IMA EMERGING TRENDS IN MEDICINE

CHILDHOOD VACCINES: AN UP TO DATE REVIEW ON EFFICACY AND RISKS

Dr. Elizabeth Mumper
IMA Senior Fellow, Pediatric Education

INDEPENDENT™ MEDICAL ALLIANCE

EMERGING TRENDS IN MEDICINE

Childhood Vaccines: An up-to-date review on efficacy and risks

with

Elizabeth Mumper, MD, IFMCP, FMAPS

Senior Fellow in Pediatrics, Independent Medical Alliance
Senior Faculty, Medical Academy of Pediatrics and Special Needs
Member National Institute of Health Interagency Coordinating Committee

Disclosure

- There are no conflicts of interest relevant to this presentation

- Lecture Objectives:
  - Attendees will be able to evaluate shortcomings of MMR vaccines and mortality risks of measles so that they can decide for themselves how to counsel individual patients about MMR vaccine decisions during a time of measles resurgence
  - Through the example of the DTaP vaccine, the audience will learn the trade-offs in efficacy that sometimes result from efforts to improve the safety profile of a vaccine
  - Clinicians will identify the trajectory of a successful vaccine, the Hemophilus influenza vaccine, with data showing swift decline in infant meningitis and epiglottitis after introduction of the vaccine and a promising safety profile
  - Attendees will discover opportunities for improvement in vaccine safety testing through identified gaps in vaccine research and regulatory oversight

IMA is committed to presenting data
you may not have been exposed to
so that you can make up your own mind
using critical thinking rooted in compassion

Lecture Outline

- In the news: Measles/MMR
- DTaP risks & benefits
- My favorite vaccine: Hib
- Failure of oversight & Inadequate trials
- Vaxxed vs Unvaxxed studies

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 (8–19 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)					See Notes												
Influenza (IIV3, ccIIV3)					1 or 2 doses annually									1 dose annually			
or																	
Influenza (LAIV3)											1 or 2 doses annually			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 populations
Recommended vaccination can begin in this age group
Vaccination is based on shared clinical decision-making
No Guidance/ Not Applicable

Page 2

https://www.cdc.gov/vaccines/hcp/imz-schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

American Academy of Pediatrics and Centers for Disease Control official recommendations for childhood vaccines

CHILDHOOD VACCINES:
MEASLES AND MMR VACCINE

Measles Cases in US

2026 as of April 10

- 1,714 confirmed* measles cases were reported in the United States in 2026
- 33 jurisdictions: Alaska, Arizona, California, Colorado, Florida, Georgia, Idaho, Illinois, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, New York City, New York State, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, Washington, and Wisconsin.
- 10 measles cases were reported among international visitors to the U S

2025

- 2,287 confirmed* measles cases were reported in the United States.
- 45 jurisdictions: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York City, New York State, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, and Wyoming.
- 25 measles cases were reported among international visitors to the United States

2026	2025	
Total Hospitalized	**6%** (96 of 1,714 cases)	**11%** (243 of 2,287 cases)
Percent of Age Group Hospitalized		
Under 5 years	9% (33 of 354)	18% (106 of 584)
5-19 years	3% (28 of 888)	6% (58 of 1,015)
20+ years	7% (35 of 467)	12% (79 of 675)
Age unknown	0% (0 of 5)	0% (0 of 13)

BEFORE MEASLES VACCINE

1 in 500,000 Deaths in America

340,100,000 Americans = 680 Deaths/Year

VITAL STATISTICS RATES
IN THE
UNITED STATES
1940–1960

By
Robert D. Grove, Ph. D.
and
Alice M. Hetzel

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WE
PUBLIC HEALTH SERVICE
Washington, D.C. 1968
National Center for Health Statistics

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $5.25

TABLE 64.—*Death rates for 30 selected causes by month: United States, 1940-60* [1]

[Rates are deaths per 100,000 population, on an annual basis. Numbers after causes of death are category numbers of the Seventh Revision of the International Lists. See text for discussion of effect of changes in cause-of-death classification]

Cause and year	Annual
Measles (085):	
1960	0.2
1959	0.2
1958	0.3
1957	0.2
1956	0.3

Correcting for CDC Surveillance Bias	CDC ADMISSION: MASSIVE UNDERREPORTING	Langmuir et al. (1962): Only 11% of measles cases reported to surveillance	- Deaths are fully captured (hospitals, death certificates, investigations) • **Creates false impression of high case fatality rates**
CORRECTED MORTALITY CALCULATION	Reported US cases (2003-2025): ~8,000	Actual cases (correcting for 11% reporting): ~73,000	- Confirmed deaths: 6-7 ◦True case fatality rate: 1 in 10,000 (0.01%)
REMARKABLE CONSISTENCY	1962 Langmuir study: 1 in 10,000 deaths	2025 corrected rate: 1 in 10,000 deaths ◦Identical mortality across 60+ years	MMR was licensed by Merck in 1971

Goodson JL, Seward JF (December 2015). "Measles 50 Years After Use of Measles Vaccine". *Infectious Disease Clinics of North America*. **29** (4): 725–743. doi:10.1016/j.idc.2015.08.001. PMID 26610423

Surveillance Data:

PENNSYLVANIA MEASLES CASES (CDC Official Data)

Year	PA Cases	Population Context – 13 million residents
2024	6	Six cases
2023	0	Zero cases
2022	0	Zero cases
2021	0	Zero cases
2020	1	Single case
2019	17	National outbreak year

EXPOSURE RISK for a healthy child

- Pennsylvania Population: 13 million
- Average Annual Cases (2019-2024): ~4 cases
- Annual Exposure Risk: 1 in 3.25 million

Vitamin A Deficiency As The Primary Risk Factor

Barclay et al. (1987):

- Vitamin A supplements reduce measles mortality in randomized trial

Hussey & Klein (1990) - New England Journal of Medicine:

- 92% of children hospitalized with severe measles had vitamin A deficiency
- Vitamin A deficiency strongest predictor of severe outcomes

Butler et al. (1993) - Pediatrics:

- 72% of all measles patients had low vitamin A levels
- Lower vitamin A levels correlated with increased complications

Hussey GD, Klein M. A randomized, controlled trial of vitamin A in children with severe measles. New England journal of medicine. 1990 Jul 19;323(3):160-4.
Havens PL, Butler JC, Day SE, Mohr BA, Davis JP, Chusid MJ. Treating measles: the appropriateness of admission to a Wisconsin children's hospital. American journal of public health. 1993 Mar;83(3):379-84.
Barclay AJ, Foster A, Sommer A. Vitamin A supplements and mortality related to measles: a randomised clinical trial. Br Med J (Clin Res Ed). 1987 Jan 31;294(6567):294-6.

Lifestyle protection against severe measles outcomes

- Optimal nutrition and vitamin A status

- Protects against 92% of severe complications

- Measles becomes manageable childhood illness, not life-threatening disease

Comprehensive Risk Profile: individualized decision making

PROTECTIVE FACTORS

Geography

- (extraordinarily low measles prevalence in most US states versus measles outbreaks in developing world)

Optimal nutritional status (vitamin A protection) vs. malnourished children

Age demographic (not infant or elderly)

Healthy immune system (not immunocompromised)

Access to modern medical care and good public sanitation

Community with high MMR coverage >93% (theoretic threshold for herd immunity protection)

QUANTIFIED RISKS

Exposure risk: 1 in 3.25 million annually

- Case fatality risk (if exposed): 1 in 10,000
  - Annual death risk: 1 in 32.5 billion

COMPARISON to other childhood risks (Using CDC Annual Death Data)

443,000 times more likely to drown > measles.

7,065 times more likely to die from bee stings

2,750 times more likely to be struck by lightning

MERCK'S M-M-R II (Licensed 1971)

- Package insert legally admits potential causal association with over 60 severe adverse events
- Including: encephalitis, seizures, Guillain-Barré Syndrome, death
- Clinical trial: 66% of participants experienced adverse events in just 42 days

GSK'S PRIORIX (Licensed 2022)

- Package insert admits similar severe adverse event profile
- Clinical trial results: 10.1% emergency room visits, 2.1% serious adverse events
- 3.4% developed new onset chronic diseases (autoimmune disorders, asthma, diabetes)

Measles Reduces Risk of Cancer

Medical Hypotheses (1998) **51**, 315–320
© Harcourt Brace & Co. Ltd 1998

[a] *Department of Health Care and Epidemiology, University of British Columbia,*

Febrile
history of cancer patients and matched controls

Cancer	Case/control	Infection type	Outcome (95% CI)[a] highest vs. lowest
Ovary	300/300[b]	Chickenpox	OR = **0.70** (0.51–0.97)
		Measles	OR = **0.50** (0.32–0.76)
		Mumps	OR = **0.65** (0.23–0.90)
		Rubella	OR = **0.65** (0.47–0.92)

OR: odds ratio, CI: confidence interval, FICD: febrile infectious childhood diseases.
[a] Results in bold are statistically significant.
[b] Age matched or no significant difference in age between groups.
[c] Adjusted for age and other risk factors.

ELSEVIER

Cancer Detection and Prevention 30 (2006) 83–93

Prevention
www.elsevier.com/locate/cdp

Review

Acute infections as a means of cancer prevention:
Opposing effects to chronic infections?

NATIONAL CANCER INSTITUTE
Surveillance, Epidemiology, and End Results Program

Cancer Stat Facts: Non-Hodgkin Lymphoma

Estimated Deaths in 2025	19,390

Cancer Stat Facts: Hodgkin Lymphoma

Estimated Deaths in 2025	1,150

Cancer Stat Facts: Ovarian Cancer

Estimated Deaths in 2025	12,730

International Agency for Research on Cancer, Lyon, France

ELSEVIER

Available online at ww
SCIENCE

Research

Leukemia Research

Do childhood diseases affect l
study from northe

Maurizio Montella[a,*], Luigino Dal M
Ettore Bidoli[b], Maria
Antonio Pinto[c],

[a] *Servizio di Epidemiologia, Istituto Nazion*
[b] *Servizio di Epidemiologia e Biostatistica, Cen*
[c] *Unità Operativa di Ematologia Oncologica,*
[d] *International Agency for*

Received 29 June 2005; received in revised f
Available o

Abstract

To investigate the association between non-Hodgkin lymphoma
analyzed an Italian case-control study that included 225 histologica
adjusting for confounding factors, all examined childhood disease
with NHL, particularly follicular B-cell NHL. Our findings provi
childhood pathogens may protect against HL or, at least, be corre
adulthood. In addition, our study shows that measles may provide
© 2005 Elsevier Ltd. All rights reserved.

