

Smallpox Vaccination Binder

certain materials arguing the question of whether the smallpox vaccine was historically successful in eliminating the disease collected and commented by Bob Kriekhaus

Red underlines link to other places in this binder.

Following this introductory page are pages 67 to 69 (with the addition of the last paragraph on page 66) of Arthur Allen's *Vaccine* (The Controversial Story of Medicine's Greatest Lifesaver) published by W. W. Norton in 2007.

A friend, knowing of my recent interest in the vaccination controversies of our day, sent me this book with the remark that she had not read it, but thought I might find it interesting. And indeed I did, having only a day or two earlier obtained Randall Neustaedter's *The Vaccine Guide* (Risks and Benefits for Children and Adults)¹. As one might provisionally (and correctly) infer from the books' subtitles, they stand rather antithetically opposed on the issues.

Now at this time I have only been immersing myself in the tangled arguments of the two sides here for perhaps half a year, and not full time at that. So this happy coincidence of book arrivals appears to me very opportune, especially in light of the fact that my friend has two children who take opposing views on the vaccination of her grandchildren -- and it happens that I also have two such. I mean to spin off the synchronicity into a study of my own that I hope she and I, and possibly our children, and maybe a few more people, will find useful.

Since at the time of these books' collision before my very eyes, I had just been reviewing a dialog I find very persuasive between two doctors² with very serious concerns about the safety and efficacy of our nation's vaccination policies, and since an early and important claim they make is that, quite contrary to what most people, including doctors, suppose, **smallpox was not eradicated by the smallpox vaccine**, it seemed like a good move to compare the two authors on this topic. That's why I have chosen just these pages from Allen's book to begin with. They are the conclusion to his second chapter, "The Peculiar History of Vaccinia," focusing there on the prolonged and vigorous controversy in the UK over mandatory immunization with the smallpox vaccine (whose active ingredient is vaccinia).

I choose this pdf format because it permits me easily both to highlight text and to place expansive remarks of the sort you see in the preceding paragraphs in self-expanding notes of various sorts. I will also occasionally link to other pdf documents and to relevant websites in marginal notes. In this way, simply comparing the two books on this one topic will unfold out quite naturally into as much of the total controversy as I find time for, and as the reader wants to take time for.

Bob Kriekhaus
Fort Garland, Colorado
summer 2011

This seemingly absurd, irrational claim made by two manifestly intelligent and well-informed medical doctors who have specifically studied this area of medicine with a view to establishing the truth of the matter left me at the time I first listened to them, suffering a very severe case of cognitive dissonance. This binder is my resolution of that conflict.

¹ Revised edition, published by North Atlantic Books in 2002.

² Doctors Joseph [Mercola](#) DO and Larry [Pavlevsky](#) MD, the one in general practice in Chicago and the other a pediatrician in Manhattan/Long Island. Doctor Mercola retired in 2005 to devote himself full time to his very popular health website ([Mercola.com](#)). Doctor Pavlevsky retired in 2011 for full time work in health education.

The Contents of this pdf binder (Smallpox History per Arthur Allen and others)

Bookmark	Contents
Arthur Allen on Smallpox Vaccination History	Extract from Allen's <i>Vaccine</i> (The Controversial Story of Medicine's Greatest Lifesaver) covering the smallpox vaccine controversies in England - along with my comments made in light of my also having read Randall Neustaedter's <i>Vaccine Guide</i> on the same topic and, especially, his later essay specifically addressing the topic, <i>Smallpox Vaccine: Does it Work?</i> (which is included in this binder and bookmarked below)
Wallace led the reader down a path of half-truths...	My extended comments on Allen's treatment of Wallace's arguments, bringing in relevant parts of his book from earlier in the same chapter. This gives the context of his Wallace remarks.
Smallpox Vaccine: Does it Work?	A web essay by Dr. Neustaedter presented in its entirety with my comments. It should be read in contrast to the Allen materials.
Sanitation v Vaccination	A passionate argument from 1923 by a doctor who lived through the controversy in England, Walter Hadwen. He refers to specific cities and particular epidemics and patients, arguing that bad sanitation was the primary cause of the outbreaks of the disease, and the vaccination caused more harm than good.
Dark History of the Smallpox Vaccine	Another passionate argument against the safety and efficacy of smallpox vaccination made in the context of President George W Bush's administration's (successful) push to pass the BioShield bill in 2003. It was posted by Dr. Joseph Mercola on his popular website, and written by Lynne Born.
Vaccines Did Not Save Us -- 2 Centuries of Official Statistics	A strong collection of statistics in graph form along with some interpretative commentary of a strongly anti-vaccination character by Child Health Safety, a website that provides no further identification. The data is, however, sourced.
The Age-Old Struggle against the Antivaccinationists	An article from the January 13, 2011 issue of the highly respected New England Journal of Medicine directly attacking the antivaccinationist movement that has grown up around autism fears in the last quarter century. I comment on this article forcefully.
Impact of anti-vaccine movements on pertussis control	One of the five medical articles footnoted in the NEJM article. Some comments by me.
A Different View of Smallpox and Vaccination	Another recent NEJM article, this one by TM Mark, a pro-vaccination doctor whose epidemiological studies of smallpox in Europe in recent times are highly respected in the medical world. This is very informative as to just how the campaign to extirpate smallpox worked. He is strongly opposed to mass inoculation or even just significant inoculation as protection against feared terrorist attacks with smallpox vaccine.
Alfred Russel Wallace and the Antivaccination Movement in Victorian England	An article from Historical Review by Thomas P Weber placing Wallace in historical context and giving a brief summary of his antivaccination arguments and his other scientific activity. Weber is pro-vaccination himself, but favorable to Wallace.
Arthur Allen on Smallpox Vaccination History SANSCOMMENT	I reprint here the pages by Allen without my comments in case readers would like to enjoy the force and flavor of his writing without the distraction of my comments.
Conclusions to Date	I summarize on one page my conclusions on this topic.



Despite Haggard's fervid book, fiction alone could not dismiss the fact that tainted vaccines provided an excellent reason for shunning mandatory vaccination. Some of London's finest writers put themselves to work excoriating the system. Lord Alfred Russel Wallace, the naturalist who helped discover evolution, employed a series of arguments that would become the model for antivaccine arguments over decades to come.³⁹

Wallace led the reader down a path of half-truths, each of which appeared to steal away a bit of the rationale for vaccination. At the end of the path, if you traveled without blinking, was the rejection of smallpox vaccination. He started with a competing philosophy of health. The medical profession, he argued, exaggerated the gravity of smallpox, which wasn't such a bad disease when contracted by an otherwise healthy person. Smallpox, in Wallace's view, was like all other "filth diseases"-it would disappear when nations and cities did away with "foul air and water, decaying organic matter, overcrowding and other unwholesome surroundings."⁴⁰ Vaccination's failures, Wallace went on, had been obscured by the fact that public vaccinators did not care for vaccinated patients who subsequently became ill.⁴¹ Further, there had been no controlled experiments comparing populations of vaccinated and unvaccinated people-true enough. In short, Wallace argued, vaccination did not protect against smallpox and weakened, rather than strengthened, the constitution. For proof one need only examine the poor health of the city of London, where vaccination was widespread and the authorities, he claimed, concealed the death and destruction it caused.⁴² Vaccine, he concluded, actually *caused* smallpox. Witness the prevalence of smallpox in areas where authorities vaccinated the most. In Ireland there was less smallpox than in Scotland, although Ireland was undervaccinated and Scotland among the most vaccinated areas of the UK. Leicester, which did away with compulsory vaccination in 1873, had only one smallpox death per 10,000 population in 1894, while heavily vaccinated Birmingham suffered 63 cases and 5 deaths per 10,000.



Wallace's claims were eloquently argued, but they ignored inconvenient facts.

Point 1.

Vaccination was of course most frequent in areas where smallpox was greatest, because people generally did not vaccinate until an epidemic threatened. And while it was true that overcrowding and poor general health contributed to the spread and mortality of smallpox, there was an important caveat: while smallpox fatality had diminished over the nineteenth century, the death rate from other infectious diseases had risen. It was true that Leicester for a time controlled smallpox without vaccination, but only through rigorous isolation and quarantine practices.⁴¹



Point 2.

Point 3.

Point 4.

Wallace typified the scientists who would battle vaccination over the years-mavericks who had made their names by overturning established theories,



and who as a result identified strongly with antiestablishment points of view. The writer Michael Shermer calls this the "heretic personality" type. Wallace was also a dabbler in spiritualism and other controversial beliefs; he strayed into bad science, in Schermer's view, because of a personality flaw that made him a little too open-minded. The eighth of nine children, the son of a disgraced small-town lawyer, Wallace had drifted through his early years learning various trades. He was never fully accepted in the aristocratic class to which Darwin belonged.⁴⁴ Having dismissed the authorities in his own field, Wallace assumed that the dons of public health were just as unreliable.

George Bernard Shaw was another famous heretic who joined the antivaccination side, though Shaw's attacks were closer to the mark, drawing power from the genuine problems of vaccination and medicine's defensive refusal to admit them. Shaw's most important writing on the subject is in the preface to *The Doctor's Dilemma*, a satirical play about medicine whose protagonist is modeled on Shaw's friend Almroth Wright, the creator of the first typhoid fever vaccine.⁴⁵ Shaw was quite rightly skeptical of medical science, which had not yet turned the corner past which the average patient received a net benefit by consulting with the average physician.⁴⁶ Medicine was still "very imperfectly differentiated from common cure-mongering witchcraft," he wrote, and people only went to doctors under "the old rule that if you cannot have what you believe in you must believe in what you have."⁴⁷ Like many a Brit, Shaw was also sentimental about animals. Experiments on beasts were cruel, morally groundless—"you may not torture my dog, but you may torture dogs"—and largely a waste of time—"burning down London to test a patent fire extinguisher." He felt that vaccination had become a cult, with doctors circling the wagons to defend it despite all flaws. "The Radicals who used to advocate as an indispensable social reform the strangling of the last king with the entrails of the last priest, substitute compulsory vaccination for compulsory baptism without a murmur." And like Wallace, Shaw argued that vaccination supporters "steal credit" from sanitary reforms that had diminished the threat of cholera, typhus, plague, and to a lesser extent tuberculosis. As for Pasteur's rabies vaccine, "the vaccinated people mostly survived, but so do most victims of dog bites."

