

# Vaccines: The Real Story

by Dr. Jay L. Wile, Ph.D.

## Qualifications

- ⇒ Ph.D. in Nuclear Chemistry from the University of Rochester
- ⇒ University Professor From 1990 - 1995
- ⇒ NSF-Sponsored Scientist with More Than \$200,000 In Research Grants
- ⇒ More than 30 articles in the peer-reviewed journals of Nuclear Chemistry
- ⇒ Currently writes junior high and high school science curriculum for homeschoolers.

## Let's Get a Few Things Out of the Way

- ↪ I am not a health care professional. I am a scientist and educator. To make any decision about the medical needs of your family, consult with a qualified health care professional.
- ↪ I will be quoting a lot of studies in this talk. I ask that you give them as much weight as you do the homeschooling studies I often speak on. After all, these studies are more reliable.
- ↪ I have no financial interest in what you believe regarding this topic.

## Any decision that you make should involve a Risk / Benefit Analysis

- 🔔 If the benefits are high and the risks are low, you should definitely do it.
- 🔔 If the benefits are low and the risks are high, you should definitely NOT do it.
- 🔔 If the benefits are high and the risks are high, it is not very clear what you should do.

## Starting With the Supposed Benefits

Medical doctors and pharmaceutical companies claim that vaccines prevent disease. Do they?

There are three ways to look at this question:

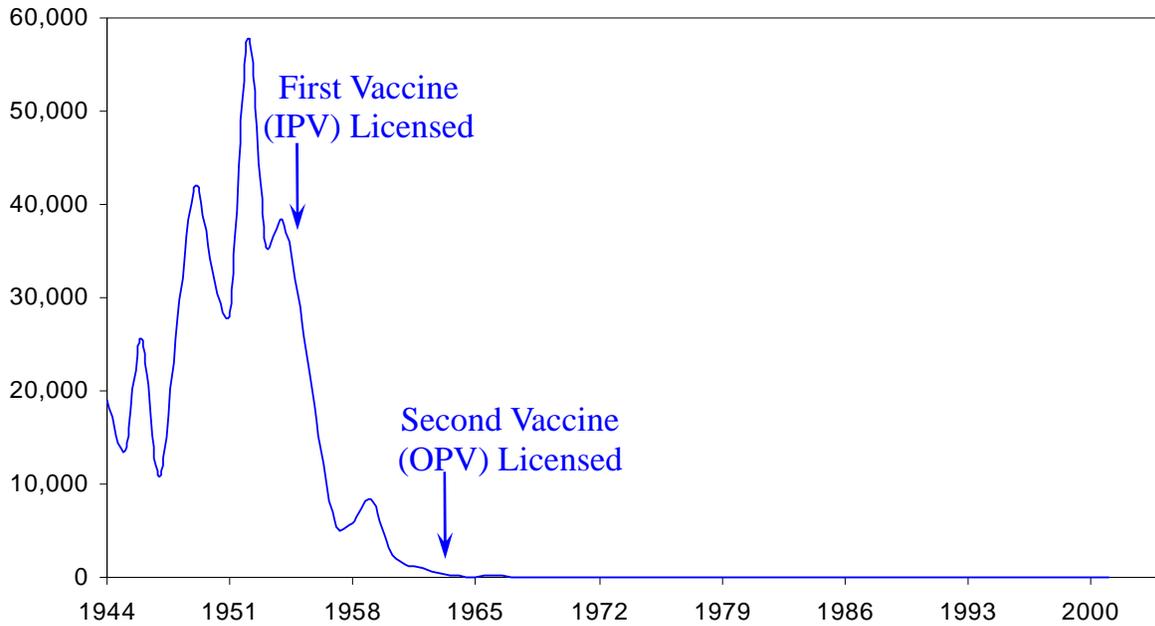
Historical Data

Controlled Studies

What happens when vaccination rates decrease.