Keywords: Non-Hodgkin lymphoma (NHL); Hodgkin lymphoma (HL); Childhood diseases; Case-control study; Immunostimulation

Table 2
Odds ratios (OR)[a] and 95% confidence intervals (CI) for non-Hodgkin lymphoma (NHL) and Hodgkin lymphoma (HL) according to childhood infections (Italy, 1999–2002)

	Controls		NHL				HL			
	No.	(%)	No.	(%)	OR	(95% CI)	No.	(%)	OR	(95% CI)
Measles										
Never	163	(32.3)	84	(37.3)	1[b]		25	(40.3)	1[b]	
Ever	341	(67.7)	141	(62.7)	0.6	(0.5–0.9)	37	(59.7)	0.3	(0.2–0.7)

Atherosclerosis 241 (2015) 682–686

Contents lists available at ScienceDirect

Atherosclerosis

journal homepage: www.elsevier.com/locate/atherosclerosis

Association of measles and mumps with cardiovascular disease: The Japan Collaborative Cohort (JACC) study

Yasuhiko Kubota [a], Hiroyasu Iso [a, *], Akiko Tamakoshi [b], the JACC Study Group

[a] Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine, Osaka, Japan
[b] Department of Pu

ARTICLE

Article history:
Received 24 Januar
Received in revise
25 March 2015
Accepted 9 June 2
Available online 18

Keywords:
Measles
Mumps
Atherosclerosis
Stroke
Myocardial infarcti
Mortality
Immune system

Results: Men with measles only had multivariable HR (95% confidence interval) of 0.92 (0.85-0.99) for total CVD, those with mumps only had 0.52 (0.28-0.94) for total stroke and 0.21 (0.05-0.86) for hemorrhagic stroke, and those with both infections had 0.80 (0.71-0.90) for total CVD, 0.71 (0.53-0.93) for myocardial infarction, and 0.83 (0.69-0.98) for total stroke. Women with both infections had 0.83 (0.74-0.92) for total CVD and 0.84 (0.71-0.99) for total stroke. We also compared subjects with measles only or mumps only (reference) and those with both infections. Men with both infections had 0.88 (0.78 -0.99) for total CVD. Women with both infections had 0.85 (0.76-0.94) for total CVD, 0.79 (0.67-0.93) for total stroke, 0.78 (0.62-0.98) for ischemic stroke and 0.78 (0.62-0.98) for hemorrhagic stroke.

1. Introductio

It has been suggested that infection can impact atherosclerotic cardiovascular disease (CVD) either deleteriously or positively [1]. The former proposes that inflammation caused by chronic infections with pathogens such as *Chlamydia pneumonia* and herpes simplex virus type I can accelerate atherosclerosis [1–6]. The latter suggests that infections suffered during childhood can protect from atherosclerosis [1]. The 'hygiene hypothesis' is a possible mechanism underlying this effect [1,7,8]. Improved hygiene decreases the opportunities for infections, which are necessary for normal development of the immune system. Weakened immune systems cells, which control the balance of T helper cell types, Th1 and Th2. As a result, inflammation at the arterial wall is not well controlled, leading to the development of atherosclerosis. Therefore, people with a history of infections may have a lower risk of CVD, especially atherosclerotic diseases such as stroke and myocardial infarction, compared to those without previous infections. However, to the best of our knowledge, only one previous study, which used a retrospective design and had a small number of participants, has suggested that viral or bacterial infections could protect against CVD [1].

To confirm the protective effect of infections against CVD, this study prospectively examined whether a history of measles and mumps, diseases typically seen in children, alters the risk of mortality from CVD before the era of measles, mumps, and rubella (MMR) vaccination [1,9].

* Corresponding author. Public Health, Department of Social Medicine, Osaka University Graduate School of Medicine, 565-0871, 2-2, Yamadaoka, Suita, Osaka, Japan.
E-mail address: iso@pbhel.med.osaka-u.ac.jp (H. Iso).

http://dx.doi.org/10.1016/j.atherosclerosis.2015.06.026

Measles reduces risk of cardiovascular disease: Heart attacks and strokes

2025 Heart Disease and Stroke Statistics Update Fact Sheet

American Heart Association.

2025 Heart Disease and Stroke Statistics Update Fact Sheet
At-a-Glance

This document contains key statistics about heart disease, stroke, other cardiovascular diseases and their risk factors, in addition to commonly cited statistics about the American Heart Association (AHA)'s research program. This At-a-Glance document is based on the association's 2025 Heart Disease and Stroke Statistics Update: A Report of US and Global Data From the AHA, which is compiled annually by the AHA, the National Institutes of Health, and other collaborators. The years of data cited were the most recent available for each topic at the time the Update was written.

The 2024 and 2025 Statistics Updates both contain 2021 Global Burden of Disease Study data. Some global estimates below (from the 2025 Statistics Update) reflect slightly different estimates from the 2024 Statistics Update due to improvements in demography and population estimation, statistical and geospatial modeling methods, and the addition of nearly 3000 new data sources since the 2024 AHA Statistics Update.

American Heart Association Research

- The AHA uses donations to fund research projects. Research applications are carefully weighed and selected by teams of scientists and healthcare professionals who volunteer for the association.
- Ten investigators received Nobel Prizes for research wholly or partially supported by the AHA.
- The AHA is the largest non-profit, non-governmental funder of cardiovascular and cerebrovascular research in the United States.
- The AHA has funded more than $5.7 billion in research since 1949.

Heart Disease, Stroke, and other Cardiovascular Diseases

- Cardiovascular disease (CVD), listed as the underlying cause of death, accounted for 941 652 deaths in the United States in 2022.
- Heart disease and stroke claimed more lives in 2022 in the United S… of cancer and chronic lower respiratory disease combined.
- Between 2017 and 2020, 127.9 million US adults (48.6%) had some… Between 2020 and 2021, direct and indirect costs of total CVD wer… ($233.3 billion in direct costs and $184.6 billion in indirect costs/m…
- In 2017 to 2020 in the United States, 59.0% of non-Hispanic Black f… non-Hispanic Black males had some form of CVD. This race categor… prevalence of CVD.

Unless otherwise noted, all statistics in this document pertain to the United States. Please refer to Update for references and additional information for reported statistics.

Cardiovascular Disease in the U.S.

941,652 deaths in 2022

Roughly **2,500** people in the U.S. **die** from cardiovascular diseases **every day**.

Cardiovascular disease causes approximately **1 death every 34 seconds**.

Heart Disease, Stroke, and other Cardiovascular Diseases

- Cardiovascular disease (CVD), listed as the underlying cause of death, accounted for 941 652 deaths in the United States in 2022.
- Heart disease and stroke claimed more lives in 2022 in the United States than all forms of cancer and chronic lower respiratory disease combined.

NATURAL MEASLES IMMUNITY BENEFITS:

CARDIOVASCULAR PROTECTION
- Japan Collaborative Cohort Study: 103,836 people followed for 21 years
- 20% reduction in cardiovascular mortality with natural measles infection
- Published in peer-reviewed medical literature

CANCER PROTECTION
- Albonico et al. (1998): Febrile childhood infections provide cancer protection
- Marcotte et al. (2014): Natural infections reduce leukemia risk in children
- Reduced risk of non-Hodgkin lymphoma and Hodgkin lymphoma
- General cancer protection with dose-response relationship

IMMUNITY COMPARISON
- **Natural immunity: Lifelong protection**
- Vaccine immunity: Wanes rapidly, requires boosters
- Natural infection: Proper immune system maturation

CONCLUSION: **Natural measles provides health benefits that vaccination cannot replicate**

Vaccination: Eliminates natural benefits while adding documented risks

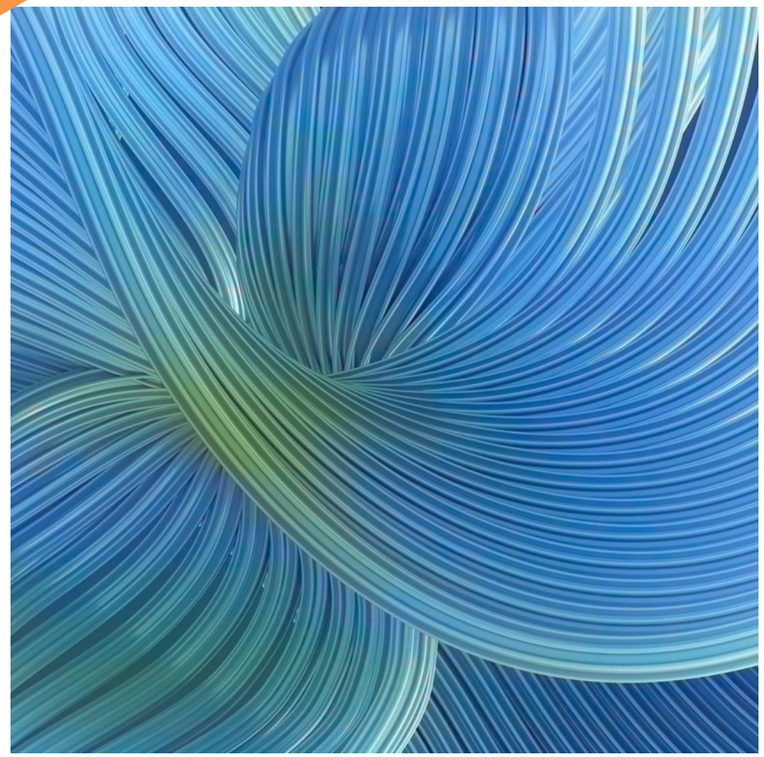
Measles can occur in highly vaccinated populations

1. Primary vaccine failure in 1-10%
2. Secondary vaccine failure – waning immunity

Documented History of Vaccine Failure & Waning Immunity

OUTBREAKS IN HIGHLY VACCINATED POPULATIONS

- Corpus Christi, 1985 (Gustafson TL, Lievens AW, Brunell PA, Moellenberg RG, Buttery CM, Sehulster LM. Measles outbreak in a fully immunized secondary-school population. New England journal of medicine. 1987 Mar 26;316(13):771-4.
  - Outbreak despite a 99% vaccination rate.
- Massachusetts, 1984 (Gustafson TL, Lievens AW, Brunell PA, Moellenberg RG, Buttery CM, Sehulster LM. Measles outbreak in a fully immunized secondary-school population. New England journal of medicine.
- 1987 Mar 26;316(13):771-4.
  - Outbreak in a high school with a 98% vaccination rate.
    - 70% of cases were in vaccinated students
- Israeli Military, 2017: Outbreak among soldiers with high 2-dose coverage. (Avramovich E. Measles outbreak in a highly vaccinated population—Israel, July–August 2017. MMWR. Morbidity and Mortality Weekly Report. 2018;67.)
  - The primary patient had received 3 doses of MMR.