In 1898, Parliament, following the Royal Commission's recommendation, passed a law allowing "conscientious objectors" to avoid vaccination. The Anti-Vaccination League made wide use of the new clause, signing up objectors with door-to-door campaigns. Vaccination rates, which stood at 80 percent in 1898, fell to 50 percent in 1914 and 18 percent in 1948. That year Britain ended compulsory vaccination. When smallpox broke out, the authorities vaccinated contacts of the patients and

quarantined those who would not be vaccinated. This was surprisingly effective. By 1960, four times as many Brits were dying of vaccination side effects than of smallpox.⁴⁸ 

Having struggled for half a century with compulsory vaccination, Britain made peace with the antivaccinators by essentially surrendering to them. In the United States, a similar struggle over it.

Therapeutic (London: Anti-Vaccination League, 1901).

40. Ibid, 267-68.

41. Ibid, 223.

42. Ibid., 242-74.

43. Scott Edward Roney, *Trial and Error in the Pursuit of Public Health: Leicester, 1849-1891*, doctoral dissertation at the National Library of Medicine, 2002.

44. Michael Shermer, *The Borderlands of Science* (Oxford University Press, 2001): 162-64.

45. This comes from Steven Lehrer, *Explorers of the Body* (New York: Doubleday, 1979).

46. William G. Rothstein, "When Did a Random Patient Benefit from a Random Physician: Introduction and Historical Background," *Caduceus* 12 (3) (1996): 3, cited in Bert Hansen, "New Images of a New Medicine: Visual Evidence for the Widespread Popularity of Therapeutic Discoveries in America after 1885," *Bulletin of the History of Medicine* 73 (1999): 629-78.

47. George Bernard Shaw, *The Doctor's Dilemma, with a Preface on Doctor's* (New York: Brentano's, 1913): vi-xc.

48. Cyril M. Dixon, *Smallpox* (London: Churchill, 1962): 452-69. According to Dixon's data, from 1953 to 1957 there were 34 cases of smallpox and 10 deaths in England and Wales. From 1951-1958 there were 243 serious reactions, including 42 deaths, attributed to vaccine.

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For my comparative treatment of the two books I am using Neustaedter's essay "Smallpox Vaccine: Does it Work," bookmarked and included in this binder. He gives the topic greater coverage there than he elects for his 2002 book, which is a guide to all the vaccines then in general use, as smallpox was and is not.

Doctors Joseph Mercola DO and
Larry Pavlevsky MD, discussing
vaccinations generally, begin
by looking at the smallpox
case. Recording downloaded from
Dr. Mercola's website in 2011.



Wallace led the reader down a path of half-truths...

Here begins Arthur Allen's first direct examination of the arguments against the safety and efficacy of the smallpox vaccine. Since I came to reading his book from having already examined quite a few direct assaults on the vaccine and its exalted place in the history of medicine, I am quite sure that made me far more impatient than his usual reader for just this part of his book.

Allen begins this chapter twenty pages earlier with two quite unqualified and unsupported, but very strong statements of the great efficacy of the smallpox vaccine: *Jenner's vaccine... is still the only vaccine to have eliminated its reason for being—in 1980, when the World Health Organization (WHO) declared the disease extinct. For nearly a century and a half, smallpox was the only vaccine routinely administered, and it saved millions of lives.* But this is not the main focus of his opening paragraph, which is indicated by its closing sentence, a very nice linking back to the opening material of his introduction and forward to his concerns for the rest of this chapter: *But the controversy that marked the return of the vaccine, amid bioterrorism hysteria in 2002, was only the latest twist in the remarkable, mysterious life of vaccinia, the virus that is the active ingredient of the smallpox vaccine.*

And now he launches directly into the story of Jenner's invention of the smallpox vaccination procedure¹ in 1798, a story indeed filled with both scientific and human interest. I leave much of value aside in order to note his main focus here, which is the opposition to vaccination that developed right alongside its powerful rise in popularity. His own take on the opposition shows on page 57:

... Critics often resorted to spuriously simple logic. Vaccination was "the injection of the morbid matter of a diseased animal into a healthy child," as one put it. How could that possibly be a good thing?

A few lines later, Allen paraphrases Jenner's response to the criticisms of the day:

The only reason anyone could fail to get good results, he wrote, was through "spurious" technique.

As the narration continues, we come to see the power of that observation by Jenner, for Allen brings our attention repeatedly to the fact that the vaccine itself, the vaccinia virus, was not only actually unknown to pre-modern science, but also irregularly produced and maintained, unknowable, literally, as to purity. The very disease, cowpox, from which the vaccinia came by scraping or breaking pustules on cows or on people presumed to be infected with cowpox - that disease was not common, being found mostly in England, and really rather uncertain as to diagnosis. Perhaps, moderns have argued, it was actually just a weaker version of human smallpox that cows had acquired. And today, in any case, the disease is confined to rats. Interestingly, we are also told that the Chambon-Menard virus used in France and imported to the United States sometime in the 19th century, "is believed by some to be the source of the New York Board of Health strain of vaccine that is still in use" (63).

Besides the difficulty people had of being certain they were using a piece of actual cowpox "morbid matter," there was the even greater uncertainty as to whether a particular batch of it was fresh enough to be effective or perhaps contaminated with some other disease. No wonder, then, that its use was sometimes ineffective and sometimes also damaging or deadly.

It is necessary for us to see this line of thought in order to understand how Allen could ever call this idea - *How could "the injection of the morbid matter of a diseased animal into a healthy child" ever be a good thing?* - spuriously simple as to logic. On the surface of it, it clearly makes no sense at all to inject diseased and foreign matter directly into your child's blood or lymph system. In fact, this is one part of the modern argument² against the use of vaccines - used to suggest causal nexus. But Jenner knew his procedure worked - he had used it on one subject in May of 1796 and again on six others in March of 1798, and all seven had been immune to their subsequent exposure to smallpox. If in later practical administrations of vaccinia, there were indeed some failures, those could easily be explained on the hypothesis of "spurious technique." The key idea is that any of the deviations from expectations can be explained by confounding factors - contaminated or weakened vaccine or improper application of good vaccine.

In those days, naturally, they were not conducting scientifically systematic double-blind trials. And while Allen does narrate the suspicions of many of the early vaccinators as to the potency of their vaccine, he cannot, of course, offer any (in a modern sense) substantial arguments, for, as he says, "Since ... no one

knew the active ingredient of vaccine, purity was an impossibility - how could you purify what you couldn't define?" (58). All right. Makes sense. But, then, why is that idea about "morbific matter" spuriously simple? I could never understand Allen on that except by supposing he was supposing he really knew smallpox vaccine worked. And that would fit with the unsupported confidence of his claims in the opening paragraph of the chapter, quoted above.

Notice that I do not wish to appear derisive in noting the unsupported nature of Allen's confidence. Most of the world's medical community appears to share it. For instance, in "The Age-Old Struggle against the Antivaccinationists" by Gregory A. Poland, M.D., and Robert M. Jacobson, M.D., published just this January (1-13-11) in the prestigious New England Journal of Medicine, an article that I have included in the resources folder, we find exactly the same kind of dramatic claim for the smallpox vaccine without any support of any kind. This is how the article opens:

Since the introduction of the first vaccine, there has been opposition to vaccination. In the 19th century, despite clear evidence of benefit, routine inoculation with cowpox to protect people against smallpox was hindered by a burgeoning antivaccination movement. The result was ongoing smallpox outbreaks and needless deaths. In 1910, Sir William Osler publicly expressed his frustration with the irrationality of the antivaccinationists by offering to take 10 vaccinated and 10 unvaccinated people with him into the next severe smallpox epidemic, to care for the latter when they inevitably succumbed to the disease, and ultimately to arrange for the funerals of those among them who would die (see the Medical Notes section of the Dec. 22, 1910, issue of the Journal). A century later, smallpox has been eradicated through vaccination, but we are still contending with antivaccinationists.

Poland and Jacobson do not support these claims anywhere in their article; neither do they reference any other articles supporting them. They do not paraphrase or otherwise refer to any arguments supporting the claims, and, of course, they also do not paraphrase or otherwise refer to any of the arguments denying that the smallpox vaccine was responsible for the eventual eradication of the disease and denying that it was or is safe to administer.

It is, then, not at all surprising that Arthur Allen makes his strong claims in the opening of his second chapter without bothering to offer any support for them. He is simply repeating what is the received truth of the medical community of our day. Indeed, it is rather to his credit that he is about to take the time to refute some of the antivaccinationist arguments in the pages we are now examining.

¹ He also tells us that it was a British farmer by name of Benjamin Jesty who made the first inoculation with cowpox in 1756 by "scratching a bit of cow pus into her arm."

² "The shocking truth about what's used to make vaccines (aborted fetal tissue, 59 different chemicals, DNA from diseased animals and more). / An overview of some of the most dangerous vaccine ingredients, including aluminum and formaldehyde." (Mike Adams, NaturalNews.com - [link](#) accessed 8-22-11)

Smallpox Vaccine: Does it Work?

by Randall Neustaedter OMD

The debate over use of the smallpox vaccine has focused on the risks of side effects and deaths caused by the vaccine, as well as the problems associated with the vaccine's outmoded technology, but these discussions have ignored questions about the vaccine's effectiveness. Authorities insist that smallpox vaccine was responsible for eradication of one of humanity's greatest scourges (WHO, 1980). It may therefore come as a tremendous surprise that throughout the nearly 200-year history of smallpox vaccination thoughtful physicians and a veritable army of citizens doubted that the vaccine worked at all.