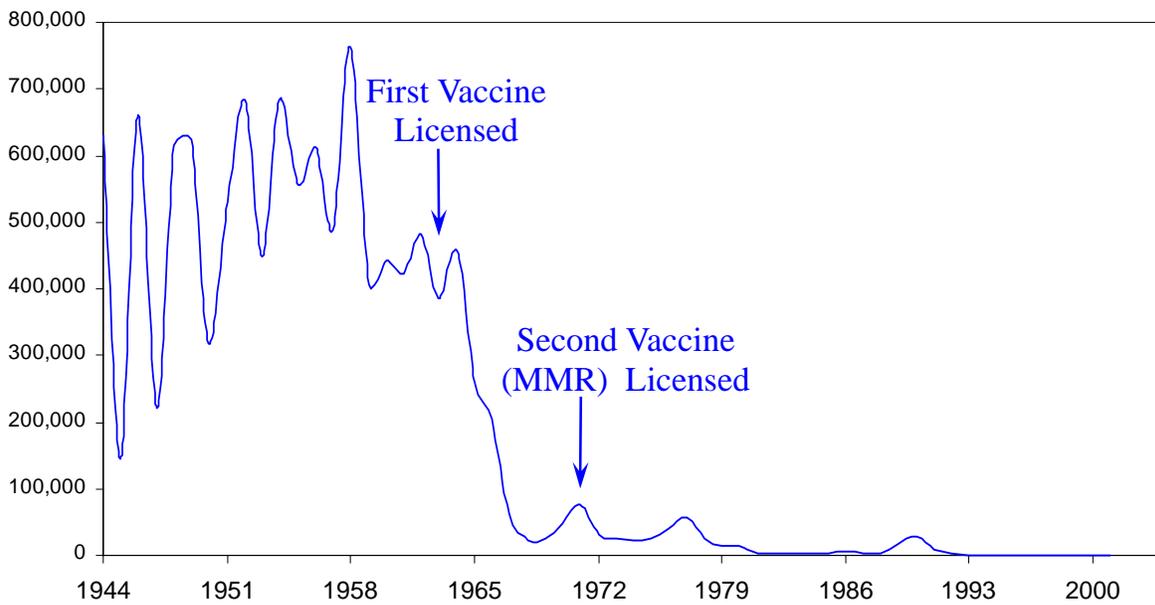
## Historical Data

### U.S. Polio Cases 1944-2001



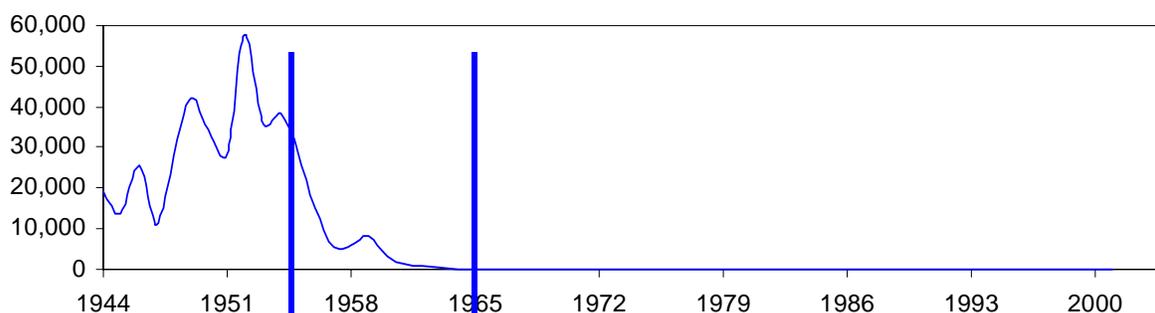
*Morbidity and Mortality Weekly Report*, Volume 42:#53 (1994),pp.83-88; Volume 50:#53 (2003), p. 119