Jacobson, R. M., and G. A. Poland. "**The genetic basis for measles vaccine failure**." *Acta Paediatrica* 93 (2004): 43-46.

- **The overwhelming proportion of measles vaccine failure was due to primary vaccine failure (failure to ever generate antibody from antigenic stimulation).** This comparison of two geographically distinct communities revealed that **10% of children** previously vaccinated against measles lacked antibody on follow-up and that these vaccine failures clustered in families. A study of monozygotic and dizygotic twins revealed a high degree of heritability of measles vaccine antibody level

Measles antibodies after MMR vaccination:
98.5%, 90%, 93.7%
Age effect: 97.9% (0-5 yo) 98.6% (6-10yo) 82.7% (11-15 yo)

- Pillsbury A, Quinn H. An assessment of measles vaccine effectiveness, Australia, 2006-2012. Western Pac Surveill Response J 2015; 6:43-50.

- Knuf M, Zepp F, Helm K, Maurer H, Prieler A, Kieninger-Baum D, et al. Antibody persistence for 3 years following two doses of tetravalent measles-mumps-rubella-varicella vaccine in healthy children. Eur J Pediatr 2012; 171:463-70.

- Paulke-Korinek M, Fischmeister G, Grac A, Rendi-Wagner P, Kundi M, Mohsenzadeh-Rabbani A, et al. Persistence of antibodies in 4-8 year old Austrian children after vaccination with hexavalent DTaP-HBV-IPV/Hib and MMR vaccines. Vaccine 2011; 29:5130-6.

- **Variable initial response and variable duration of response**

Vaccinated individuals can and do spread measles to others.

CHILDHOOD VACCINES:

DTAP -TETANUS

Cause of Death	Annual Deaths	Risk (1 in X)
Car Accidents	40,901	1 in 8,315
Drowning	4,500	1 in 75,556
Lightning Strike	20-43	1 in 7.9 - 17 million
Tetanus	1.3	1 in 261 million

Centers for Disease Control and Prevention. Tetanus Surveillance. In: Manual for the Surveillance of Vaccine-Preventable Diseases. CDC; 2024. Accessed December 18, 2025. https://www.cdc.gov/vaccines/pubs/surv-manual/chpt16-tetanus.html

National Safety Council. Motor Vehicle Fatality Estimates. Injury Facts. Accessed December 18, 2025. https://injuryfacts.nsc.org/motor-vehicle/overview/preliminary-monthly-estimates/

Centers for Disease Control and Prevention. Drowning Facts. Accessed December 18, 2025. https://www.cdc.gov/drowning/facts/index.html

National Oceanic and Atmospheric Administration. Lightning Fatalities. National Weather Service. Accessed December 18, 2025. https://www.weather.gov/safety/lightning-fatalities

Tetanus Risk is Statistically Negligible for healthy children

Tetanus is a serious disease, but its incidence in modern America is exceedingly rare. According to the CDC's own data, there are only about **30 cases of tetanus per year in the entire United States, out of a population of 340 million people.**

This translates to an annual risk of approximately 1 in 11.3 million.
Sources: The risk of dying from tetanus is 31,000 times lower than dying in a car accident.

It is roughly equivalent to the risk of being struck by lightning.

[1] Centers for Disease Control and Prevention. Tetanus Surveillance. In: Manual for the Surveillance of Vaccine-Preventable Diseases. CDC; 2024. Accessed December 18, 2025.https://www.cdc.gov/vaccines/pubs/surv-manual/chpt16-tetanus.html

[2] National Safety Council. Motor Vehicle Fatality Estimates. Injury Facts. Accessed December 18, 2025. https://injuryfacts.nsc.org/motor-vehicle/overview/preliminary-monthly-estimates/

[3] Centers for Disease Control and Prevention. Drowning Facts. Accessed December 18, 2025. https://www.cdc.gov/drowning/facts/index.html

[4] National Oceanic and Atmospheric Administration. Lightning Fatalities. National Weather Service. Accessed December 18, 2025. https://www.weather.gov/safety/lightning-fatalities

Existing Immunity to Tetanus is Robust and Long-Lasting

The CDC recommends a tetanus booster every 10 years. However, a growing body of scientific evidence suggests this interval may be unnecessarily frequent.

A landmark 2016 study published in Clinical Infectious Diseases followed 546 adults for 30 years and found that **95% of individuals remained protected against tetanus for 30 years or more after their initial vaccination series.** The study's authors concluded: "it may no longer be necessary to administer booster vaccinations every 10 years and that the current adult vaccination schedule for tetanus and diphtheria should be revisited."

Hammarlund E, et al. Durability of Vaccine-Induced Immunity Against Tetanus and Diphtheria Toxins: A 30-Year Follow-up Study. Clinical Infectious Diseases. 2016;62(9):1111-1118.

CHILDHOOD VACCINES:

DTAP PERTUSSIS

The Acellular Pertussis Vaccine Does Not Prevent Infection or Transmission

- Warfel JM, Zimmerman LI, Merkel TJ. Acellular pertussis vaccines protect against disease but fail to prevent infection and transmission in a nonhuman primate model. Proceedings of the National Academy of Sciences. 2014 Jan 14;111(2):787-92.

- The current acellular pertussis (aP) vaccine replaced the older whole-cell vaccine in the 1990s.
  - It does not prevent a person from becoming infected with Bordetella pertussis.
  - TDaP does not prevent them from transmitting it to others.

- **Landmark 2014 study published in the Proceedings of the National Academy of Sciences (PNAS).** researchers vaccinated baboons (the best animal model for pertussis) with the DTaP vaccine and then challenged them with the pertussis bacteria.
  - **The vaccinated baboons were protected from severe symptoms, but they were colonized with pertussis bacteria in their throats at the same rate as the unvaccinated baboons.**

  - They remained colonized for up to 42 days, shedding the bacteria and capable of transmitting it.

- The study authors concluded: “acellular pertussis vaccines protect against disease but fail to prevent infection and transmission in a nonhuman primate model.”
- Tdap vaccine creates asymptomatic carriers. A vaccinated child can get infected, show no symptoms, and unknowingly spread the disease to vulnerable individuals, including young infants who are most at risk of severe outcomes.

The Vaccine's Limitations Have Contributed to the Resurgence of Pertussis

- The limitations of the acellular vaccine are a primary reason why we are seeing a resurgence of whooping cough in the United States, despite record-high vaccination rates.
- In 2012, the US experienced its largest outbreak in 50 years, with over 48,000 cases
- Most pediatric cases were vaccinated according to national recommendations, although 9% of those aged 6 months to 18 years were completely unvaccinated against pertussis. High disease rates also were observed in fully vaccinated preadolescents, especially 10-year-olds.

Winter K, Harriman K, Zipprich J, Schechter R, Talarico J, Watt J, Chavez G. California pertussis epidemic, 2010. The Journal of pediatrics. 2012 Dec 1;161(6):1091-6.

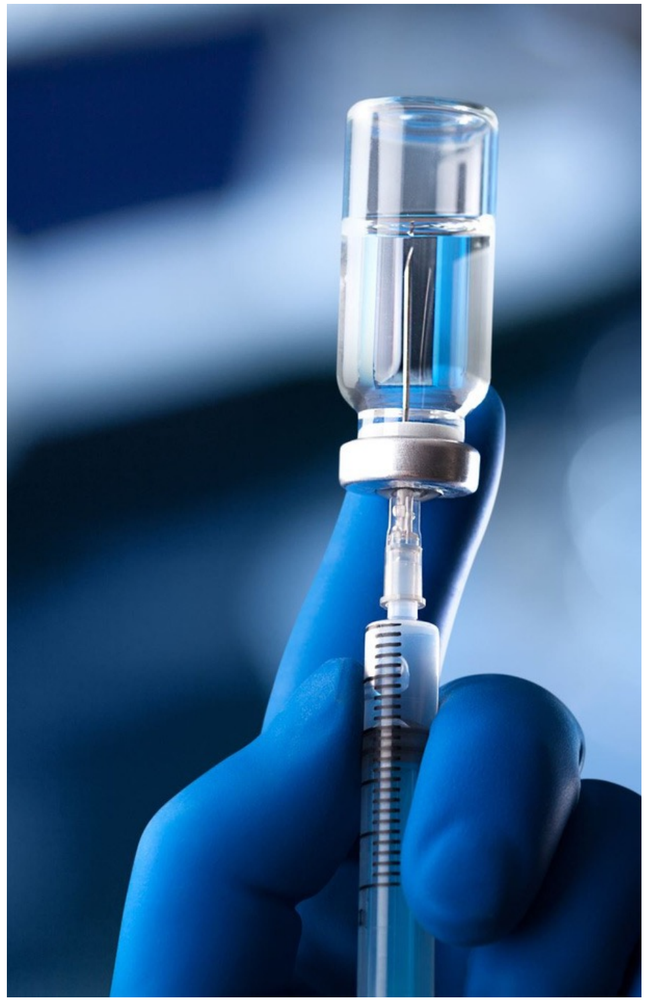
The Vaccine's Immunity Wanes Rapidly

The symptom-reducing protection DTaP provides is incredibly short-lived.

A 2012 study in the New England Journal of Medicine found that protection from the DTaP vaccine wanes by 42% per year after the fifth dose.

The Tdap booster given at age 11 provides only a temporary boost, with protection waning again within just 2-3 years.

Klein NP, et al. Waning protection after fifth dose of DTaP vaccine in children. N Engl J Med. 2012;367(11):1012-1019.