Four factors have contributed to skepticism of smallpox vaccine's effectiveness. First is the dubious notion that lesions from cowpox, a disease of cattle, could prevent smallpox, a related but different human disease. Second, during the nineteenth century, which preceded modern bacteriology and the age of refrigeration, it was impossible to know exactly what was in any given dose of vaccine. Third, the reported increase of smallpox disease in communities following the introduction of vaccination seemed to contradict the claims of vaccination proponents. A fourth disturbing fact is the total absence of any carefully controlled efficacy studies of the smallpox vaccine.

Does cowpox prevent smallpox?

The idea for a smallpox vaccine obtained from cowpox lesions arose from a superstition among milkmaids in England. Those maids who purportedly contracted cowpox pustules on their hands from the udders of cows were subsequently immune to smallpox. Or at least so went the story. Cowpox is a rare, benign disease of cows in Great Britain. It causes bluish lesions on the cow's udder, but few other symptoms. In humans it may cause these same symptoms on the hands and a flu-like illness. Today the disease is extremely rare. Horses would get a similar disease, known as grease, or horsepox, which is now extinct. The early vaccines were prepared from both cows and horses during animal epidemics. It was only during the late nineteenth century that cowpox was artificially inoculated onto the skin of calves and harvested for vaccine, and not until the eradication campaign of 1967 that a reliable preparation of the cultured virus existed. Prior to that time the potency of any particular vaccine preparation was unknown.

When a cattle breeder named Benjamin Jesty supposedly found himself immune to smallpox after having contracted cowpox from his own cows, he decided to inoculate his entire family with cowpox lesions. This was in 1774. Such a procedure was well known to the populace, since the practice of inoculation with the actual smallpox virus had been popular in England since the 1740s, with often deadly results. Twenty years after Jesty and others experimented on themselves with cowpox inoculations, Edward Jenner, a notorious self-promoter, went a step further. He inoculated a child with cowpox and then injected the child with a deadly dose of smallpox. Luckily, the child did not die. This experiment led Jenner to publicize his theory of vaccination in 1796, which quickly became an accepted, and required, practice without any scientific experimentation or medical studies to prove the vaccine's effectiveness.

Despite the initial widespread popularity of vaccination, no one actually proved that the cowpox vaccine prevented smallpox, and many critics insisted that the vaccine did not work. Physicians were especially skeptical about the ability of cowpox to prevent smallpox, even if the populace was quick to adopt a variety of superstitions to prevent diseases. Jenner's proof consisted of locating farmers who had previously contracted cowpox and never came down with smallpox. Then he inoculated them with material from smallpox lesions to see if the vaccine would produce a reaction. When it did not he claimed this proved his theory. However, it only proved that these farmers did have antibodies and resistance to smallpox, which they could have acquired from previous exposure to the disease. Not everyone exposed will suffer the consequences of obvious infections. Physicians came forward with hundreds of cases where an individual farmer had contracted cowpox from cows, but later developed smallpox nonetheless. Jenner dismissed these claims out of hand. Perhaps the medical profession's terrible experience using inoculation with material from an actual smallpox lesion and subsequent deaths created a situation where authorities felt desperate to adopt a safer alternative. As it turned out the death rate caused by cowpox vaccination was lower than results with the previous smallpox inoculation. Cowpox was clearly a safer substance, and hopes ran high that it would work. It was only after the vaccination campaign was in full swing that the dangers of the new vaccine came to light, and its failings became widely broadcast.



What is in that vial?

Early doubts about the vaccine's efficacy focused on its questionable source. It was hard for anyone to imagine that pustular lesions from a cow's udder could prevent disease in humans. There was a natural and understandable aversion to applying such noxious material to one's skin. Jenner attempted to use material from

horses' infections, the now extinct disease known as horse grease. When this was poorly accepted he reverted back to the use of material from cows. In fact the new cowpox vaccination often did transfer other contagious and deadly diseases to recipients, especially syphilis, leprosy, and tuberculosis. The populations of England and continental Europe were well acquainted with the extreme danger of using vaccine prepared from the actual smallpox disease (variolation), which was outlawed in England in 1840, and they were loathe to accept any other form of inoculation with diseased material. Vaccination was often forced upon a population that would otherwise judiciously refuse it.

The transfer of a secondary disease is not unique to smallpox vaccination. During the modern era, several diseases have been transferred to vaccine recipients including a monkey virus that has caused innumerable cases of cancer, even 40 years later, from a contaminated polio vaccine given in the 1960s, stealth viruses that cause chronic fatigue syndrome, and possibly the AIDS virus through a live polio vaccine campaign in the Congo (Neustaedter, 2002).

Live vaccines are grown on animal tissues or animal cell cultures. Because of the possibility of contamination from these tissues, vaccines always carry the potential of infecting recipients with these contaminating organisms. Modern vaccines are screened as carefully as possible, but manufacturers can only find the organisms for which the tests were designed. Other contaminating viruses will not be detected. Even modern vaccines contain viruses from chickens and other animals that could potentially cause disease in humans. Monkey viruses contained in vaccines were considered unable to infect humans until the SV40 virus (the fortieth simian virus identified) was found to cause cancer in vaccine recipients and their children. Older vaccines had less stringent manufacturing and testing procedures. In June 2002, Aventis Pasteur, a French vaccine manufacturer, donated a cache of 85 million doses of smallpox vaccine produced in the 1960s to the US government. It is possible that this vaccine could be tainted with any number of contaminating viruses and bacteria unknown at the time of production. Consumers would do well to question the manufacturing date of any smallpox vaccine before allowing its use.

Post-vaccine epidemics

During the nineteenth and early twentieth centuries, when smallpox epidemics ran rampant, the introduction of smallpox vaccination was often followed by an increased incidence of the disease. Many vaccine critics accused the smallpox vaccine of precipitating these epidemics. A disastrous smallpox epidemic occurred in England during the period 1871-1873 at a time when the compulsory smallpox vaccination law had resulted in nearly universal coverage. A Royal Commission was appointed in 1889 to investigate the history of vaccination in the United Kingdom. Evidence mounted that smallpox epidemics increased dramatically after 1854, the year the compulsory vaccination law went into effect. In the London epidemic of 1857-1859, there were more than 14,000 deaths; in the 1863-1865 outbreak 20,000 deaths; and from 1871 to 1873 all of Europe was swept by the worst smallpox epidemic in recorded history. In England and Wales alone, 45,000 people died of smallpox at a time when, according to official estimates, 97 percent of the population had been vaccinated.

When Japan started compulsory vaccination against smallpox in 1872 the disease steadily increased each year. In 1892 more than 165,000 cases occurred with 30,000 deaths in a completely vaccinated population. During the same time period Australia had no compulsory vaccination laws, and only three deaths occurred from smallpox over a 15-year period.

Germany adopted a compulsory vaccination law in 1834, and rigorously enforced re-vaccinations. Yet during the period 1871-1872 there were 125,000 deaths from smallpox. In Berlin itself 17,000 cases of smallpox occurred among the vaccinated population, of whom 2,240 were under ten years of age, and of these vaccinated children 736 died.



In the Philippines, global public health measures were instituted when the United States began its occupation to establish a self-reliant government in the early 1900s. The incidence of smallpox steadily declined and the compulsory vaccine campaign was credited with this dramatic reduction. However, in the years 1917 to 1919, the Philippines experienced the worst epidemic of smallpox in the country's history with over 160,000 cases and over 70,000 deaths in a completely vaccinated population. Over 43,000 deaths from smallpox occurred in 1919 alone. The entire population of the Philippines at the time was only 11 million.



Vaccine failures of this magnitude may have several causes. The vaccine used could have been defective. During that period it was difficult to verify what the vaccine actually contained. The vaccine could have been contaminated with smallpox virus and actually caused epidemics. Or vaccine critics may have been correct in asserting that Jenner's cowpox vaccine, which is essentially the same vaccine used today, simply did not work to prevent smallpox.

Studies of vaccine effectiveness

It is undeniable that vaccination with vaccinia virus (originally from cowpox) produces antibodies to vaccinia. Over 95 percent of those receiving vaccine for the first time will develop antibodies at a titer of 1:10 or greater. However, authorities are uncertain what level of antibodies are necessary to protect against smallpox infection (CDC, 1991). In fact, it has never been proven that the vaccine is effective against smallpox at all. Some smallpox experts have admitted that vaccination will modify the disease and prevent deaths, but not prevent the disease.

Donald A. Henderson, MD, the world's leading authority on smallpox, has lamented the paucity of smallpox vaccine studies. "Reliable data are surprisingly sparse as to the efficacy and durability of protection afforded by vaccination" (Henderson, 1988).

Despite the lack of efficacy studies, vaccine promoters have consistently made claims that the smallpox vaccine works incredibly well. In his book about the defeat of smallpox, Joel Shurkin, a science reporter, makes the bold assertion that, "Vaccination with cowpox virus does confer immunity to smallpox and does so safely and easily and with almost 100 percent effectiveness" (Shurkin, 1979). These types of sweeping and grandiose claims remained unquestioned despite the absence of corroborating scientific studies.

The World Health Organization declared in 1979 that smallpox was eliminated from the world through its intense vaccination campaign begun in 1967. However, these campaigners conducted few studies of vaccine efficacy. They merely documented the decrease in smallpox disease. Other diseases have also disappeared from the world. The bubonic plague (or Black Death) killed 25 million people in Europe during the years 1347 to 1352, one third of Europe's population. Yet the plague has faded into distant memory without the aid of vaccines. Typhoid and yellow fever disappeared from North America as a result of modern sanitation measures prior to vaccine development for these diseases. Smallpox may have disappeared for the same reason.