### U.S. Measles Cases 1944-2001

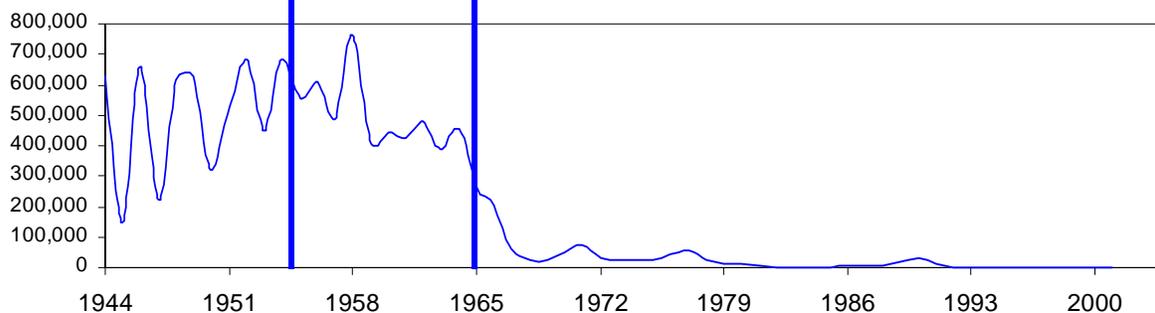


**Please Note That the Decreases Cannot be the Result of Better Sanitation and Nutrition**

### U.S. Polio Cases 1944-2001



### U.S. Measles Cases 1944-2001

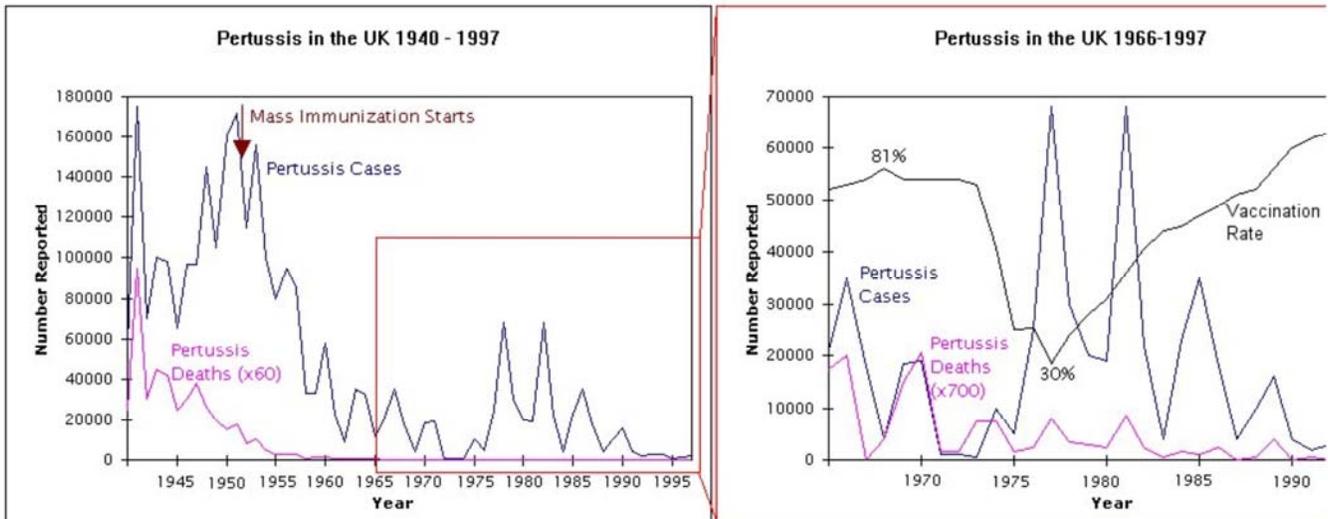


### Controlled Studies

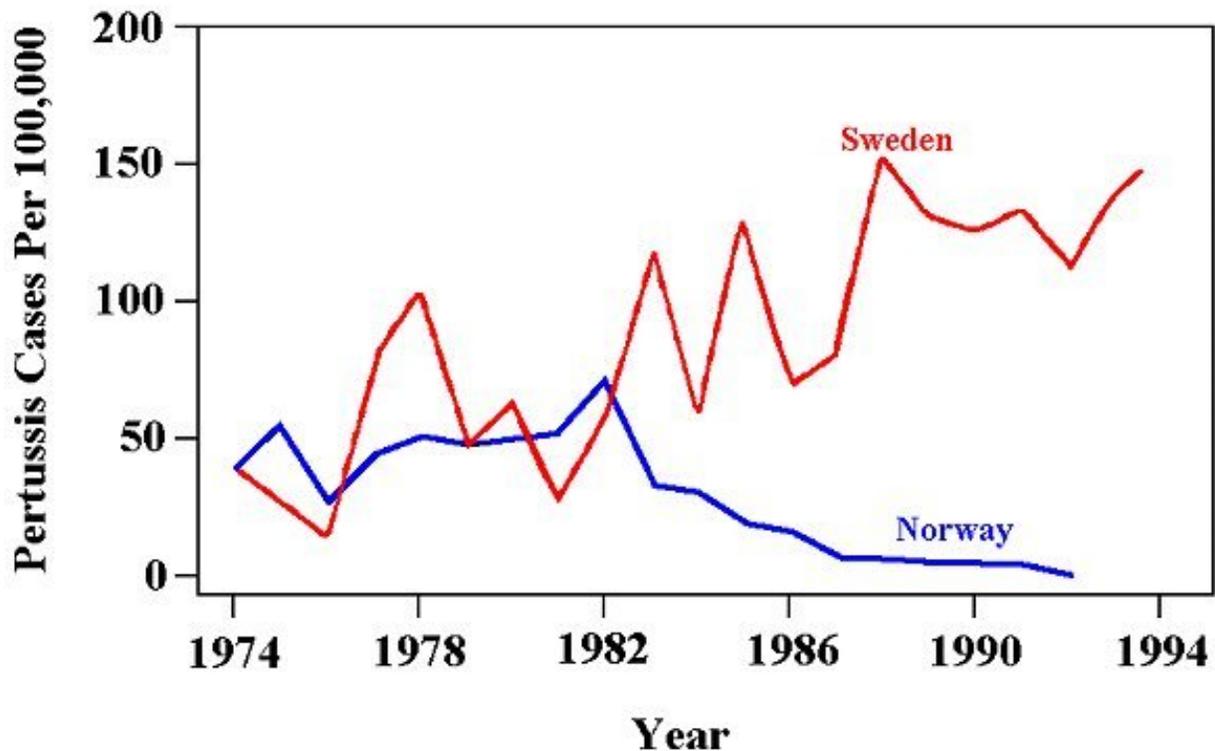
- ✎ Feikin and others studied all measles and pertussis cases among children in Colorado from 1987 to 1988. They found that vaccinated children were 22.2 times less likely to contract measles and 5.9 times less likely to contract pertussis than were the unvaccinated children.  
[Feikin DR, et al. "Individual and Community Risks of Measles and Pertussis Associated with Person Exemptions to Immunization." *JAMA*, 2000; 284:3145-3150]
- ✎ Another finding from this study is that schools in which outbreaks occur have 2.9 times the percentage of unvaccinated students as do schools in which outbreaks do not occur.
- ✎ Salmon and others studied all measles cases in the U.S. over seven years (1985-1992) using the Center for Disease Control's Measles Surveillance System. In their study, they found that vaccinated children (ages 5-19) were 35 times less likely to contract measles than were unvaccinated children.  