Pathogen Adaptation: The Vaccine Has Driven the Evolution of Pertussis

- Widespread use of the acellular vaccine has created evolutionary pressure on the Bordetella pertussis bacterium, leading to the emergence of new, vaccine-resistant Strains.
- In a 2015 study published in the New England Journal of Medicine, researchers found that the majority of circulating pertussis strains in the United States were now pertactin-deficient.
- Pertactin is one of the key antigens in the acellular vaccine. The bacterium has simply evolved to stop producing it, rendering a key component of the vaccine less effective. Today, over 60% of U.S. isolates are pertactin-negative.
- Even more alarmingly, a new lineage known as ptxP3 has emerged, which produces significantly more pertussis toxin than older strains, leading to more severe disease.

Martin SW, et al. Pertactin-Negative Bordetella pertussis Strains: Evidence for a Possible Selective Advantage. Clin Infect Dis. 2015;60(2):223-227.
[Mooi FR, et al. Evolution of Bordetella pertussis and increased toxin expression. Emerg Infect Dis. 2009;15(8):1206-1213.

Ma L, Caulfield A, Dewan KK, Harvill ET. Pertactin-Deficient Bordetella pertussis, Vaccine-Driven Evolution, and Reemergence of Pertussis. Emerg Infect Dis. 2021 Jun;27(6):1561-1566. doi: 10.3201/eid2706.203850. PMID: 34014152; PMCID: PMC8153889.

Abstract

Recent reemergence of pertussis (whooping cough) in highly vaccinated populations and rapid expansion of *Bordetella pertussis* strains lacking pertactin (PRN), a common acellular vaccine antigen, have raised the specter of vaccine-driven evolution and potential return of what was once the major killer of children. The discovery that most circulating *B. pertussis* strains in the United States have acquired new and independent disruptive mutations in PRN is compelling evidence of strong selective pressure.

The Law of Unintended Consequences

DTaP vaccine, by failing to provide sterilizing immunity, has inadvertently allowed these more dangerous strains to evolve and spread.

Textbook example of pathogen adaptation.

The vaccine is not controlling the disease; it is shaping its evolution.

The Risk of the DTaP Vaccine Far Exceeds the Risk of the Disease for some individuals

While pertussis cases have increased, the disease remains overwhelmingly mild for healthy, well-nourished children.

The case fatality rate in vaccinated schoolchildren is less than 0.01%.

In 2024, a peak outbreak year, there were zero deaths in children ages 7-19 in the entire United States. The risk of death is concentrated in very young infants, the very group being put at risk by asymptomatic carriers created by the vaccine.

A 2022 study in the prestigious journal PNAS used epidemiologic modeling to demonstrate that due to rapid waning immunity, Tdap boosters cannot sustain herd immunity at the population level.

The vaccine simply does not last long enough to prevent chains of transmission.

Centers for Disease Control and Prevention. 2024 Provisional Pertussis Surveillance Report. CDC; 2025.
Cherry JD. Clinical manifestations of pertussis in the vaccinated. Future Microbiol. 2019;14:1085-1094.
[19] Domenech de Celles M, et al. Impact of booster vaccinations on pertussis transmission in the U.S. PNAS. 2022;119(11):e2120064119.

Meanwhile, the Tdap package inserts admit to a 1.5% rate of serious adverse events in adolescents, which translates to 1 in every 67 children.

These are not minor reactions; they are events requiring hospitalization or resulting in permanent disability. The inserts also list a range of post-marketing reports, including encephalopathy (coma, prolonged seizures), Guillain-Barré Syndrome, myocarditis (heart inflammation), and death.

Sanofi Pasteur. Adacel (Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine Adsorbed) Package Insert. FDA; 2023.

CHILDHOOD VACCINES:

MY FAVORITE - HIB

Hib vaccine: infant meningitis

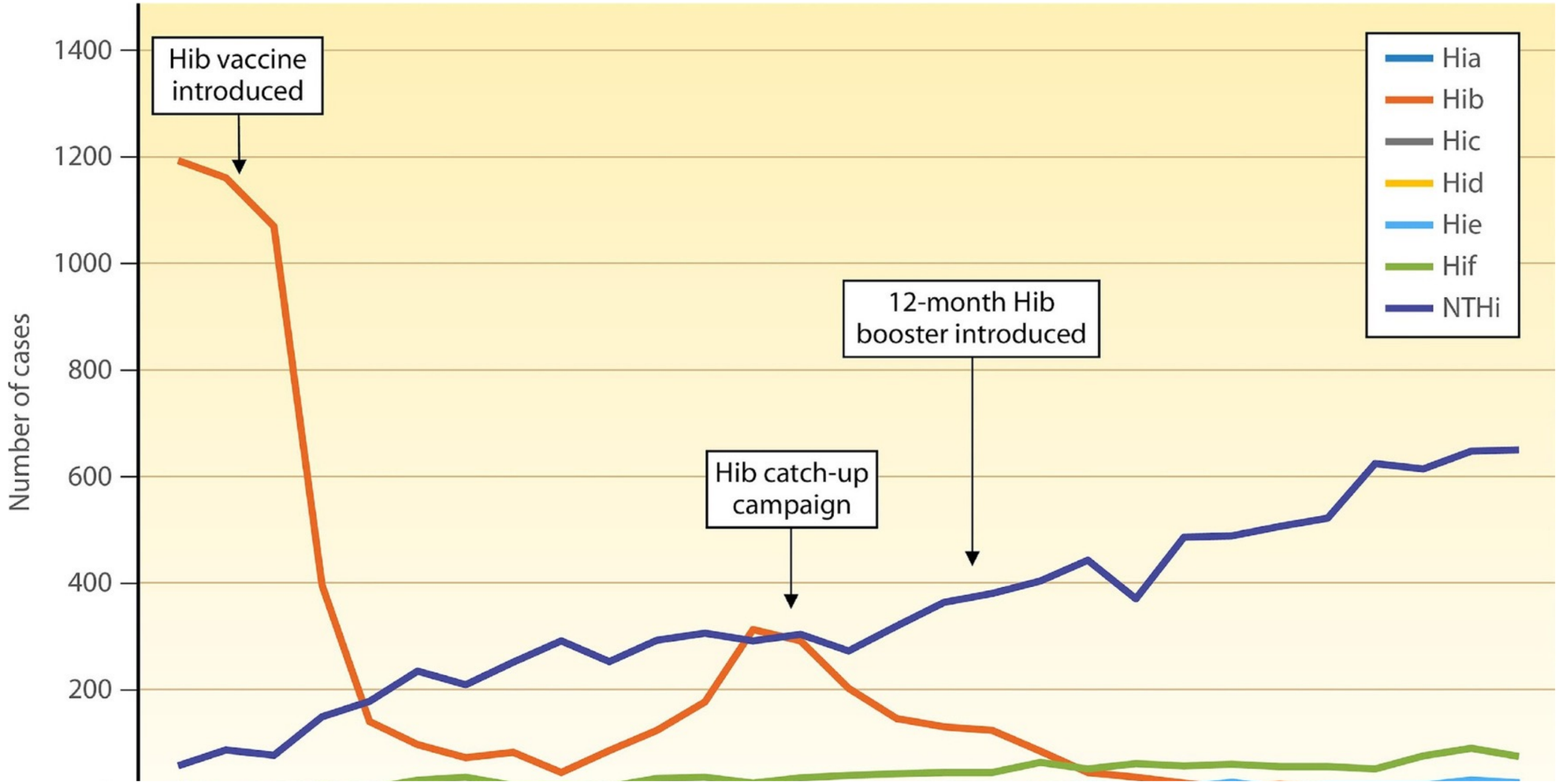
- The conjugated vaccines offer increased immunogenicity and prolonged durability of immune protection compared to the plain PRP vaccine and increasingly are combined with other childhood vaccines for decreased cost and increased ease of vaccination.

- Hib vaccines have a very favorable safety profile, have been found to be either cost-saving or cost-effective by many public health agencies, and, in most countries, are initiated during early infancy as part of routine childhood immunization programs.

- As a result of widespread use of the vaccines, the incidence of Hib infections, and their associated morbidity and mortality, has fallen dramatically across the globe

Gilsdorf JR. Hib vaccines: their impact on Hemophilus influenzae type b disease. The Journal of infectious diseases. 2021 Oct

Hib Vaccine


Hib vaccine introduced
12-month Hib booster introduced
Hib catch-up campaign
Number of cases
1400
1200
1000
800
600
400
200
Hia
Hib
Hic
Hid
Hie
Hif
NTHi

Hib resurgence: reasons

- Immunization in infancy resulted in a lower-than-expected vaccine effectiveness (VE). The VE in those immunized in infancy declined over time, reaching zero after 1year.

- A shortage of the combination vaccine used in the United Kingdom at that time, which had a whole-cell pertussis component (DTwP/Hib) resulted in utilization of an alternative combination vaccine containing an acellular component (DTaP/Hib) – less immunogenic. Introduction of meningococcal group C protein conjugate vaccine (MenC) in 1999, which was co-administered with the Hib vaccine, reducing the immunogenicity of the Hib component

Reference for prior slide

- Ladhani SN. 2012. Two decades of experience with the *Haemophilus influenzae* serotype b conjugate vaccine in the United Kingdom. *Clin Ther* 34:385–399.

- McVernon J, Andrews N, Slack MP, Ramsay ME. 2003. Risk of vaccine failure after *Haemophilus influenzae* type b (Hib) combination vaccines with acellular pertussis. *Lancet* 361:1521–1523

- Eskola J, Ward J, Dagan R, Goldblatt D, Zepp F, Siegrist CA. 1999. Combined vaccination of *Haemophilus influenzae* type b conjugate and diphtheria-tetanus-pertussis containing acellular pertussis. *Lancet* 354:2063–2068.

- Dagan R, Poolman JT, Zepp F. 2008. Combination vaccines containing DTPa-Hib: impact of IPV and coadministration of CRM197 conjugates. *Expert Rev Vaccines* 7:97–115.

CHILDHOOD VACCINES:

FAILURE OF REGULATORY OVERSIGHT AND INADEQUATE TRIALS

IOM MEETINGS

- Is a causal relationship between vaccines and autism:
- Likely
- Suggested
- Unlikely
- Inadequate

2001
2004
2011
2013

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

session transcripts will never be shared with anybody outside the committee and the staff." While that turned out to be wrong, her second pronouncement was dead-on accurate:

> "The point of no return, ***the line we will not cross*** in public policy is '*Pull the vaccine, Change the schedule.*' We wouldn't say '*Compensate [the injured].*' We wouldn't say '*Pull the vaccine.*' We wouldn't say '*Stop the program.*'"

Kathleen Stratton

The Chair of the committee, Dr. Marie McCormick, further cemented the conclusion that the co-opted committee had already committed to reach before they even started:

> "[CDC] wants us to declare, well, these things are pretty safe on a population basis."
>
> "We are not ever going to come down that [autism] is a true side effect."