A variant of the smallpox virus may still be alive and active in the world, causing human disease and deaths. The claim that smallpox has been eliminated is contradicted by numerous reports of pox virus transmission in Africa today. This disease has been named human monkeypox because the virus resembles a pox virus found in captive monkeys in 1958 (Mukinda et al., 1996). Human monkeypox exists in rainforest villages of central and western Africa, where it is readily transferred through person-to-person contact. It causes the same symptoms as smallpox, and differs from smallpox virus only in its protein structure, a difference of a few nucleotide sequences. Up until the 1960s it was not possible to differentiate the various pox viruses, but since that time cases that would have been labeled as smallpox are now labeled monkeypox or camelpox depending on their DNA structure.

Several outbreaks of human monkeypox have occurred since the virus was first isolated from humans in 1959 (Gipsen, 1976). In 1996, 71 cases were reported in the Katako-Kombe area in Zaire with four deaths. In one small village of 346 inhabitants, 42 cases were reported, including three deaths (WHO, 1996). By December of 1997 more than 500 cases of monkeypox were reported in Zaire. It is possible that smallpox has made a comeback in this remote part of the world. Apparently vaccination with the vaccinia virus does not protect against monkeypox, since 92 out of 94 children with facial scarring caused by monkeypox also had scars typical of smallpox vaccination (Arita & Henderson, 1976).

Three types of studies have been conducted to evaluate the effectiveness of smallpox vaccination. The first is a simple record of the incidence of smallpox disease and deaths in a population before and after the onset of compulsory vaccination. The second is a record of the number of deaths caused by smallpox in the vaccinated compared to the unvaccinated individuals in an epidemic. And the third is accomplished by purposefully exposing vaccinated individuals to smallpox.

(1) Studies of smallpox incidence

The primary type of study conducted to prove the effectiveness of smallpox vaccine compared the incidence of disease before and after introduction of compulsory vaccination in a specific population. However, this type of study is fraught with many problems. An episodic disease such as smallpox will wax and wane year by year, making it difficult to compare statistics over any short period of time. Alfred Wallace eloquently addressed this problem in a pamphlet discussing the statistical evidence regarding smallpox incidence.



In 1796 more than 4,000 per million died of small-pox in London, while in the next year there were only about 800, and the following year (1798) over 3,000. Again, in 1870 less than 100 per million died of it, while in 1871 there were about 300, and in 1872 about 2,500. Thus the figures go increasing and decreasing so suddenly and so irregularly, that by taking only a few years at one period, and a few at another, you can show an increase or a decrease according to what you wish to prove (Wallace, 1904).

Wallace advised analyzing statistics over long periods of time and using large populations. A study of smallpox incidence in Sweden did review statistics for a period of more than one hundred years before and after compulsory vaccination. During the period between 1774 and 1801, prior to vaccination, the death rate from smallpox was 1,973 per million population in Sweden. After vaccination was introduced, 1802-1816, the death rate was 479 per million. Following compulsory vaccination begun in 1817 until 1879 the death rate was 181 (Shurkin, 1979).

This decline in smallpox in Sweden seems impressive, but other factors besides vaccination may have contributed to the statistics. Such a steady decline in infectious disease incidence could also correspond to improved sanitation and other public health measures. Vaccine critics suggest that any review should also examine the incidence of other contagious diseases to see if they follow the same pattern as a disease for which there is a vaccine available.

In Great Britain the incidence of life-threatening childhood diseases steadily decreased during the era prior to vaccines and antibiotics. The following chart gives figures for the death rate in children (birth to 15 years) for several contagious diseases in the pre-vaccine era. Each of these diseases decreased 88 to 99 percent during this period. The decline was generally attributed to improvements in living conditions and sanitation (McBean, 1957).

Death-rate per million children (Ages, between birth and 15 years.)

20 year periods	Measles	Scarlet Fever	Whooping Cough	Diphtheria
1861-1880	1062	1973	1344	932
1881-1900	1149	585	1104	838
1900-1920	877	197	684	504
1921-1940	297	50	294	293
1941-1948	62	69	121	105

During the smallpox era, epidemics would come and go, striking with relentless force in some years and remaining absolutely quiescent in others. When smallpox died down, vaccine enthusiasts claimed victory over the smallpox threat. When smallpox incidence increased they would blame a deficiency in vaccination or revaccination.

The history of smallpox in Egypt is a case in point. Compulsory smallpox vaccination was instituted in 1890, but coverage was never complete. During an epidemic in 1919 a total of 7,895 cases of smallpox occurred, followed by 3,004 in 1920. More than 5.5 million people were vaccinated during that epidemic. Then in 1921 the number of smallpox cases declined to 92. The League of Nations Monthly Report of October 15, 1929 attributed this remarkable drop in smallpox to the renewed vaccination efforts. Five years later another epidemic struck. In 1926 a total of 2,677 smallpox cases occurred with 544 deaths, despite the previous vaccine campaign. This time more than 14.6 million doses of vaccine were supposedly administered (in a population of less than 14 million people). Then in 1930 the League of Nations announced that the incidence of smallpox had been reduced to only 14 cases. Smallpox was declared nearly eradicated. However, in 1932 another smallpox epidemic struck in Egypt, despite continued compulsory vaccination of all children. By 1934 the toll of cases had reached 7,650 with 1,373 deaths. This variable incidence of smallpox from year to year was typical at the time, and the nearly universal vaccination of the population in Egypt was a dismal failure.

(2) Vaccinated vs. unvaccinated

Smallpox occurs in completely vaccinated populations, and childhood deaths from smallpox have occurred in communities where 100 percent of children were recently vaccinated, but controlled studies comparing the

vaccinated and unvaccinated are notoriously absent. Three reports in the modern era provide some comparison of smallpox disease among people previously vaccinated vs. those unvaccinated.

An unsettling report was tucked away in the British Medical Journal of 1828, which showed that the fatality rate among people with smallpox who had been previously vaccinated was significantly higher than from smallpox that occurred in the unvaccinated. This was true for smallpox in people over 15 years of age during the years 1923 through 1926 in Great Britain. "In a total for these years of 11,019 cases, 4,010 occurred among the vaccinated with 13 deaths – a fatality rate of 0.3 percent – and 6,915 occurred among the unvaccinated with 4 deaths – a fatality rate of 0.06 percent. That is to say, the fatality rate among vaccinated cases was five times as great as among unvaccinated cases" (Garrow, 1928). No satisfactory answer could be found for this apparent discrepancy in the smallpox vaccine proponent's claims for reduced mortality. One respondent noted that Germany had a much higher vaccination rate than England, but a higher mortality rate from smallpox, suggesting that the vaccine increased the death rate (Parry, 1928).

A careful review of all smallpox cases occurring in North America and Europe during the period between 1950 and 1971 did show that those who had been previously vaccinated had a lower fatality rate than those who had never been vaccinated. Of the 680 smallpox victims during that period, 79 had never received vaccine and 41 of them died (52 percent). Of the 70 people with smallpox who were vaccinated in the previous 10 years, only one died (1.4 percent). Those people vaccinated over 20 years prior to exposure only had a fatality rate of 11 percent. Interestingly, the number of smallpox victims who had never received vaccine (79 total cases) was nearly equivalent to the number of cases with a history of vaccination in the previous 10 years (Mack, 1972).

The results of that study suggest that smallpox vaccine does significantly reduce the death rate from acquired smallpox, though it did not prevent the disease in those people. This lone survey of smallpox cases is often cited as proof that the vaccine reduces fatalities from smallpox.



Smallpox vaccination is certainly not a guarantee against contracting the disease. During an epidemic in India (in 1953) 80 percent of people with smallpox had a history of at least one vaccination, and 50 percent had been vaccinated two or three times (Kempe, 1960). None of the smallpox cases had been vaccinated in the previous 12 months. As a result of this apparent vaccine failure, the author recommended yearly smallpox vaccinations during periods of epidemics.



In both of these reports, vaccination following soon after exposure to smallpox did not prevent the disease or deaths. In the European study, there was a 30 percent death rate among those people who received the vaccine shortly after exposure. In the Indian study, between 10 and 40 percent of people who received vaccine within four days of exposure contracted smallpox nonetheless.

(3) Exposing the vaccinated to smallpox

Probably the most disturbing and bizarre aspect of the vaccination fervor was an experimental method carried out by early vaccine enthusiasts. Physicians would deliberately expose recently vaccinated children to smallpox in order to assess whether the vaccine was protective. Perhaps they justified this experiment by rationalizing the lives it could potentially save, but putting a child's life at risk in a medical experiment defies the Hippocratic Oath and all ethical guidelines.

Edward Jenner was the first to conduct such an experiment. On May 14, 1796 Jenner took pus from a cowpox sore on the hand of a milkmaid and inserted it into scratches he had made on the arm of an eight-year-old boy. The boy developed flu-like symptoms as expected. Six weeks later, Jenner took pus from a smallpox lesion and similarly inserted this into new scratches to determine if the boy would acquire smallpox. Nothing happened, and Jenner assumed the boy was now immune to smallpox. This experiment launched his lucrative career in the vaccine business.

Six years later, Benjamin Waterhouse, a Boston physician, conducted an appalling experiment on 32 children. On August 16, 1802 Waterhouse vaccinated 19 boys from the poorhouse in Boston. Several months later he inoculated 12 of these boys with material from an active smallpox lesion. None of them acquired smallpox. In order to prove that the smallpox material was truly viable, he inoculated two other boys who had no known prior exposure with the same material. Both boys developed typically violent cases of smallpox. For his final act, Waterhouse took pus from the smallpox lesions of these two boys and inoculated all the original 19 subjects again. He placed them in the same room with the two suffering from smallpox and they all resided together for 20 days. None of the group came down with smallpox. Based on the reputation he gained from this experiment, Waterhouse then attempted to establish a monopoly on vaccine production and sales in Boston, personally attacking the vaccines of other physicians as spurious. His domination of the vaccine market ultimately failed (Blake, 1957; Shurkin, 1979).



