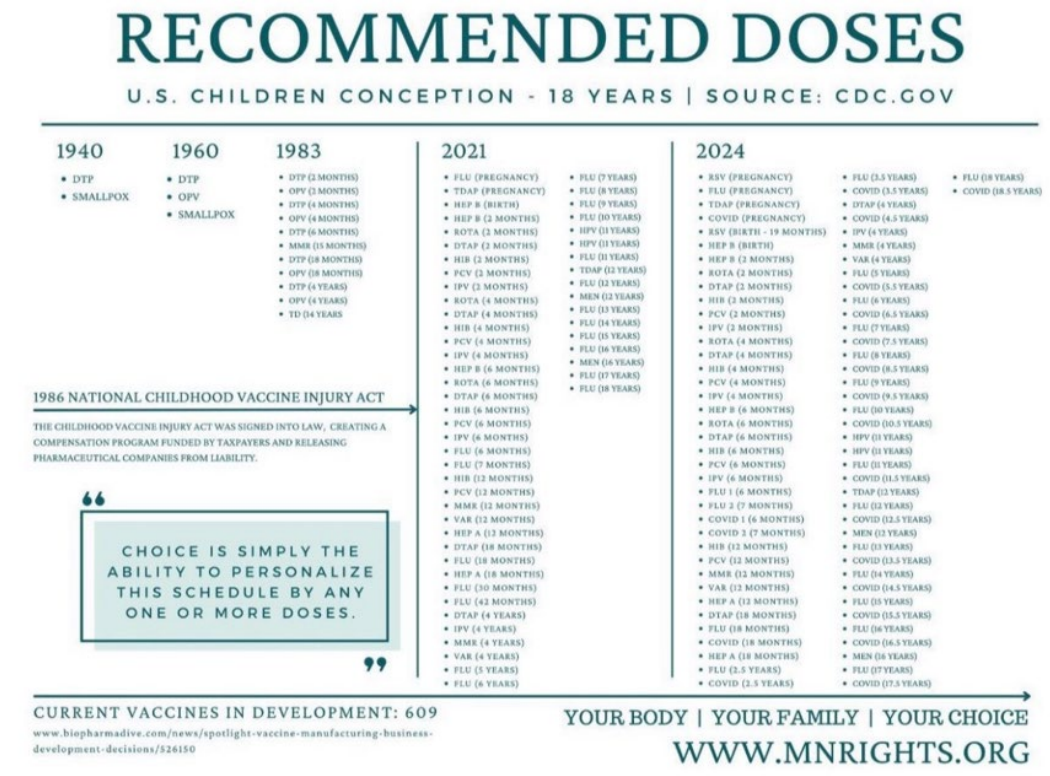
Further research has identified additional studies linking the Hepatitis B vaccine to autism risk. For instance, Delong (2011) highlighted correlations between early Hepatitis B vaccination and developmental delays, emphasizing the importance of examining vaccination timing. Another study by Gallagher and Goodman (2008) also noted increased autism prevalence in populations receiving the Hepatitis B vaccine at birth [24].

The vaccine schedule and autism

The cumulative vaccine schedule has been criticized for exposing infants to an increasing number of antigens, adjuvants, and preservatives during critical developmental periods. The Institute of Medicine acknowledged the absence of studies comparing health outcomes in vaccinated versus unvaccinated populations [19]. Such comparisons are essential to understanding the long-term effects of the current vaccine schedule [20].