Marie McCormick

So that's that then. No matter what they might have learned over many months to come, even that some childhood vaccines are dangerous to some children, they had drawn the line they would not cross. No vaccines would be pulled no matter what, no programs would

SIMPSONWOOD 2000

Meeting in Atlanta To deal with issue of Thimerosal and neurodevelopmental effects

https://archive.org/stream/TheSimpsonwoodDocuments/The-Simpsonwood-Documents

Kennedy July 2025

Simpsonwood

52 attendees including CDC and FDA officials, WHO representatives, and vaccine manufacturers including GlaxoSmithKline, Merck, Wyeth, and Aventis Pasteur.
All data was marked "embargoed" with strict instructions against photocopying or removing documents.

- **The Verstraeten thimerosal study underwent five iterations that reduced autism risk findings from 1135% to zero**

- The CDC's Thomas Verstraeten found an 11.35-fold increased autism risk from thimerosal exposure in his initial 1999 analysis, but through five successive iterations of data manipulation between 1999-2003, this alarming finding was systematically reduced until the published study showed "no consistent significant associations." Internal CDC documents reveal officials were "stunned" by the initial findings and held a secret meeting at Simpsonwood to discuss managing the implications before Verstraeten left CDC to work for vaccine manufacturer GlaxoSmithKline

According to data obtained through Freedom of Information Act requests by the advocacy group SafeMinds:

- Verstraeten's initial analysis found **relative risks of 7.62 to 11.35 for autism** in children receiving the highest thimerosal exposures in their first month of life compared to those with no exposure. The analysis also showed an **8.0-fold increased risk for ADHD**, **a 2.1-fold risk for speech delays, and 5.0-fold risk for sleep disorders.**

- **Thimerosal removed from most vaccines in 2001, but not taken out of doctor's offices so continued to be used until 2003**

- These findings prompted Verstraeten to write an internal CDC email on December 17, 1999, with the subject line "It just won't go away," referring to the persistent statistical associations between thimerosal and autism.
- In the email, obtained through FOIA requests, Verstraeten noted that "all the harm is done in the first month" of exposure.
- This Generation Zero analysis was never published or presented publicly, and its existence only became known through FOIA disclosures years later.

Generation Zero: Dec 1999

true zero-exposure controls showing 11.35x autism risk.	Scientist “stunned” at the result

Generation 1: July 2000

added exclusions and protocol restrictions, reducing relative risks by over 75% but still showing significant associations.	Presented at Simpsonwood

Generation 2-4: 2000-2003

Bundling exposures up to 25 mcg with the zero-exposure group	**Removing unvaccinated controls** by requiring all children to have received at least 2 polio vaccines	data from a **bankrupt HMO with "notoriously faulty data systems"**

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Verstraeten T, Davis RL, DeStefano F, Lieu TA, Rhodes PH, Black SB, Shinefield H, Chen RT, Vaccine Safety Datalink Team. Safety of thimerosal-containing vaccines: a two-phased study of computerized health maintenance organization databases. Pediatrics. 2003 Nov 1;112(5):1039-48.

Final Published Version (November 2003): Published in Pediatrics, this version concluded there were "**no consistent significant associations between thimerosal-containing vaccines and neurodevelopmental outcomes."**

SYSTEMIC FAILURES IN VACCINE SAFETY OVERSIGHT

Dr. Stanley Plotkin—often called the “Godfather of Vaccines,” and Dr. Walter Orenstein, former Director of the CDC’s National Immunization Program, wrote that the public is no longer satisfied with the current safety paradigm.

“post authorization studies are needed to fully characterize the safety profile of a new vaccine since pre-licensure clinical trials have limited sample sizes, follow up durations, and population heterogeneity.”

Furthermore, in 2012, the Institute of Medicine (IOM), at the request of the CDC, reviewed the 158 most commonly claimed adverse events following vaccination Their findings were a shocking indictment of our vaccine safety program:
for 134 of the 158 conditions (85%), the IOM concluded that the evidence was “inadequate to accept or reject a causal relationship” because the necessary studies had never been done.

The IOM committee stated that “the lack of adequate data…was of major concern to the committee.”

[Institute of Medicine. Adverse Effects of Vaccines: Evidence and Causality. Washington, DC: The National Academies Press; 2012.
[Lazarus R, et al. Electronic Support for Public Health–Vaccine Adverse Event Reporting System (ESP:VAERS). Agency for Healthcare Research and Quality; 2010. Grant ID: R18 HS 017045.

VAERS

- Finally, the primary post-marketing surveillance system, the Vaccine Adverse Event
- Reporting System (VAERS), is a passive system that is widely acknowledged to capture only 1-10% of actual adverse events.
- A pilot study by Harvard Pilgrim Health Care for the CDC found that an automated system captured an adverse event rate of 11.7%, or 1 in every 8 or 9 people.

- The CDC never implemented this automated system.
- The clinical trials are not designed to detect rare but serious adverse events, the post-marketing surveillance is incomplete, and the most basic safety questions remain unanswered for many conditions.

Lazarus R, et al. Electronic Support for Public Health–Vaccine Adverse Event Reporting
System (ESP:VAERS). Agency for Healthcare Research and Quality; 2010. Grant ID: R18 HS
017045.

Institutional Failure - No Evidence, No Oversight

INADEQUATE CLINICAL TRIALS

- **Not a single routine childhood vaccine was licensed based on a trial with a true, inert placebo control**
- MMR vaccine tested against another vaccine, not placebo
  Makes it difficult to identify long-term safety signals

INADEQUATE EVIDENCE

- Institute of Medicine (2013): 85% of vaccine-adverse event pairs had inadequate evidence
- Cochrane Collaboration: "Low certainty evidence" or "insufficient evidence“ for MMR serious harms
- Dr. Stanley Plotkin, NEJM (2024): 76% of vaccine-health relationships lack adequate evidence

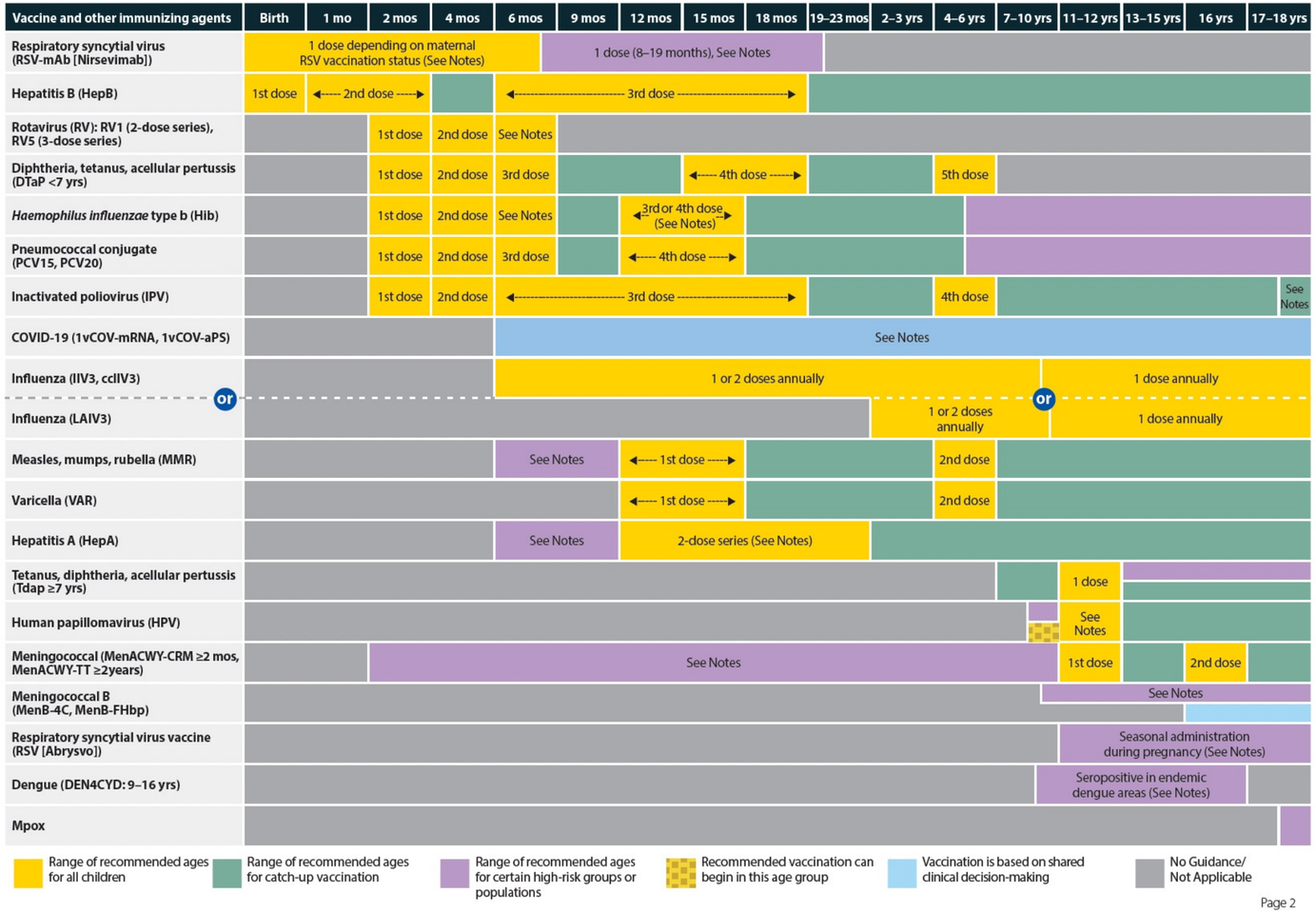
ABANDONMENT OF LEGAL DUTY:

- 1986 Law: HHS must submit biennial reports to Congress on vaccine safety improvements
- Reports required since 1988: At least 17 should have been submitted
- **Zero reports submitted: ZERO**
- Result: 30+ years of illegal abandonment of statutory safety obligations

CHILDHOOD VACCINES:
VAXXED/UNVAXXED STUDIES

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).