Summary

Smallpox vaccine was violently opposed during the first century following its invention, and its failure rate during epidemics of completely vaccinated populations did not contribute to public confidence. Early vaccines were notoriously unreliable because of production problems, lack of refrigeration, and nonsterile techniques that spread other fatal diseases through the vaccine serum and needles. The dangers of adverse reactions, the spread of disease through vaccination, and the ineffectiveness in preventing epidemics made the vaccine seem undesirable.

Contamination of vaccines with viruses and bacteria is still a problem in the modern age, and the most recent studies of smallpox vaccine effectiveness are not reassuring. There is abundant evidence that vaccination does not prevent smallpox. Epidemics have occurred in completely vaccinated populations. Individual smallpox cases occur just as readily in the vaccinated as the unvaccinated, and contrary to official pronouncements, giving smallpox vaccine soon after exposure does not prevent the disease. One study, however, did suggest that the vaccine may reduce the incidence of deaths from smallpox.

Although public health officials continue to heap accolades upon the success of vaccination in wiping out the disease, there is little evidence to justify the claim that the vaccine has any effect on disease incidence. Unfortunately, there is no way for anyone to re-evaluate whether the vaccine acts preventively since smallpox disease no longer exists.

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email: randalln@concentric.net
Author of The Vaccine Guide, North Atlantic Books, 2002

Foundation for Health Choice
777 - K Schwab Rd.
Hatfield, PA 19440
800-537-3001 or 267-498-0071
FAX: 267-498-0078
Freedom@foundationforhealthchoice.com

Smallpox Vaccine Has the Pox, Part 2, Posted By Dr. Mercola
September 20 2003 and written by Lynne Born, a long time health
care activist, writer and independent researcher.

<http://articles.mercola.com/sites/articles/archive/2003/09/20/smallpox-vaccine-part-fifteen.aspx> (accessed Aug-11-2011).

Part 1 concerns the BioShield bill that was making its way through
Congress in September of 2003. It was signed into law in July of
2004. (<http://www.govexec.com/dailyfed/0704/072104gsn1.htm>)

As Lynne Born is the apparent actual author of these materials,
but they appear conspicuously under the "Posted by Dr. Mercola"
heading on his website, I assume that he attests to the reliability
and accuracy of her paper. See his brief introduction to part 1.
(Not included in this binder.)

Dark History of the Smallpox Vaccine

The premeditated ineffectiveness of tracking systems to monitor vaccine injuries, chronic diseases and death is designed to obscure the unscientific foundation of the entire concept of smallpox vaccination. Dr. Edward Jenner, the creator of the smallpox vaccine in 1796, based the vaccine on a mistaken superstition of the era that milkmaids or farmers who had been infected with cowpox developed immunity to smallpox. (Cowpox is a non-lethal, ulcerative disease on the udders of a cow, which sometimes causes ulcers on the hands of milkmaids or farmers who milk them.)

But as historical records show, many of Jenner's medical contemporaries immediately disputed his claim by noting that had he polled any number of veterinarians in his county, he could have easily uncovered dozens of cases of smallpox in humans that had followed infection by cowpox. This supposition--that cowpox gives humans natural immunity from smallpox--was never proven by Jenner or any other practitioner of vaccination from his era, and has never been tested or proven by any of the pharmaceuticals that produce the vaccine today. The very basis of the smallpox vaccine is fundamentally flawed.

 To test his vaccine, Jenner infected six children including his own infant son, with various experimental "brews" including cowpox, swinepox and horse grease--the grease from horses' hooves. His experiments killed an eight-year-old boy in a matter of days from an uncontrolled ulcerative infection from the "horse grease" vaccine, and the children were never exposed to any smallpox epidemics to test their resistance. Jenner waited only four years before declaring that the vaccine that he named vaccinia provided immunity from smallpox for life!

The vaccine was made by slicing the abdomen of a cow, inserting pus from human smallpox, waiting for it to fester, and then making a cut in a human arm and inserting the festering pus from the diseased cow. Because there was no refrigeration, a single strain of the vaccine was sustained by passing it directly from the pustules on human arms to human arms for decades, mixing and combining diseases from countless humans, frequently "pauper" and orphaned children who were used to propagate and maintain the virus.

As historical records clearly show, this grotesque practice added virus upon virus to the vaccine as it spread blood-borne illnesses from human to human, including leprosy and syphilis, mostly among children who were the main victims of vaccination. There are thousands of documented cases of the vaccine infecting children with syphilis, as for example in Italy in the early 1800s when 64 children were infected in one vaccination incident alone.

Because the vaccine frequently caused an uncontrolled syphilitic canker, many doctors of the day considered the vaccine itself to be syphilitic or at the very least, contaminated with syphilis, and even Jenner understood this connection as he treated the vaccine ulcers with mercury, the treatment for syphilis at the time.

The practice of vaccinating directly from human arm to arm was not outlawed until the very end of the 19th century, meaning that the majority of the vaccines were created by passing viruses back and forth from human to human, to animal and back to human again for 100 years.

While this may seem like far off and irrelevant history, it is extremely important because the virus in the vaccine today is the same vaccinia virus Jenner created over 200 years ago. And even more disturbing, several independent labs have analyzed the active virus in the vaccine and they do not know what it is! In 1939, the University of Liverpool analyzed vaccinia and determined that it is genetically distinct from both cowpox and smallpox.

Several other theories hypothesize that it is a hybrid of cowpox and smallpox inadvertently mixed in early vaccinations; a weakened strain of actual smallpox; or a virus evolved from horsepox that has since become extinct (remember Jenner's experiments with horse grease at one point in the origination of the vaccine).

Agreed in all analyses is that the virus does not occur in nature and is definitely not cowpox, even though multiple sources such as the Encyclopedia Britannica, ABC News, Nova Science and numerous other

mainstream medical sources all continue to repeat the double myth that the virus in the vaccine is cowpox and that cowpox has been proven to provide immunity from smallpox. (Interestingly, the CDC does not propagate this myth, obscuring the origins of vaccinia so the public doesn't know either the true history of its creation or the poor science underlying the philosophy of the vaccine.)

Not only was the vaccine immediately noted for causing injuries and deaths, but doctors of the day emphatically pointed out that it did not prevent smallpox. There are historical records from tests on hundreds of patients from 1802 to 1810 in which doctors published the results and submitted their statistics of overwhelming death and injury to the government medical board in England. All of these tests occurred outside of Jenner's control and all were abject failures.

In 1805 only a few years after the vaccine was introduced, "out of 504 vaccinated in England, 75 died from the vaccine and almost all have had the small-pox, some sooner, some later, after their vaccination", as recounted by Dr. William Rowley, a member of the University of Oxford and of the Royal College of Physicians in London, and Physician Extraordinary to Her Majesty's Lying-in-Hospital.

He continued "There is no question here of supposition or calculation of probability, it is truth!" In 1799, a Dr. William Woodville conducted a study on several hundred patients which resulted in many deaths and injuries as a direct result of the vaccine. But when he tried to publish the negative results of the trial, Dr. Jenner himself wrote "I entreated him in the strongest terms, both by letter and conversation, not to do a thing that would so much disturb the progress of vaccination" in an attempt to censor the facts that ran contrary to Jenner's theory.

Even as Jenner ignored the evidence of harm and helped to suppress the facts, he was already receiving government funding by an Act of Parliament who had funded him in the hopes that a cure for smallpox had been found.

When the hundreds of reports of injury and death were published during the early years of vaccination, the government should have admitted to funding a faulty program and ended it. Instead, they invested £20,000 in 1807 and £3,000 per year thereafter, accepting as "science" the claim that a procedure only seven years old would protect from smallpox for life thereby making vaccination a permanent source of income for the medical profession.

If it seems unbelievable that the government of England should fund a medical procedure that not only didn't work but actually caused serious harm, we need look no further than our own pharmaceutical industry and government of today for the same pattern.

Drugs continue to be marketed even after they have been shown to cause death and injury, and Bush continues to push his smallpox program by offering \$100 million to state programs to proceed even after the astronomical percentage of deaths and injuries from the first phase of the program, while censoring, obscuring and rewriting the terrible science underlying this vaccine.

Just as now, once vaccination became entrenched in the medical society, doctors found a new and lucrative source of income and industries sprang up which produced the vaccine both by continuing the human-to-human method and by going back to the cow to produce supposedly "pure" cow vaccine. However, in a test of thirteen different brands of vaccine in 1900, not one was found to be bacteriologically pure and in some, hundreds of colonies of teaming germs were found.

Just as there exists a controversy today about the safety and efficacy of vaccines, Jenner's medical contemporaries immediately formed a vocal Anti-Vaccinationist resistance movement to speak out against the "transplanting of disease back and forth from animal to human." Voluminous historical records display excellent science, careful thinking and methodical observations of the vaccine and a record of the same kinds of adverse reactions and deaths we see today.

They noted brain swelling and encephalitis, paralysis, blindness, increased incidence of tuberculosis and pneumonia, and progressive vaccinia in which the ulcerative sores caused by the vaccine spread over the whole body down to the bone and organs causing a terrible and painful death, some in a matter of days

after the administration of the vaccine and some over an extended period of suffering.

One such case was described in 1855 by a Dr. R. T. Trall who stated, "I have seen within the last year a most horridly loathsome case ... in which the patient literally rotted alive at the age of 15 from unhealthy virus [vaccine] received when he was but three years of age." (As grotesque as it may seem, the bodies of the victims were so overrun with the deadly virus that they frequently decomposed in a matter of hours as if the corpse had been dead for weeks.)