Evidence from unvaccinated populations

Studies of unvaccinated populations provide a valuable control group for assessing vaccine safety. Research indicates lower autism


RECOMMENDED DOSES
U.S. CHILDREN CONCEPTION - 18 YEARS | SOURCE: CDC.GOV
1940
• DTP
• SMALLPOX
1960
• DTP
• OPV
• SMALLPOX
1983
• DTP (2 MONTHS)
• OPV (2 MONTHS)
• DTP (4 MONTHS)
• OPV (4 MONTHS)
• DTP (6 MONTHS)
• MMR (15 MONTHS)
• DTP (18 MONTHS)
• OPV (18 MONTHS)
• DTP (4 YEARS)
• OPV (4 YEARS)
• TD (14 YEARS
2021
• FLU (PREGNANCY)
• TDAP (PREGNANCY)
• HEP B (BIRTH)
• HEP B (2 MONTHS)
• ROTA (2 MONTHS)
• DTAP (2 MONTHS)
• HIB (2 MONTHS)
• PCV (2 MONTHS)
• IPV (2 MONTHS)
• ROTA (4 MONTHS)
• DTAP (4 MONTHS)
• HIB (4 MONTHS)
• PCV (4 MONTHS)
• IPV (4 MONTHS)
• HEP B (6 MONTHS)
• ROTA (6 MONTHS)
• DTAP (6 MONTHS)
• HIB (6 MONTHS)
• PCV (6 MONTHS)
• IPV (6 MONTHS)
• FLU (6 MONTHS)
• FLU (7 MONTHS)
• HIB (12 MONTHS)
• PCV (12 MONTHS)
• MMR (12 MONTHS)
• VAR (12 MONTHS)
• HEP A (12 MONTHS)
• DTAP (18 MONTHS)
• FLU (18 MONTHS)
• HEP A (18 MONTHS)
• FLU (30 MONTHS)
• FLU (42 MONTHS)
• DTAP (4 YEARS)
• IPV (4 YEARS)
• MMR (4 YEARS)
• VAR (4 YEARS)
• FLU (5 YEARS)
• FLU (6 YEARS)
• FLU (7 YEARS)
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• HPV (11 YEARS)
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• RSV (PREGNANCY)
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• TDAP (PREGNANCY)
• COVID (PREGNANCY)
• RSV (BIRTH - 19 MONTHS)
• HEP B (BIRTH)
• HEP B (2 MONTHS)
• ROTA (2 MONTHS)
• DTAP (2 MONTHS)
• HIB (2 MONTHS)
• PCV (2 MONTHS)
• IPV (2 MONTHS)
• ROTA (4 MONTHS)
• DTAP (4 MONTHS)
• HIB (4 MONTHS)
• PCV (4 MONTHS)
• IPV (4 MONTHS)
• HEP B (6 MONTHS)
• ROTA (6 MONTHS)
• DTAP (6 MONTHS)
• HIB (6 MONTHS)
• PCV (6 MONTHS)
• IPV (6 MONTHS)
• FLU 1 (6 MONTHS)
• FLU 2 (7 MONTHS)
• COVID 1 (6 MONTHS)
• COVID 2 (7 MONTHS)
• HIB (12 MONTHS)
• PCV (12 MONTHS)
• MMR (12 MONTHS)
• VAR (12 MONTHS)
• HEP A (12 MONTHS)
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• COVID (18 MONTHS)
• HEP A (18 MONTHS)
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• COVID (2.5 YEARS)
• FLU (3.5 YEARS)
• COVID (3.5 YEARS)
• DTAP (4 YEARS)
• COVID (4.5 YEARS)
• IPV (4 YEARS)
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• MEN (16 YEARS)
• FLU (17 YEARS)
• COVID (17.5 YEARS)
• FLU (18 YEARS)
• COVID (18.5 YEARS)
1986 NATIONAL CHILDHOOD VACCINE INJURY ACT
THE CHILDHOOD VACCINE INJURY ACT WAS SIGNED INTO LAW, CREATING A COMPENSATION PROGRAM FUNDED BY TAXPAYERS AND RELEASING PHARMACEUTICAL COMPANIES FROM LIABILITY.
CHOICE IS SIMPLY THE ABILITY TO PERSONALIZE THIS SCHEDULE BY ANY ONE OR MORE DOSES.
CURRENT VACCINES IN DEVELOPMENT: 609
www.biopharmadive.com/news/spotlight-vaccine-manufacturing-business-development-decisions/526150
YOUR BODY | YOUR FAMILY | YOUR CHOICE
WWW.MNRIGHTS.ORG