Page 2

The American Academy of Pediatrics and Centers for Disease Control childhood vaccine schedule has never been tested in aggregate by government researchers

https://www.cdc.gov/vaccines/hcp/imz-schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

Vaccinated vs. Unvaccinated Study (Homeschoolers, 2017)

Journal of Translational Science

Research Article ISSN: 2059-268X

Pilot comparative study on the health of vaccinated and unvaccinated 6- to 12-year-old U.S. children

Published: April 24, 2017

i, USA

MS 39213, USA

son, MS 39213, USA

Abstract

Vaccinations have prevented millions of infectious illnesses, hospitalizations and deaths among U.S. children, yet the long-term health outcomes of the vaccination schedule remain uncertain. Studies have been recommended by the U.S. Institute of Medicine to address this question. This study aimed 1) to compare vaccinated and unvaccinated children on a broad range of health outcomes, and 2) to determine whether an association found between vaccination and neurodevelopmental disorders (NDD), if any, remained significant after adjustment for other measured factors. A cross-sectional study of mothers of children educated at home was carried out in collaboration with homeschool organizations in four U.S. states: Florida, Louisiana, Mississippi and Oregon. Mothers were asked to complete an anonymous online questionnaire on their 6- to 12-year-old biological children with respect to pregnancy-related factors, birth history, vaccinations, physician-diagnosed illnesses, medications used, and health services. NDD, a derived diagnostic measure, was defined as having one or more of the following three closely-related diagnoses: a learning disability, Attention Deficient Hyperactivity Disorder, and Autism Spectrum Disorder. A convenience sample of 666 children was obtained, of which 261 (39%) were unvaccinated. The vaccinated were less likely than the unvaccinated to have been diagnosed with chickenpox and pertussis, but more likely to have been diagnosed with pneumonia, otitis media, allergies and NDD. After adjustment, vaccination, male gender, and preterm birth remained significantly associated with NDD. However, in a final adjusted model with interaction, vaccination but not preterm birth remained associated with NDD, while the interaction of preterm birth and vaccination was associated with a 6.6-fold increased odds of NDD (95% CI: 2.8, 15.5). In conclusion, vaccinated homeschool children were found to have a higher rate of allergies and NDD than unvaccinated homeschool children. While vaccination remained significantly associated with NDD after controlling for other factors, preterm birth coupled with vaccination was associated with an apparent synergistic increase in the odds of NDD. Further research involving larger, independent samples and stronger research designs is needed to verify and understand these unexpected findings in order to optimize the impact of vaccines on children's health.

Abbreviations: ADHD: Attention Deficit Hyperactivity Disorder; ASD: Autism Spectrum Disorder; AOM: Acute Otitis Media; CDC: Centers for Disease Control and Prevention; CI: Confidence Interval; NDD: Neurodevelopmental Disorders; NHERI: National Home Education Research Institute; OR: Odds Ratio; PCV-7: Pneumococcal Conjugate Vaccine-7; VAERS: Vaccine Adverse Events Reporting System.

Introduction

Vaccines are among the greatest achievements of biomedical science and one of the most effective public health interventions of the 20th century [1]. Among U.S. children born between 1995 and 2013, vaccination is estimated to have prevented 322 million illnesses, 21 million hospitalizations and 732,000 premature deaths, with overall cost savings of $1.38 trillion [2]. About 95% of U.S. children of kindergarten age receive all of the recommended vaccines as a requirement for school and daycare attendance [3,4], aimed at preventing the occurrence and spread of targeted infectious diseases [5]. Advances in biotechnology are contributing to the development of new vaccines for widespread use [6].

Under the currently recommended pediatric vaccination schedule [7], U.S. children receive up to 48 doses of vaccines for 14 diseases from birth to age six years, a figure that has steadily increased since the 1950s, most notably since the Vaccines for Children program was created in 1994. The Vaccines for Children program began with vaccines targeting nine diseases: diphtheria, tetanus, pertussis, polio,

Haemophilus influenzae type b disease, and rubella. Between 1995 and 2013, n diseases were added for children age 6 a pneumococcal disease, influenza, and r

Although short-term immunologic on vaccines prior to their approval Administration, the long-term effects the vaccination program itself remain acknowledged to carry risks of severe ac such as neurological complications and are considered so rare that the vaccina safe and effective for virtually all childre

There are very few randomized t recommended for children in terms o

Correspondence to: Anthony R Mawe Epidemiology and Biostatistics, School o University, Jackson, MS 39213, USA, E-mail:

Key words: *acute diseases, chronic diseases, epidemiology, evaluation, health policy, immunization, neurodevelopmental disorders, vaccination*

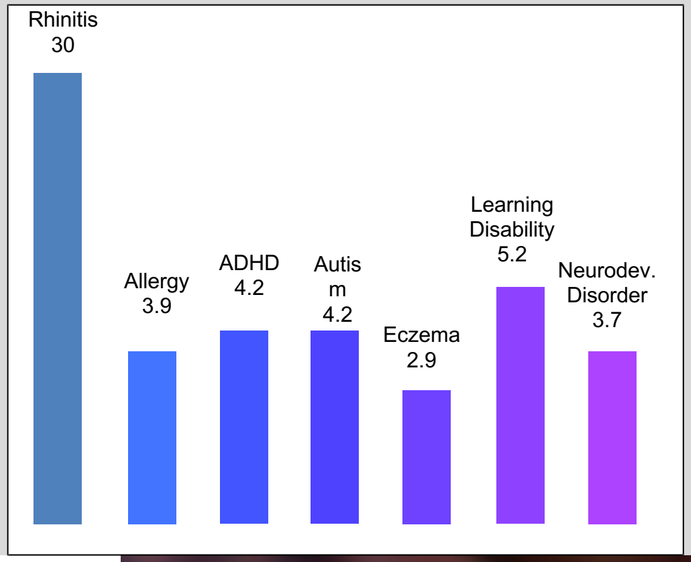
Received: March 22, 2017; **Accepted:** April 21, 2017; **Published:** April 24, 2017

J Transl Sci, 2017 doi: 10.15761/JTS.1000186 Volume 3(3): 1-12

Chronic illness

Vaccinated children were significantly more likely than the unvaccinated to have been diagnosed with the following: allergic rhinitis (10.4% vs. 0.4%, p <0.001; OR 30.1, 95% CI: 4.1, 219.3), other allergies (22.2% vs. 6.9%, p <0.001; OR 3.9, 95% CI: 2.3, 6.6), eczema/

Odds ratio of chronic diseases for vaccinated children vs. unvaccinated children



600 kids

Real World Clinical Data

Three medical practices in the US, vaccinated children were compared to unvaccinated children for the incidence of severe allergies, autism, gastrointestinal disorders, asthma, ADHD, and chronic ear infections.

Cases were stratified with non-cases based on year of birth and sex, and compared using a logistic regression model which also accounted for breastfeeding status and type of birth (vaginal versus cesarean section).

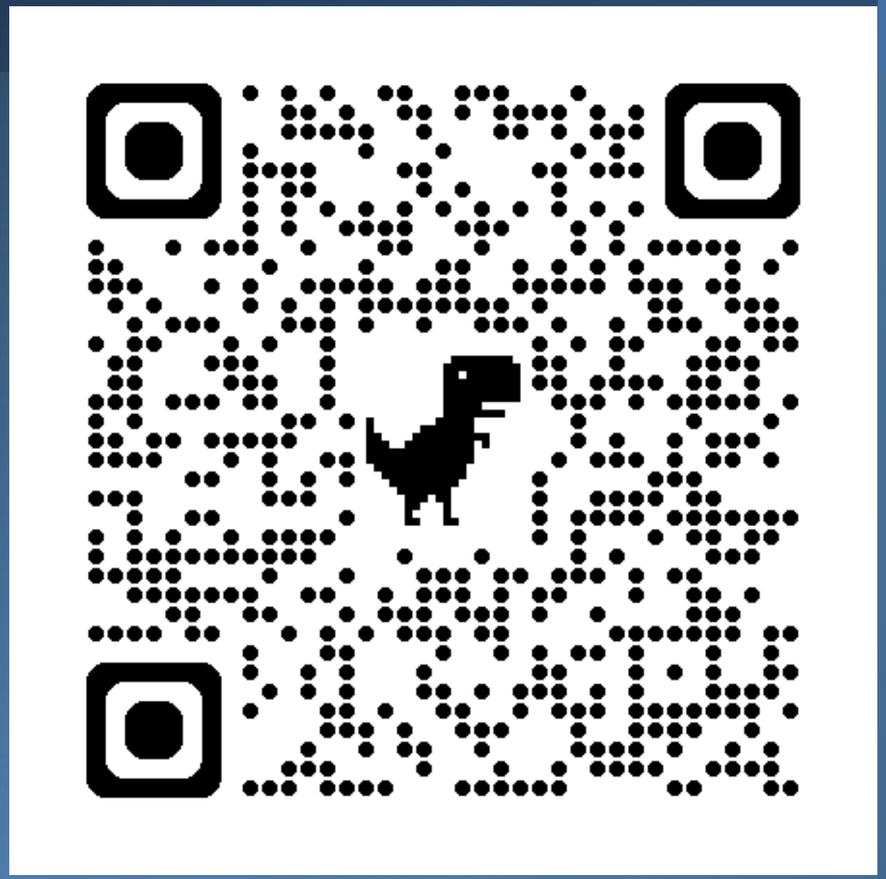
Vaccinated children were significantly more likely than unvaccinated children to be diagnosed with severe allergies (OR = 4.31, 95% CI 1.67 - 11.1), autism (OR = 5.03, 95% CI 1.64 - 15.5), gastrointestinal disorders (OR = 13.8, 95% CI 5.85 - 32.5), asthma (OR = 17.6, 95% CI 6.94 - 44.4), ADHD (OR = 20.8, 95% CI 4.74 - 91.2), and chronic ear infections (OR = 27.8, 95% CI 9.56 - 80.8).

Vaccinated children were less likely to be diagnosed with chickenpox (OR = 0.10, 95% CI 0.029 - 0.36).

Children who were "vaccinated and not breastfed" or "vaccinated and delivered via cesarean section" had the highest rates of adverse health outcomes. In this study, higher ORs were observed within the vaccinated versus unvaccinated....

Hooker and Miller 2021

Hooker BS, Miller NZ. Analysis of health outcomes in vaccinated and unvaccinated children: Developmental delays, asthma, ear infections and gastrointestinal disorders. SAGE Open Medicine. 2020 May;8:2050312120925344



CI: confidence interval.