Today this condition is called "progressive or generalized vaccinia" where the ulcer that forms at the vaccine site grows uncontrollably--we have had three cases during Bush's program that we are aware of (see accompanying picture). That it took 12 years in this case for the vaccinia virus to progress to death shows again how it takes time for the full effects of the vaccine to develop, and because of the limited time frame involved in Bush's smallpox program, that death would never be attributed to the vaccine even though the illness began directly after receiving it.

The number and type of adverse reactions were so consistent and so numerous that physicians actually named the condition "Vaccine Disease", a recognized diagnosis that carried with it a defined and universally recognized set of symptoms. Dr. Stowell spoke for many doctors of his day in 1870 when he said "... it is irrational to say that any corrupt matter taken from boils and blisters of an organic creature could affect the human body otherwise than to injure it."



Child's arms ulcerated to amputation by Progressive Vaccinia in the 1800s.



Fatal Progressive Vaccinia in the 1900s.

By the 1850s, much of Europe made vaccination mandatory under threat of fine and imprisonment and it is during these years that we can truly see not only how ineffective the vaccine was at stopping the spread of smallpox but that the vaccine actually increased the incidence of smallpox (see accompanying chart). **If the science of vaccination worked, it should have prevented epidemics in the first place but instead, while the population of England increased 16 percent during the years of compulsory vaccination, smallpox deaths increased 160 percent, a figure that does not include the deaths from the vaccine itself.**

Using official records from government medical registries from town after town in Europe, the same pattern is repeated over and over of increased incidence of, and death from, smallpox among the vaccinated.

Before vaccination was made mandatory in England, the highest recorded death rate from smallpox was 2,000 for any two-year period. However after 20 years of compulsory vaccination when nearly all of the population had been vaccinated (96.5 percent from age 2 to 50), the death rate during the epidemic of 1871 was 23,000. Germany (Prussia) was over 95 percent vaccinated, enforced multiple revaccinations every few years and kept the best vaccination records in Europe.

Yet they still recorded over 1,000,000 cases of smallpox during the 1871 epidemic, suffering the highest death rate in all of Europe of 124,000, all of whom had been registered as vaccinated. As the Chancellor of Germany said at the time, "the hopes placed in the efficacy of the cowpox virus as a preventative of smallpox have proved entirely deceptive."

In report after report from city and health officials, hospital records repeatedly show 90 percent and more of smallpox

patients had been fully vaccinated. And in a report published in the British Medical Journal, Dr. L. Parry analyzed vaccination statistics from the 19th century concluding, "smallpox is five times more likely to be fatal in the vaccinated as in the unvaccinated."

Anti-Vaccinationists pointed to the town of Leicester, England for proof that vaccination actually increased smallpox deaths. Leicester suffered 3,500 deaths per million of its 95% vaccinated population during that same epidemic of 1871 but when the people saw how many suffered and died from the vaccination itself, and then how many of the fully vaccinated died during the epidemic, they rose up in unison with their town officials and became the first town in England to officially resist mandatory vaccination.

Dire predictions of catastrophe and death from pro-vaccinationists followed, but instead, in less than 20 years the numbers reversed and 95 percent were unvaccinated. When individual outbreaks of smallpox occurred, they were isolated by the community and given quality medical care and general assistance instead of vaccination. No case of smallpox ever grew into an epidemic again, giving Leicester the lowest smallpox mortality rate of any town in England.

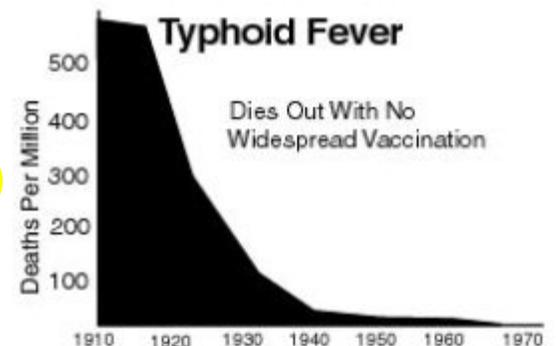
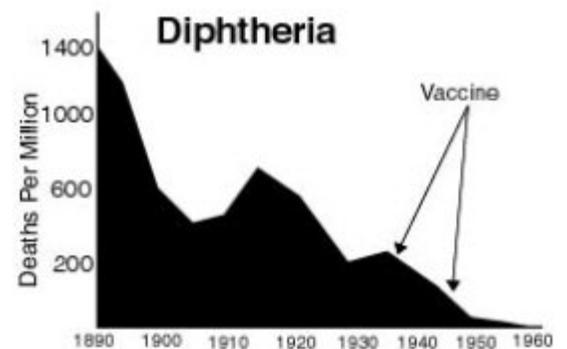
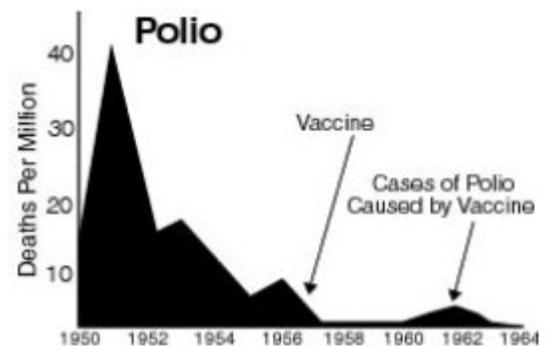
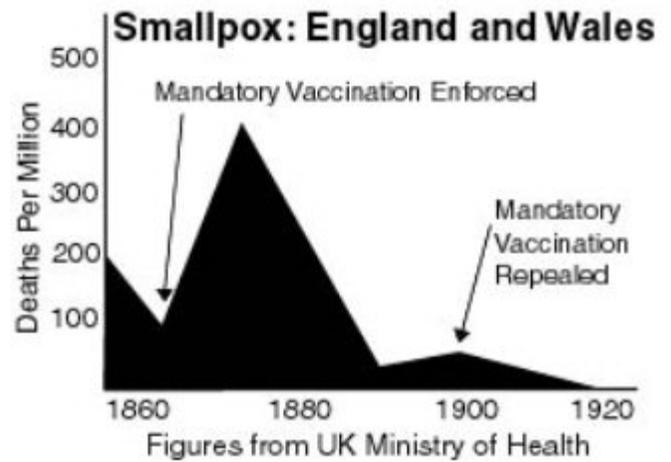
By the 1890s, resistance to mandatory vaccination was so fierce in England that Parliament empowered a Royal Commission to try and understand why England was still experiencing smallpox epidemics even though the vast majority of its population was vaccinated. The great scientist and thinker Alfred Russel Wallace, a colleague of Charles Darwin, was invited to report to the Commission on the safety and efficacy of smallpox vaccination.

The evidence submitted by Wallace and the other Anti-Vaccinationist doctors showed overwhelmingly that cowpox had never been proven to provide immunity from smallpox; that an impure and dangerous vaccine was created by both passing diseased pus from human to human and from diseased cow matter; that the vaccine did not prevent smallpox; that revaccination did not prevent smallpox; that the vaccine itself was causing multiple injuries and deaths; that the vaccine actually increased the incidence of smallpox; and that the reporting system for smallpox injury and death was inadequate because the numbers of deaths and injuries from the vaccine were vastly underreported.

Through the sustained resistance of the Anti-Vaccination movement, mandatory vaccination was finally repealed in England in 1898.

While these facts stand in stark contrast to all we have been taught about smallpox epidemics, in reviewing original historical medical sources, publications and statistics from the past two hundred years, it becomes clear that infectious diseases other than smallpox declined 90% before mass vaccination was ever introduced.

The decline in smallpox was actually delayed by vaccination and the cessation of vaccination did more to end smallpox than



vaccination ever did. Instead, medical experts of today and the past attribute the cessation of all epidemic diseases such as measles, scarlet fever, whooping cough and diphtheria to improvements in sanitation and nutrition.

Just prior to 1800, a major sanitation reform movement designed and implemented drainage systems to move human waste out of the streets where it currently flowed and into plumbing systems; to regularly clean streets and stables of horse manure and human waste; to improve roads so that vegetables and milk could be transported to cities and distributed while fresh; and to upgrade the water supply to prevent bacterial contamination.

All the old terror diseases such as plague, black death and cholera responded to these reforms without vaccination and all epidemics declined throughout the 1800s except for smallpox, which surged with mandatory vaccination and declined only after it ended.

After the massive epidemic of 1871, Germany embarked on a national campaign to clean their cities and build a drainage system throughout the entire country which finally caused smallpox to become virtually extinct in less than 30 years, something which mandatory vaccination did not accomplish in 60 years. Even the CDC reported in 1999 that infectious diseases declined in the past century due to improvements in sanitation, water and hygiene.

An extraordinary number of scientists and first-class thinkers have objected to vaccination since its creation including Gandhi, George Bernard Shaw, Voltaire, Mark Twain, and in the 20th century, Henry Ford and Thomas Edison.

In the United States, over 300 children (that we know of) died from the smallpox vaccine between 1948 and 1971 while there wasn't a single reported case of smallpox! Professor Ari Zuckerman, a member of the World Health Organization's advisory panel on viruses stated "Immunization against smallpox is more hazardous than the disease itself," and the American Medical Association, the Association of American Physicians and Surgeons, the American Academy of Pediatrics and the American Academy of Family Physicians all recommended against use of the smallpox vaccine.

And even though the World Health Organization claims credit for the eradication of smallpox worldwide through vaccination, the facts tell us that smallpox declined in countries around the world whether the population had been vaccinated or not. As Australian Dr. Glen Dittman said in 1986, "It is pathetic and ludicrous to say we vanquished smallpox with vaccines, when only 10 percent of the population were ever vaccinated." 

Homeland Security Bill Allows Forced Vaccinations

The history of the smallpox vaccine and the resistance movement against it becomes extremely informative now that history is repeating itself in the passage of the Homeland Security Bill and state laws called the Model Health Emergency Powers Act (MEHPA). MEHPA and Section 304 of the Homeland Security Bill function like the Patriot Act of health care, except instead of depriving us of our civil liberties, they deprive us of our most fundamental right of all--the ownership of our own bodies.