[Salmon DA, et al. "Health Consequences of Religious and Philosophical Exemptions From Immunization Laws: Individual and Societal Risk of Measles." *JAMA*, 1999; 282:47-53]
- ✎ In a double-blind, placebo-controlled trial of the flu vaccine, 1,602 children were given a flu vaccine or placebo. Vaccinated children were 13.6 times less likely to catch the flu than those who got the placebo.  
[Belshe RB, et al. "The efficacy of live attenuated, cold-adapted, trivalent, intranasal influenza virus vaccine in children." *N Engl J Med.*, 1998; 338(20):1405-12]

- ✎ According to a meta-analysis done on flu-related data in seniors, the flu vaccine reduced mortality rates in people 65 years and older by 50%.  
[Vu T, Farish S, Jenkins M, Kelly H. "A meta-analysis of effectiveness of influenza vaccine in persons aged 65 years and over living in the community." *Vaccine*, 2002;20(13-14):1831-6]

### What Happens When Vaccination Rates Drop?



### Pertussis in Sweden and Norway 1974 - 1994



## The Data Strongly Indicate That the Benefits of Vaccination are HIGH... But What About The Risks?

### Risks Are a Bit Harder to Evaluate

If 350 people per year died as a result of vaccination, would that represent a significant risk? Would it be enough to avoid vaccination?