Diagnosis	Vaccinated Cases/total	Unvaccinated Cases/total	Odds ratio (95% CI)	*p*-value
Developmental delay	153/1407 (10.9%)	34/630 (5.4%)	2.18 (1.47–3.24)	0.0001
Asthma	67/1412 (4.7%)	7/629 (1.1%)	4.49 (2.04–9.88)	0.0002
Ear infection	324/1116 (29.0%)	104/533 (19.5%)	2.13 (1.63–2.78)	<0.0001
Gastrointestinal disorder	55/1382 (4.0%)	18/619 (2.9%)	1.47 (0.84–2.57)	0.17
Head injury	93/1398 (6.7%)	31/627 (4.9%)	1.26 (0.82–1.94)	0.29

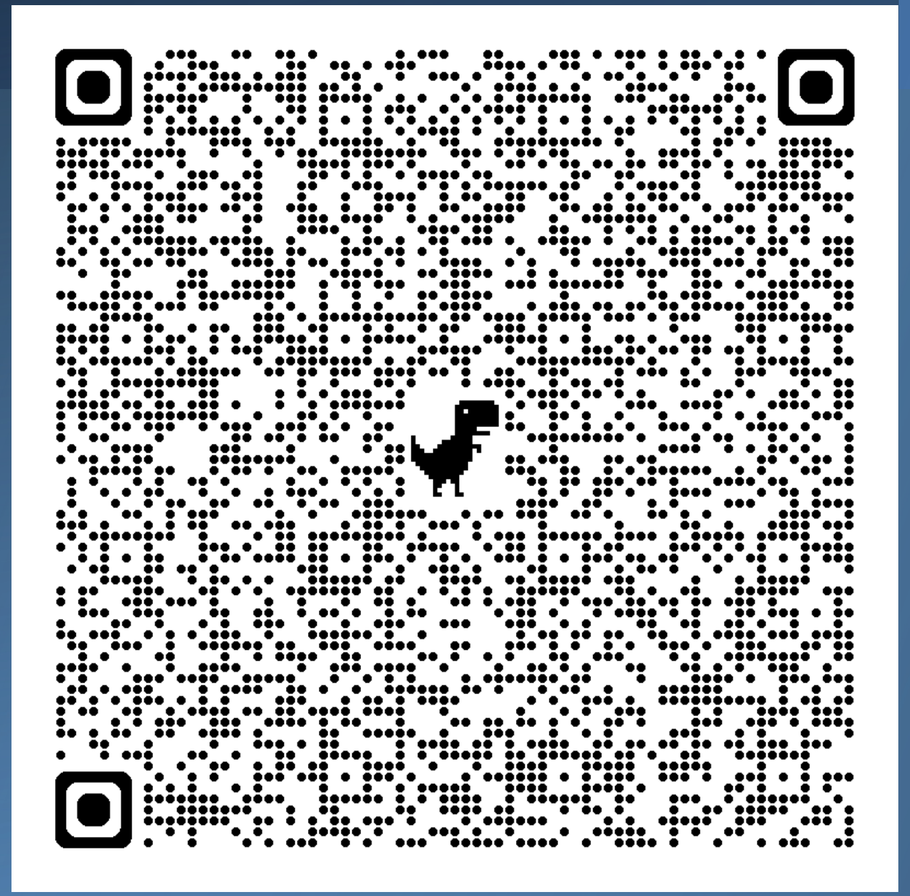
- **Table 7**. Quartile analysis, vaccinated versus unvaccinated (during the first year of life), stratified based on medical practice, year of birth and gender (child ⩾3 years of age).

Diagnosis	Quartile 1 1–5 vaccines (95% CI)	Quartile 2 6–10 vaccines (95% CI)	Quartile 3 11–12 vaccines (95% CI)	Quartile 4 13–21 vaccines (95% CI)
Developmental delay	1.36 (0.53–3.48)	2.54 (1.30–4.96)	3.22 (1.70–6.09)	2.42 (1.17–4.99)
Asthma	1.94 (0.59–6.40)	6.48 (2.64–15.9)	3.66 (1.42–9.46)	4.62 (1.68–12.7)
Ear infection	1.43 (0.98–2.07)	2.48 (1.72–3.60)	2.26 (1.53–3.33)	2.81 (1.80–4.40)
Gastrointestinal disorder	0.49 (0.19–1.31)	1.61 (0.68–3.84)	3.77 (1.65–8.59)	4.03 (1.57–10.3)
Head injury	0.68 (0.32–1.44)	1.56 (0.93–2.62)	1.12 (0.65–1.94)	1.37 (0.73–2.56)

- **Table 8**. Temporal analysis, vaccinated versus unvaccinated (during 6, 12, 18 and 24 months of life), stratified based on medical practice, year of birth and gender (child ⩾ 3 years of age).

Diagnosis	6 months (95% CI)	12 months (95% CI)	18 months (95% CI)	24 months (95% CI)
Developmental delay	1.95 (1.35–2.84)	2.18 (1.47–3.24)	2.92 (1.81–4.72)	3.51 (1.94–6.35)
Asthma	3.10 (1.64–5.85)	4.49 (2.04–9.88)	3.74 (1.69–8.28)	5.99 (2.15–16.7)
Ear infection	1.97 (1.58–2.46)	2.13 (1.63–2.78)	2.22 (1.61–3.05)	2.08 (1.42–3.04)
Gastrointestinal disorder	2.02 (1.23–3.33)	1.48 (0.84–2.57)	1.45 (0.74–2.82)	1.25 (0.60–1.45)
Head injury	1.32 (0.88–1.99)	1.26 (0.82–1.94)	1.77 (1.04–3.01)	1.29 (0.73–2.29)

Hooker BS, Miller NZ. Health effects in vaccinated versus unvaccinated children, with covariates for breastfeeding status and type of birth. Journal of Translational Science. 2021;7(6).



International Journal of Vaccine Theory, Practice, and Research

IJVTPR

A Peer-Review of the Vaccinated vs. Unvaccinated Study Discussed at the Senate Hearing on September 9, 2025[1]

John W. Oller, Jr., PhD[1], Daniel Broudy, PhD[2], Nicolas Hulscher, MPH[3]

Column	1	2	3	4	5	6	7	8	9	10
Row #	Outcome	Vx	NoVx	Vx_{pt-y}	$NoVx_{pt-y}$	Vx/16511	NoVx/1957	Col 6 – Col 7	$Rank_{Vx}$	$Rank_{NoVx}$
1	Chronic Health Condition	4732	160	277.3	111.7	0.2866	0.0818	0.2048	33	32
2	Asthma	2867	52	145.6	35.6	0.1736	0.0266	0.1471	31	30
3	Atopic Disease	946	23	41.2	15.6	0.0573	0.0118	0.0455	29	24
4	Autoimmune Disease	201	2	8.4	1.4	0.0122	0.0010	0.0112	19	6
5	Brain Dysfunction	8	0	0.3	0	0.0005	0.0000	0.0005	2	1
6	Cancer	169	13	7	8.8	0.0102	0.0066	0.0036	16	20
7	Diabetes	42	0	1.7	0	0.0025	0.0000	0.0025	7	1
8	Food Allergy	577	30	24.3	20.5	0.0349	0.0153	0.0196	28	26
9	Mental Health Disorder	341	5	15.9	4.5	0.0207	0.0026	0.0181	25	12
10	Neurodevelopmental Disorder	1029	9	50.2	8.2	0.0623	0.0046	0.0577	30	17
11	ADHD	262	0	12.1	0	0.0159	0.0000	0.0159	22	1
12	Autism	23	1	1.1	0.9	0.0014	0.0005	0.0009	5	4
13	Behavioral Disability	165	0	7.6	0	0.0100	0.0000	0.0100		1
14	Developmental Delay	219	5	10.1	2.7	0.0133	0.0026	0.0107	21	10
15	Learning Disability	65	0	3	0	0.0039	0.0000	0.0039	11	1
16	Intellectual Disability	5	0	2.1	0	0.0003	0.0000	0.0003	9	1
17	Speech Disorder	463	6	21.8	5.4	0.0280	0.0031	0.0250	27	14
18	Motor Disability	150	2	6.9	1.8	0.0091	0.0010	0.0081	15	8
19	Tics	46	0	2.1	0	0.0028	0.0000	0.0028	9	1
20	Other Psychological Disability	9	0	0.4	0	0.0005	0.0000	0.0005	3	1
21	Neurological Disorder	127	12	5.2	8.1	0.0077	0.0061	0.0016	13	17
22	Seizure Disorder	319	12	13.3	8.2	0.0193	0.0061	0.0132	23	18
23	Total of Chronic Health Conditions	12765	332	657.6	233.4	0.7731	0.1696	0.6035	378	246
24	Mean	580.227	15.091	29.891	10.609	0.035	0.008	0.027	18	11.182
25	Variance	1246868.28	1207.42	4032.09	584.38	0.00	0.00	0.00	98	109.108
26	Standard Deviation	1116.633	34.748	63.499	24.174	0.068	0.018	0.051	9.899	10.445

Table 1

In Columns 2 – 6 and in Rows 1 – 22, What Appears Here Is Table 2 from Lamerato et al. (2020-2025): It Is Reproduced for Detailed Re-Examination in Which: the 5 Rightmost Columns Give Proportional Values from Columns 3 and 4, Rank Orders of Respective Numbers in the Rightmost Pumpkin Colored Columns, and the Usual Descriptive Statistics Totals, Means, Variances, and Standard Deviations Are Added in the 4 Rows at the Bottom