Section 304 makes mandatory vaccination and other medical treatments legal once again, making refusal a crime punishable by fine and/or prison. It calls for forced quarantine and isolation of individuals and even entire cities, allows for the confiscation of property of anyone who refuses treatment and authorizes the military to enforce the medical treatment or quarantine.

An actual act of bioterrorism isn't even necessary, a "potential" emergency will suffice such as the current smallpox delusion in which Americans are injected with the most dangerous vaccine in history for protection against a disease that died out over 30 years ago and for which no credible threat of its use as a bioweapon has ever been received. (Note that during mandatory vaccination in England, an average of 2,000 parents a year were prosecuted and jailed for refusing to allow their children to be vaccinated and hundreds had their homes and possessions confiscated.) 

This power to inject our bodies with toxic poisons like the smallpox vaccine rests entirely with two individuals--Health and Human Services Secretary Tommy Thompson and President Bush. In a cynical move that protects the government and manufacturers from the history of deception and bad science, no public figure can be held accountable for any harm or death that the medical procedure may produce. This protection extends to the manufacturer of the vaccine, eliminating any financial incentive to create a safe vaccine or responsibly investigate the efficacy of any vaccination program.

Pharmaceuticals become BioWeapons Factories

The fraudulent science of the smallpox vaccine and the draconian laws of the Homeland Security Bill set the stage for a radical revision of the mission and purpose of the pharmaceuticals. Ominously, the first bioterror countermeasure that the BioShield bill calls for development is another smallpox vaccine that uses the same, deadly vaccinia virus in the current vaccine but has additional dangerous potential effects because it is genetically engineered, another science that has a dark history of injuries, diseases, deaths and cover-ups.

The bill also calls for development of bioterror drugs and vaccines in response to anthrax, botulinum toxin, plague and ebola. In order to develop drugs and vaccines that are supposed to respond to biological and chemical warfare agents, the companies will have to create and store the actual agent itself. Until now, bioweapons have been handled and stored at labs such as Fort Detrick, labs which are supposed to operate under strict controls with guidelines for safety set out by the U.S. government (not that the government labs have been models of efficiency as their poor past record and accidental releases have shown).

But the BioShield bill sets out no provisions for the handling of these agents or any safety measures at all, even though the Bill effectively turns the pharmaceuticals into new bioweapons factories.

Six billion dollars may be a small price to pay if the pharmaceuticals can accomplish the goal as set out in the bill--to protect us from biological and chemical attack. But common sense tells us, any country technologically advanced enough to create, store and modify a bioweapon for release would be competent enough to alter or genetically engineer it in any number of ways that would make the creation of a drug or vaccine to that particular strain of bioweapon impossible.

Will the bioterrorists really be so cooperative as to create only those few weapons for which the pharmaceuticals have developed and warehoused countermeasures?

Since the pharmaceuticals said it would be unethical to test bioweapon countermeasures on humans and pushed the FDA for the exemption from human testing, why is it ethical to use the Homeland Security Bill to force people under threat of imprisonment, fine or quarantine, to take these same untested medicines?

The Bush Administration is perpetrating a Pharmaceutical Scam justified by the "war on terror," rewarding the pharmaceuticals for the \$262 million they invested to get Bush elected, more than any other industry. The bill substantially enriches the pharmaceuticals by creating a virtually endless supply of cash for the creation of untested drugs and vaccines to be warehoused for possible use against the public.

Tommy Thompson's stated goal is that every "American man, woman and child will have a vaccine with their name on it," and hundreds of million of dollars are being invested to bring that goal to reality even as the deaths and injuries in the current program continue to mount.

He has stated that even one case of smallpox will unleash a massive program of forced vaccination through the Homeland Security bill, vaccinating or quarantining every American to "protect" them from the uncontrolled threat. But there is no historical precedent or evidence to support the notion that one person infected with smallpox will set off a chain reaction infecting millions and millions of people. And a compliant media disseminates every myth the government feeds it without checking any sources or seeking precedents.

A tragic situation has been created in which the best scenario for the American people is that their money will be wasted by letting these untested vaccines remain forever warehoused, although the best scenario

would have been not to create them in the first place and instead spend the money on real health care problems. But the precedent was set when they pulled the 40-year-old smallpox vaccine out of the warehouse and without even a hint of a threat of smallpox attack, released it on the U.S. population, making the Bush administration the real bioterrorist.

As Dr. Benjamin Rush, signer of the Declaration of Independence and physician to George Washington said 10 years before the creation of the smallpox vaccine, "Unless we put medical freedom into the Constitution, the time will come when medicine will organize into an undercover dictatorship.

by Dr. Walter Hadwen

source: http://www.bibliotecapleyades.net/salud/salud_vacunas24.htm See note on source.

SANITATION v. VACCINATION

THE ORIGIN OF SMALLPOX

From "Truth," January 17, 1923

By following the superstitious impulses of Edward Jenner and the ancient tradition of time Gloucestershire dairymaids, the medical profession has lost sight of the vital question, what is the origin of smallpox?

The faculty of reasoning upon time subject appears to have become almost extinct; in its place there has arisen a demand for obedience to authority. Fashion has usurped the place of scientific thought, and arbitrary Acts of Parliament and the policeman's truncheon have supplanted logical consistency.

When the question is asked,

"Why does smallpox break out at all?" the twentieth century scientist answers, "Because ~~time~~^{the} populace have not been protected against it by vaccination."

This reply only begs the question. It pre-supposes that smallpox is a natural visitation of Providence which may strike anybody at any moment, and that the only way by which this presumed inevitable evil can be met, is to compel every human being in this world to undergo a process of "protection," which is to render the system "immune" to attack.

This is a negative form of reasoning. It leaves unanswered the crucial question,

- What is the origin of smallpox?
- Why are we to suppose, as was believed in the eighteenth century, that a smallpox attack is the probable lot of every member of the race?
- Why must everybody be diseased to protect him against disease, especially if that disease is one from which, owing to altered conditions, he is never likely to suffer?

Surely, if a disease breaks out there must be a cause for it.

See A Different View of Smallpox and Vaccination for a very expert and contemporary agreement with this line of thought.

THE SOURCE OF ALL "OUTBREAKS"

Now one fact stands out pre-eminently in every part of time world where smallpox has appeared - namely, it has been invariably associated with insanitary and unhygienic conditions.

From time immemorial it has been called in Austria "The Beggar's Disease."

It has followed in the wake of filth, poverty, wars, pestilences, famines, and general insanitation, in all ages. It accompanied the clash of arms of the American armies in their struggle for independence, and in their Civil and Spanish wars; it claimed more victims than the battlefield in the ravages of the Crimea; it formed the dark background to the triumphant marches of the German army in 1870; it increased tenfold the horrors of the siege of Paris; and plagued our warriors at Tel-el-Kebir.

Even during the late Great War no inconsiderable amount of smallpox occurred amongst all the armies involved wherever conditions of unsanitation triumphed over the scrupulous efforts made to circumvent them.

Smallpox outbreaks and epidemics have invariably been the call of Nature to responsible authorities at home:

"Put your house in order"; personal municipal, and civic cleanliness has been her unvarying demand, a demand which was couched in one striking injunction by the prophet of old: "Wash and be clean."

REDRUTH

I remember 26 years ago there was an outbreak of smallpox at Redruth, in Cornwall.

The Press in all parts of the United Kingdom was immediately supplied with exaggerated reports, and scares were created by public vaccinators hundreds of miles away. I went down to investigate the affair on my own account. There were altogether 44 cases; 84 per cent occurred in vaccinated persons. One-fourth of the cases was located in "Trestrails Row," consisting of seven houses, each containing only two small low-roofed rooms, and with no water connections.

One midden privy, in the most disgusting condition, accommodated the seven houses. One of these hovels was occupied by no fewer than seven persons, all of whom contracted smallpox, and out of the total of seven deaths three occurred in this house. Nearly another fourth of the cases was confined to Adelaide Road and Raymond Road, where smallpox first appeared, the houses of which were supplied with uncovered cesspits.

Three cases occurred in Falmouth Road, with one death which took place in a house closely hedged in by foul middens, a manure heap, and a piggery. Three more cases and one death occurred in the midst of similar unsanitary conditions at Hockin s Court. Midden privies were the order of the day, and the ultimate disposal of the sewage was primitive to a degree.

The smallpox rapidly played itself out, and then the municipality corrected the conditions that had been the cause of time outbreak.

GLOUCESTER

I remember, too, the epidemic in Gloucester in 1895-6. I was in and out of the smallpox houses throughout that visitation of nearly 2,000 cases.

The echo of it is still heard among time ranks of Jennerian followers, and always with time tragic whisper,

"Gloucester was an unvaccinated city "

Never in all time history of professional scaremongering was such a determined effort made to boost vaccination, and never a word was uttered as to the shocking insanitary conditions which produced the tragedy. In fact, those conditions were persistently denied by time officials who were responsible for them.

The smallpox was practically confined to the southern half of the city, where there was no fall for the sewage. The pipes had been hurriedly laid in this new district without concrete base or cemented joints.

There was a drought that lasted months; time water supply ran short; flushing of the sewers had to be discontinued, and time sewerage pipes became choked. When, after time epidemic was over, investigation was made, the pipes were found to be broken in all directions; in fact, the whole district of - for the most part - crowded houses, many of them back-to-back with no through ventilation, lay over what was nothing more nor less than a huge cesspit.

The outlets for the sewer-gas consisted of street manholes, which belched their poison into time atmosphere. I traced the first case of smallpox in every street to the house nearest to a manhole. Wooden stoppers were made to close them down, but they had to be used sparingly lest the sewer-gas should be driven into the houses. Hundreds of the houses were drawing their water supply from shallow wells, liable to contamination by constant leakage into them from house drains; and the sewage-pipes in numerous instances ran under the floors of the houses from the closets at the back to the street in front.