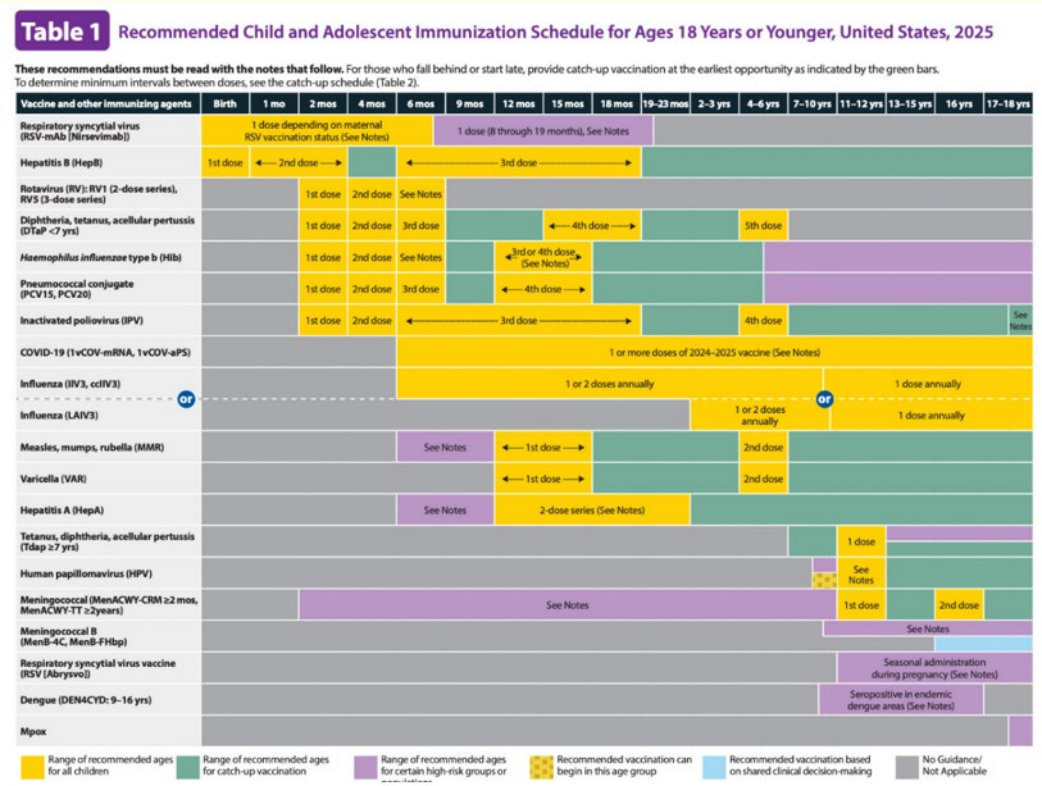
Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025
These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).
Vaccine and other immunizing agents
Birth
1 mo
2 mos
4 mos
6 mos
9 mos
12 mos
15 mos
18 mos
19–23 mos
2–3 yrs
4–6 yrs
7–10 yrs
11–12 yrs
13–15 yrs
16 yrs
17–18 yrs
Respiratory syncytial virus (RSV-mAb [Nirsevimab])
1 dose depending on maternal RSV vaccination status (See Notes)
1 dose (8 through 19 months), See Notes
Hepatitis B (HepB)
1st dose
2nd dose
3rd dose
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)
1st dose
2nd dose
See Notes
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)
1st dose
2nd dose
3rd dose
4th dose
5th dose
Haemophilus influenzae type b (Hib)
1st dose
2nd dose
See Notes
3rd or 4th dose (See Notes)
Pneumococcal conjugate (PCV15, PCV20)
1st dose
2nd dose
3rd dose
4th dose
Inactivated poliovirus (IPV)
1st dose
2nd dose
3rd dose
4th dose
See Notes
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)
1 or more doses of 2024–2025 vaccine (See Notes)
Influenza (IIV3, ccIIV3)
1 or 2 doses annually
1 dose annually
or
Influenza (LAIV3)
1 or 2 doses annually
or
1 dose annually
Measles, mumps, rubella (MMR)
See Notes
1st dose
2nd dose
Varicella (VAR)
1st dose
2nd dose
Hepatitis A (HepA)
See Notes
2-dose series (See Notes)
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)
1 dose
Human papillomavirus (HPV)
See Notes
Meningococcal (MenACWY-CRM ≥2 mos, MenACWY-TT ≥2years)
See Notes
1st dose
2nd dose
Meningococcal B (MenB-4C, MenB-FHbp)
See Notes
Respiratory syncytial virus vaccine (RSV [Abrysvo])
Seasonal administration during pregnancy (See Notes)
Dengue (DEN4CYD: 9–16 yrs)
Seropositive in endemic dengue areas (See Notes)
Mpox
Range of recommended ages for all children
Range of recommended ages for catch-up vaccination
Range of recommended ages for certain high-risk groups or
Recommended vaccination can begin in this age group
Recommended vaccination based on shared clinical decision-making
No Guidance/ Not Applicable