That doesn't happen, but 350 people die every year taking baths.

[Budnick, L.D., and Ross, D.A., "Bathtub-related drownings in the United States, 1979-1981." *American Journal of Public Health*, 75: 630-633, 1985]

More than 40,000 people in the United States die each year in automobile accidents.

[NHTSA, *Traffic Safety Facts Annual Report*, 1996, 1997, 1998]

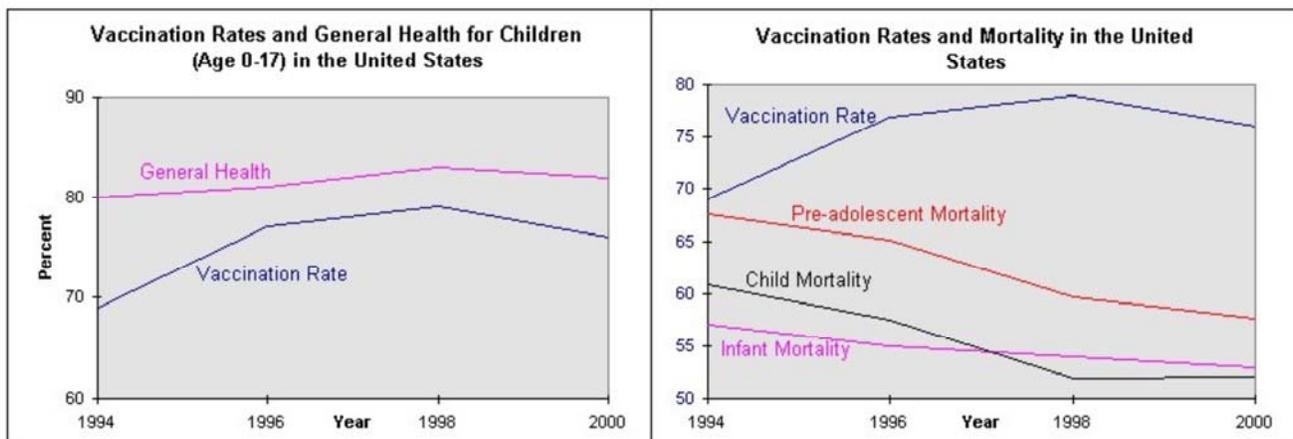
36,000 people in the United States die each year from complications resulting from the flu.

[CDC, "Influenza The Disease," December 30, 2003 <http://www.cdc.gov/flu/about/disease.htm>]

### To Evaluate The Risks

- ☒ Look at how the general health of the population varies with vaccination rate.
- ☒ Look at studies that compare the general health of vaccinated people to that of unvaccinated people.
- ☒ Look at specific maladies that some have claimed are associated with vaccination (autism, for example), and see if vaccinated people are more or less likely to have those maladies as compared to unvaccinated people.

### Vaccination Rate and Health in a Population



## Controlled Studies

- Otto and others looked at 496 vaccinated and unvaccinated children, comparing the health of the vaccinated children to that of the unvaccinated children. They found that children who received immunizations against diphtheria, pertussis, tetanus, Hib, and polio within the first 3 months of life had fewer infections than those who did not. Surprisingly enough, even the rates of infections unrelated to the vaccines were lower in the vaccinated group than in the unvaccinated group. [Otto S, et al. "General non-specific morbidity is reduced after vaccination within the third month of life-the Greifswald study." *J Infect.* 41:172-175, 2000]
- Black and others compared the rate of bacterial infections in DPT-vaccinated and unvaccinated children. The vaccine was not intended to fight bacterial infections, but vaccinated children had fewer infections, indicating that vaccinated children had stronger immune systems. [Black SB, et al. "Apparent decreased risk of invasive bacterial disease after heterologous childhood immunization." *Am J Dis Child.* 145:746-749, 1991. - Davidson M, , et al. "DTP immunization and susceptibility to infectious diseases. Is there a relationship?" *Am J Dis Child.*, 145:750-754, 1991.]
- Two separate studies show that mothers who get the flu vaccine while pregnant are less likely to deliver before their term, have babies with low birth weights, or have a stillborn child. [Deshayne B. Fell, Ann E. Sprague, Ning Liu, Abdool S. Yasseen III, Shi-Wu Wen, Graeme Smith, Mark C. Walker, and for Better Outcomes Registry & Network (BORN) Ontario, "H1N1 Influenza Vaccination During Pregnancy and Fetal and Neonatal Outcomes," *American Journal of Public Health* 102(6):e33-e40, 2012, doi:10.2105/AJPH.2011.300606