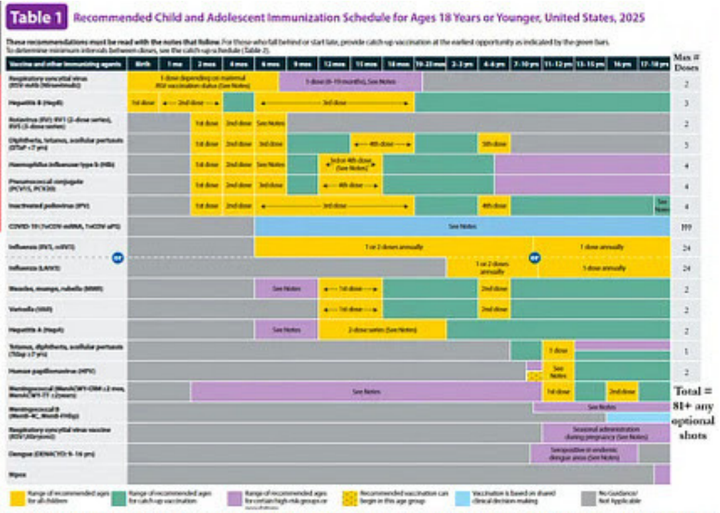
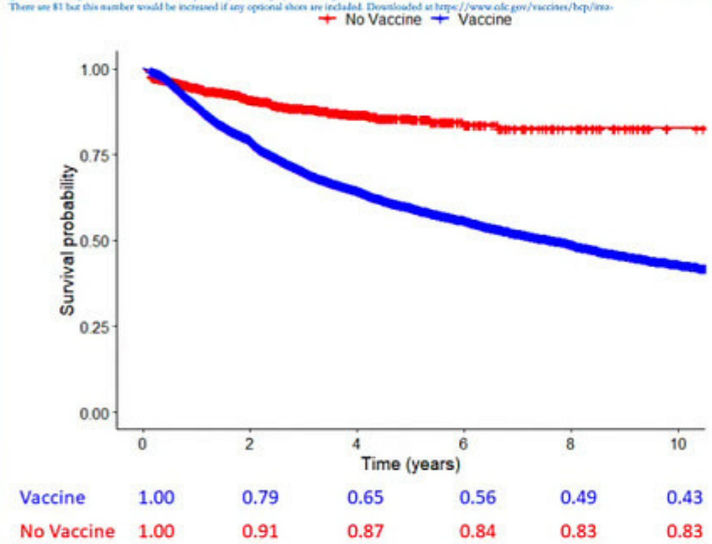


Figure 1. At the right hand side of the self-explanatory table in gray boxes we give the maximum number of doses on each row if all the recommended shots are taken. There are 81 but this number would be increased if any optional shots are included. Downloaded at https://www.cdc.gov/vaccines/hcp/imz-



Vaccine	1.00	0.79	0.65	0.56	0.49	0.43
No Vaccine	1.00	0.91	0.87	0.84	0.83	0.83

Figure 3. Lamerato et al. designated this figure as a "Kaplan Meier Curve" showing the "10-year chronic disease-free survival by vaccine exposure" contrasting the vaccinated cohort on the blue line with the unvaccinated on the red.

You Tube Feature Film

https://www.youtube.com/@AnInconvenientStudy

13 Vaxed Unvaxxed Studies

- Government has not funded
- Retrospective
- Clinical Practice based
- Confirmed with medical records

- **All showed same conclusion: unvaccinated are healthier;**
- **Vaccinated have more chronic disease**

2005[286]	(515 never-vaccinated; 423 partially; 239 fully)	mailed survey to NVIC member households				vaccinations reported less asthma and allergies in their unvaccinated children	
Lyons-Weiler and Thomas[287]	3,324 pediatric patients born into one practice (2,763 variably vaccinated; 561 unvaccinated)	Cohort	Yes (561 unvaccinated)	ICD-coded diagnoses in the EMR	EMR/billing records (practice database)	Overall results indicate that the unvaccinated pediatric patients in this practice are healthier overall than the vaccinated. Noted "0 of 561" unvaccinated with ADHD	ASD overall in cohort: 8.4 per 1,000 (0.84%). ADHD among unvaccinated: 0 per 1,000 (0/561)
Mawson et al., 2017[288]	666 homeschooled children (261 unvaccinated; 405 vaccinated); 7.7% preterm	Cross-sectional Survey	Yes	Survey	Survey	Vaccination associated with higher odds of NDD in preterm births (OR 2.7, 95% CI 1.2–6.0); preterm+vaccinated had higher odds vs term+vaccinated (OR 5.4, 2.5–11.9) and vs term+unvaccinated (OR 14.5, 5.4–38.7). No NDD observed in preterm-unvaccinated subgroup (n=12)	NDD: 104 per 1,000 (vaccinated 10.4%) vs 31 per 1,000 (unvaccinated 3.1%). ASD: 46.9 per 1,000 vs 11.5 per 1,000. Preterm-unvaccinated subgroup: 0 per 1,000 (0/12; note very small n)
Hooker and Miller, 2021[290]	1,565 children (from 1,929 surveys; post-exclusions) across 3 US practices	Voluntary Survey	Yes	Parent report; subset confirmed via EMR chart review	Parent report; diagnoses confirmation subset via EMR; some analyses restricted to patients in participating practices	Higher ORs were observed within the fully and partially vaccinated groups versus the unvaccinated multiple conditions	Autism: OR 5.03 (1.64–15.5). ADHD: OR 20.8 (4.74–91.2). GI disorders: OR 13.8 (5.85–32.5). Asthma: OR 17.6 (6.94–44.4). Chronic ear infections: OR 27.8 (9.56–80.8).
Joy Garner, 2020[291]	1,482 entirely unvaccinated participants	Cross-sectional, self-selected survey of only post-birth unvaccinated people	No (all participants unvaccinated; compared only to U.S. averages)	Survey	Survey	Unvaccinated individuals reported dramatically lower lifetime rates of chronic illness, disability, and death compared with national U.S. averages. Authors emphasized absence of autism, ADHD, diabetes, heart disease, and chronic allergy/asthma among surveyed unvaccinated participants, and proposed a national follow-up study	Vaccinated U.S. children (ages 3–17): 47.6 per 1,000 vs. Unvaccinated (all ages): 1.3 per 1,000; relative risk reduction = 97%
Nederlandse Vereniging Kritisch Prikken, 2006[292]	231 unvaccinated and 312 vaccinated children analyzed	National Survey	Yes	Survey	Survey	Autism reported in 8/312 vaccinated vs 0/231 unvaccinated	Vaccinated: 8/312 = 2.6%; Unvaccinated: 0/231 = 0%
Joy Garner, 2022[293]	1,482 unvaccinated	Cross-sectional survey of unvaccinated	Yes (unvaccinated controls vs. vaccine-	Survey	Survey	Unvaccinated Americans were "incommensurably healthier" than	Post-birth unvaccinated, all ages: 1.3 per 1,000
							post-birth, pre-birth, or vitamin K exposure; 0.13% overall (2/1,482) limited to K-shot/maternal vaccine–exposed subgroup. Exposure to maternal vaccines and vitamin K shot associated with 4–10× higher risk of chronic disorders.	
Hooker and Miller, 2020[294]	4,821	Retrospective chart/EMR study with vaccinated vs unvaccinated groups	Yes	NR	EMR-documented vaccination (ICD/CPT in records)		Higher odds in vaccinated vs unvaccinated for developmental delay (OR 2.18), asthma (OR 4.49), and ear infection (OR 2.13); GI disorder OR 3.10 (NS)	Developmental delays OR 2.18 (95% CI 1.47–3.24) for vaccination before age 1; sensitivity (≥5 y): OR 2.36 (95% CI 1.29–4.31).
Mawson A R, 2025[295]	47,155 nine-year-old children in Florida Medicaid	Cross-sectional (NDD odds by vaccination/preterm) and retrospective cohort	Yes	Claims-based diagnosis codes (ICD-9) for ASD/NDD	Vaccination captured via CPT/ICD/NDC codes; # vaccination visits derived from claims		Preterm, vaccinated children had 39.9% NDD vs 15.7% in preterm, unvaccinated (adjusted OR 3.58). ASD risk rose with vaccination visits: RR 1.7 (95% CI 1.21–2.35) for 1 visit and RR 4.4 (95% CI 2.85–6.84) for ≥11 visits vs 0	ASD: 28.1 per 1,000 (vaccinated 2.81%) vs 10.5 per 1,000 (unvaccinated 1.05%). By vaccination-visit count: 15 per 1,000 (1 visit), 24 per 1,000 (≥5 visits), 40 per 1,000 (11+ visits) vs 9 per 1,000 (unvaccinated)
Gallagher, C, 2008[202]	1,824 children (NHANES 1999–2000)	Cross-sectional analysis	Yes (children with vs without HepB triple-series)	ASD not assessed; NDD proxied by EIS status	Parental report of HepB doses (NHANES immunization data)		NHIS 1999–2000 analysis of U.S. boys: adjusted odds of receiving Early Intervention Services ≈9× higher in vaccinated vs unvaccinated	EIS (boys): OR = 8.63 (2.08–35.8); White boys: OR = 9.24 (2.08–41.0)
Gallagher CM, Goodman MS, 2010[263]	79,883	Cross-sectional analysis of national survey data	Yes (neonatal HepB vs later/never)	Parent report of clinician diagnosis of autism via NHIS condition checklist	Vaccination timing determined from the record		Boys vaccinated as neonates had ~3-fold higher adjusted odds of autism diagnosis vs boys vaccinated later/never (adjusted OR 3.00; 95% CI 1.11–8.13).	4.32 per 1,000 boys and 2.42 per 1000 children
Lamerato L, Chatfield A, Tang A, Zervos M. 2025[297]	18,468 children total (16,511 with ≥1 vaccine; 1,957 unvaccinated)	Retrospective birth cohort	Yes	Diagnosis codes from healthcare encounters (ICD-9-CM/ICD-10-CM); NDDs (incl. autism) evaluated from age ≥2	HFHS/HAP electronic medical/claims data supplemented by Michigan State Immunization Registry; providers required to report vaccines to the state registry within 72 hours		Vaccination exposure associated with higher risk of any chronic health condition (adjusted HR 2.54, 95% CI 2.16–2.97); significantly higher risk for neurodevelopmental disorders (adjusted HR 5.53, 95% CI 2.91–10.51).	Vaccinated: 0.0011 per 1,000, unvaccinated: 0.0009 per 1,000.

Table 4. Comparative Studies of Vaccinated Versus Unvaccinated Populations Evaluating ASD,

MEDICAL ETHICS:

1. **AUTONOMY:** Patients/parents have right to make informed decisions

2. **BENEFICENCE:** Medical interventions must benefit the patient

3. **NON-MALEFICENCE:** "First, do no harm"

4. **INFORMED CONSENT REQUIRES:**
✓ Full disclosure of risks (manufacturer-documented adverse events, institutional safety gaps)
✓ Full disclosure of benefits (variable based on patient circumstances)
✓ Assessment of alternatives (natural immunity, vitamin A optimization)
✓ Respect for patient/parent decision-making autonomy

Thank you

For more medical education visit
www.IMAhealth.org

IMA 2026
EMERGING TRENDS IN MEDICINE

INDEPENDENT™
MEDICAL ALLIANCE