Figure b

rates among unvaccinated children, though these findings are often limited by sample size and confounding variables [21].

Discussion

The historical narrative that Andrew Wakefield originated the vaccine-autism link in 1998 is misleading. Evidence of vaccine-induced developmental regression dates back to Leo Kanner's 1943 study [3]. Over the decades, more than 200 studies have documented various mechanisms and associations between vaccines and autism. These findings challenge the prevailing medical consensus and underscore the need for unbiased, comprehensive research.

Additionally, recent studies on the blood-gut-brain axis have highlighted its role in autism development. Disruptions in gastrointestinal health, of ten linked to vaccine-induced inflammation, may exacerbate neurological symptoms. Research suggests that vaccines, by altering gut microbiota and inducing systemic acid inflammation, could contribute to neurodevelopmental disorders like autism [25,26]. Toxic exposures from environmental sources further compound the detrimental effects on gut and brain health, creating a toxic acidic state that fosters immune and neurological dysfunction [27].

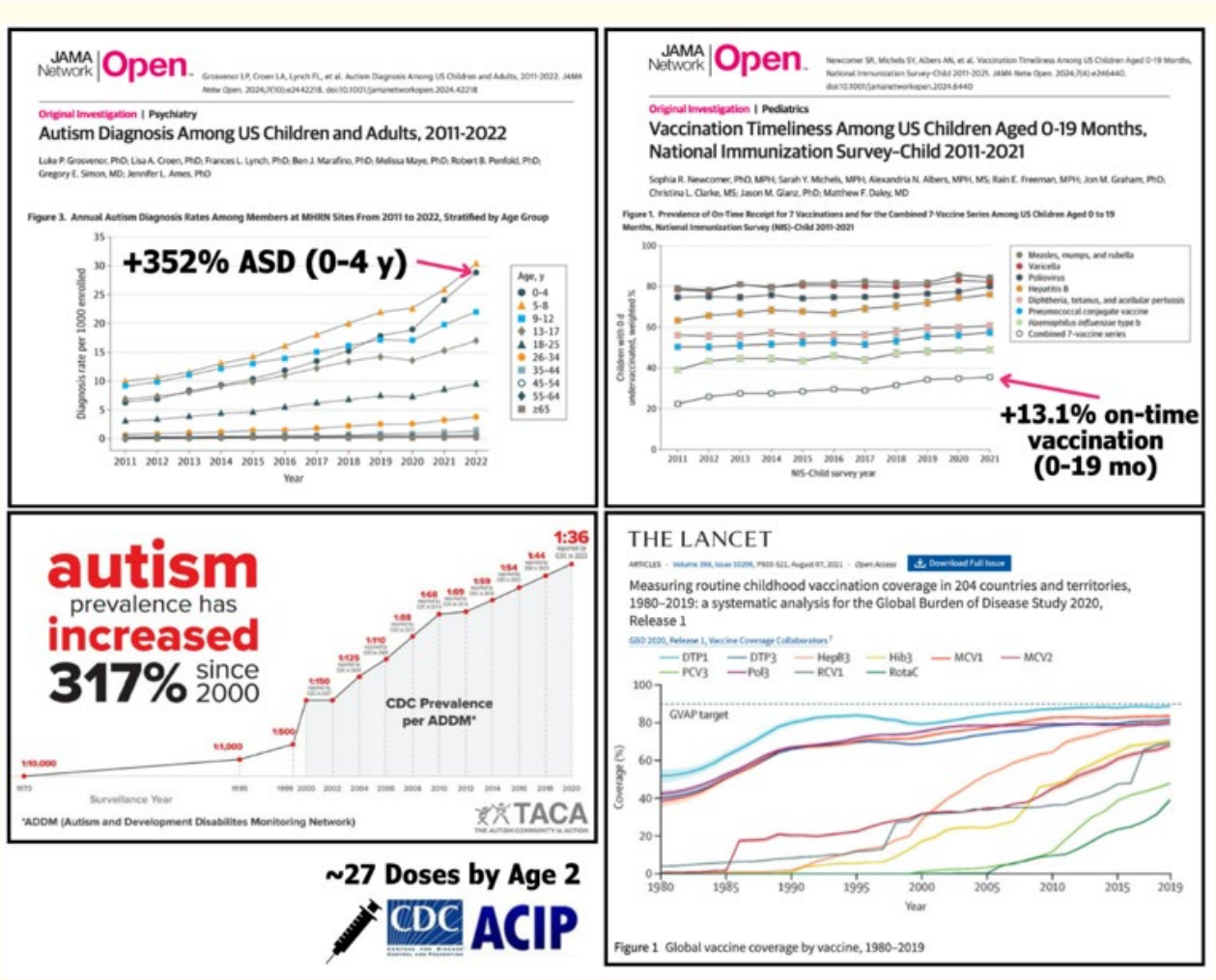

Figure c

Solutions

- **Conduct Large-Scale Comparative Studies**: Investigate health outcomes in vaccinated versus unvaccinated populations [28].
- **Evaluate Cumulative Vaccine Effects**: Study the impact of the entire vaccine schedule rather than single vaccines [29].
- **Focus on Susceptible Populations**: Identify genetic and environmental factors that increase autism risk following vaccination [30].