Alexandra Legge, Linda Dodds, Noni E. MacDonald, Jeffrey Scott, Shelly McNeil, "Rates and determinants of seasonal influenza vaccination in pregnancy and association with neonatal outcomes," *Canadian Medical Association Journal*, 2014, doi:10.1503/cmaj.130499]

## Is Vaccination Related To Autism?

Many who are opposed to vaccination have suggested this. There was some evidence provided for this view:

In 1998, a team of doctors published a study of 12 autistic children. In this study, they suggested that the children's autism was the result of a bowel problem that could have been caused by the MMR vaccine. [Wakefield AJ, et al., "Ileal lymphoid nodular hyperplasia, non-specific colitis, and regressive developmental disorder in children." *Lancet*, 351:637-41, 1998]

- Taylor and others looked at autism cases in the United Kingdom from 1979 to 1999. Since the MMR vaccine was introduced in the UK in 1988, this study encompassed 9 years prior to use of the MMR and 11 years after its use began. They found that the autism rates increased steadily from 1979 to 1999, with no increase in the rate after the MMR was introduced. [Taylor B, et al. "Autism and measles, mumps, and rubella vaccine: no epidemiological evidence for a causal association" *Lancet* 1999;353:2026-9]
- Madsen and others examined all children (more than half a million) born in Denmark from 1991 through 1998. Of those children, 82% had received the MMR vaccine. The other 18% did not. The researchers found that there was no difference between the autism rate of vaccinated children as

compared to unvaccinated children.

[Kreesten Meldgaard Madsen, et al. "A Population-Based Study of Measles, Mumps, and Rubella Vaccination and Autism" *NEJM* 2002;347:1477-1482]

- ☞ Note that most of the authors on the original study that posited a link have retracted the claim. For example, Dr. Simon Murch says:

"There is now unequivocal evidence that MMR is not a risk factor for autism - this statement is not spin or medical conspiracy, but reflects an unprecedented volume of medical study on a worldwide basis."

[Murch, S., "Separating Inflammation from Speculation in Autism" *Lancet* 362:1498, 2003]

But what about thimerosal?

Several detailed studies have been done trying to find a correlation between thimerosal exposure and autism. None has been found.

The most convincing one was done with the help of Sallie Bernard, who is part of SAFEMINDS. This organization thinks vaccines can cause autism. Ms. Bernard left the study once the results became clear.

- Direct cohort study (All subjects directly assessed on 42 neurological outcomes.)
- Studied 1047 kids age 7-10
- Level of thimerosal exposure was calculated from vaccination records and interviews with the mothers
- Thimerosal exposure produced a weak benefit in 12 assessments, a weak negative effect in 8 assessments, and had no effect on 22

[William W. Thompson, *et al.*, "Early Thimerosal Exposure and Neuropsychological Outcomes at 7 to 10 Years," *NEJM*, **357**:1281-1292, 2007]

Three of the authors on this study (and on other studies showing no connection between vaccines and autism) were Tracy A. Lieu, Steve Black, and Frank DeStefano.

These authors were part of the study published in 2001 that found a problem with the old rotavirus vaccine (licensed in 1999) that got it pulled from the market.

**They have a proven track record of finding a problem with a vaccine without regard to the cost inflicting on the drug company that developed it.**

### **The Data Strongly Indicate That the Risks of Vaccination are LOW**

But whether or not to vaccinate is a decision that each family must make for itself!

For a much more complete discussion of vaccines, go to:

<http://blog.drwile.com/?p=8>