- **Enhance Vaccine Safety Monitoring**: Implement post-marketing surveillance to detect adverse events promptly [31].
- **Promote Research on the Blood-Gut-Brain Axis**: Further investigate the role of gastrointestinal health in vaccine-induced neurodevelopmental disorders [32,33].
- **Address Environmental Toxicity**: Develop policies to reduce exposure to environmental chemicals, including those in food, water, and air, which contribute to systemic toxicity [34].
- **Adopt the pH Miracle Lifestyle and Protocol**: Implement a holistic approach that focuses on an alkaline diet, detoxification, and improving overall cellular health. This lifestyle, as detailed in over 120 scientific articles on the author's platform, has shown significant promise in preventing and reversing symptoms of autism [35-37].

Summary and Conclusions

This paper highlights substantial evidence linking vaccines to autism through mechanisms such as immune dysregulation, neuroinflammation, toxic exposure, and disruptions in the blood-gut-brain axis. While vaccines play a critical role in preventing infectious diseases, their potential adverse effects must be thoroughly investigated. Addressing public concerns through transparent research and policy reforms is essential to ensuring vaccine safety and restoring public trust. The integration of lifestyle interventions, such as the pH Miracle Protocol, and reducing environmental toxicity offer promising avenues for mitigating and reversing autism symptoms [38-42].

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