Some of the houses had their w.c.s in the back kitchen. In one street of 114 houses the latter were supplied with water declared by the city surveyor to be contaminated with sewage from its source to its delivery, and as it had not force enough to fill the flushing tanks, the w.c.s were never flushed and always choked, the contents being emptied periodically on to the small garden ground attached.

In some of these tiny houses there were seven, nine, and even twelve cases of smallpox. A sixth part of the whole epidemic occurred in three streets. In one street the sewage entered the cellars of the houses, and the choked-up street sewer had to be opened up in the midst of the epidemic. Nearly half the houses in this street had smallpox cases.

Then the epidemic caught on in two disgracefully insanitary and overcrowded, ill-ventilated elementary schools. Forty-five children were struck down suddenly in one of them and 31 in the other. The patients were removed to what was called an isolation hospital. It was congregation, not isolation. A woman employed in the early part of the epidemic as solitary night nurse told me that time sight and screaming of these poor children at night as they ran about the wards in delirium so completely unnerved her that she was obliged to leave.

They were allowed no water for their fevered skins, time baths were choked with dirty linen, and never used. The little ones were packed three, four, and even five in a bed; vermin was crawling everywhere; no oil was used for the faces, and the poor children scratched themselves till they bled. Of every two taken in to the Stroud Road Hospital one was carried out a corpse; when the mortuary became choked with dead bodies, the bathroom was utilized for this purpose.

One child lay for two weeks and two days with her eyes scabbed and not a single drop of water was given to relieve her. When

one hospital became full, another one was opened which had been used as a cholera hospital many years before. It was built on stakes in a rough, boggy field; it had no sewerage connections, nor any drainage whatever, and water had to be carried in water-carts over a quarter of a mile of bog to reach it.

The panic became fearful, and a wild, despairing cry went up from the plague-stricken city as the destroying angel sped from house to house in these awful slums. And what was the answer the terror-stricken inhabitants received from the Guardians of Public Health?

Still the same mad reply:

"These be thy gods, O Israel " as they pointed to the vaccine lancets, dripping with their filthy venom; in helplessness and fear they implored the people, in a unanimously signed medical manifesto, to bow down and worship at the shrine.

At last the rain came. It washed the atmosphere, it flushed the sewers and drains; it filled the vacuoles of sewer gas in the sandy soil, and the epidemic died down.

The councilors who put up at the next municipal contest were one and all indignantly swept away at the polls by the enraged voters, and anti-vaccinationists took their place; a new sewerage system was laid throughout the whole smallpox district at a cost of some 30,000; 20,000 sanitary defects in the houses were rectified, and no smallpox has occurred since, although nearly 90 per cent, of the population is unvaccinated.

But even in that awful epidemic, smallpox picked out the vaccinated for attack; two-thirds of the sufferers had been "protected" by time filthy superstitious rite.

SHEFFIELD AND OTHER CASES

I remember Sheffield and its epidemic in 1887-8.

No less than 98 per cent of the population had been vaccinated; it was the best vaccinated town in the kingdom the public vaccinators had reaped a richer harvest of bonuses for "successful vaccination" than those of any other town, and yet they had 7,000 cases of smallpox.

It originated and clung to an unsanitary area of 175 acres covered with cesspits - which was called The Croft. The medical profession helplessly cried "vaccinate" and "re-vaccinate" - as if the public had not already had enough of it. At last the flood-gates of heaven were mercifully opened, and the bountiful rains suddenly accomplished what 56,000 vaccinations had failed to effect.

I went to Middlesbrough in the great epidemic of 1898. I visited every smallpox hospital ward, and investigated the conditions of the houses, and their environment, from whence the smallpox came. As everybody knows, the houses at that time had been run up at an enormous rate, much too fast for the sanitary officials to keep pace with them.

The part where the smallpox raged was situated chiefly over a swamp where it was difficult to find foundations for the houses; many of them were raised on piles driven through the soil. The only method of house sanitation in all that district was that of pails in the backyards. But whatever else had been neglected, vaccination had been sedulously attended to - the inhabitants were vaccinated up to 98.4 per cent, of the population.

Nevertheless the vaccinated and re-vaccinated hospital officials fell before the disease side by side with the vaccinated and re-vaccinated inhabitants. Nine hospital ward-maids, one trained nurse, one medical man and three policemen fell victims to the disease. Outraged Nature laughed outright at the Jennerian fetish and declared in plain and unmistakable language that if smallpox was to be prevented the conditions which caused it must be remedied.

Poisoning human bodies with the products of a foul eruption on a cow's udder could only add fuel to the fire by reducing the vital resisting powers of the sufferers.

I call to mind the case of one adult male I interviewed in one of the smallpox hospital wards at that time. He was vaccinated in infancy, had smallpox when eight years old, and was subsequently re-vaccinated three times.

That man died of smallpox. I took a particular interest in that case, and was staggered to find when the official report was published that, owing to his having had the eruption so badly as to cover his vaccination marks, he was actually declared to be

"unvaccinated"

I have visited Glasgow in two of its smallpox epidemics. The slums in which they occurred; the overcrowded and unsanitary condition of the tenements told, the same tale as elsewhere. Nothing but sweeping away, the rookeries, where smallpox invariably, takes hold, can ever save those parts of the city from periodical visitations. Space forbids further reminiscences but it is the same story everywhere.

Go back to the records of Old London and we find insanitation and smallpox keeping company throughout.

THE LESSON OF THE PUBLIC HEALTH ACT

Before the passing of the *Public Health Act of 1875* in this country, every succeeding epidemic of smallpox was worse than its predecessor in spite of more and more compulsory vaccination; but with less and less vaccination and more and more sanitation smallpox has become a comparative curiosity. It is only in unsanitary quarters it can gain a hold.

Sir Edwin-Chadwick, the veteran sanitarian, has well said:

Smallpox, typhus, and other fevers occur in common conditions of foul air, stagnant putrefaction, bad house drainage, sewers of deposit, excrement sodden sites, filthy street surfaces, impure water, and overcrowding, and the entire removal of such conditions is the effectual preventive of diseases of those species, whether in ordinary or extraordinary visitations.

When will the medical profession arouse itself to ask the question:

"What is the origin of smallpox?"

When will a Ministry of Health cease to bring discredit upon itself by the advocacy of a disgusting fetish that has proved, itself a failure as a preventive of the disease in every part of the world in which it has been adopted for the last century and a quarter?

When will a British Government that boasts of its progress and civilization cease to ally itself with a filthy, uncivilized, unscientific practice that has done nothing but spread disease and death amongst the populace for generation and which is opposed to the common-sense views of the majority of thinking men and women in the realm?

Note on Dr Hadwen and sources.

This article is widely dispersed around the internet without adequate attribution at all. For instance:

<http://www.whale.to/v/hadwen1.html>

<http://www.thebirdman.org/Index/Others/Others-Doc-Health&Medicine/+Doc-Health&Medicine-Smallpox/Smallpox-SanitaitonAsPreventative.htm>

The site I am using is the first I've found to give the source of the article, which is called SoilandHealth.org. They represent themselves this way:

This website provides free e-books, mainly about holistic agriculture, holistic health and self-sufficient homestead living. There are secondary collections about social criticism and transformational psychology. No fees are collected for this service.

The library's subject seemingly-diverse topic areas actually connect agricultural methods to the consequent health or illness of animals and humans, shows how to prevent and heal disease and increase longevity, suggests how to live a more fulfilling life and reveals social forces working against that possibility.

Here is Soil and Health's representation of the provenance of their Hadwen materials:

The Hadwen Papers. (ca. 1896-1925)

Dr. Hadwen was a passionate opponent of Jennerian smallpox vaccination. These are a collection of his magazine pieces and a rousing speech, so vivid the reader feel present at an anti-vaccination rally. Our sincere thanks to John Scudamore (UK) for supplying OCR scans of these wonderful documents. PUBLIC DOMAIN

Source: <http://childhealthsafety.wordpress.com/graphs/>

[Corrupt Medical Publishing – Journal of Allergy, Asthma & Clinical Immunology](#)

- [Gardasil – HPV Vaccine – The Injured Continue To Pile Up](#)
- [Autism Pseudo-Science – From Yale & Emory School Of Medicine?](#)
- [US Government Concedes Hep B Vaccine Causes Systemic Lupus Erythematosus](#)
- [CHS Challenge To Dr Max Wiznitzer – 8 Questions – On Vaccines Causing Autistic Conditions](#)
- [Dr David Gorski – Anti-Vaccine-Safety Blogger – Challenged By CHS](#)
- [Brilliant Wakefield Lecture – Shows BMJ Editor’s & Deer’s Fraud Allegations Were Fraud Themselves](#)
- [Dr David Gorski Spewing Anti-Vaccine-Safety Bile – Threatening Childrens’ Health & Safety](#)
- [Paul Offit – Liar “Doctor of Vaccine Profit” Voted His Patented Vaccine For US Children When On Vaccine Safety Committee](#)

Translations

Перевод с русского на русский национальный
[СЕКРЕТНЫЕ БРИТАНСКИЕ ФАЙЛЫ О ДОКАЗАННЫХ ОПАСНОСТЯХ ВАКЦИНЫ ПРОТИВ КОРИ, ПАРОТИТА, КРАСНУХИ - ПЛЮСЕРИКС \(PLUSERIX MMR\)](#)

Equipo de traducción

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Computer Translation

[Secret Files vaccins ROR britannique ouverte par la force d'action juridique](#)

Computer-Übersetzung

[British Secret MMR-Impfstoff Forced-Dateien öffnen Legal Action](#)

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[Vaccines Did Not Save Us – 2 Centuries of Official Statistics](#)



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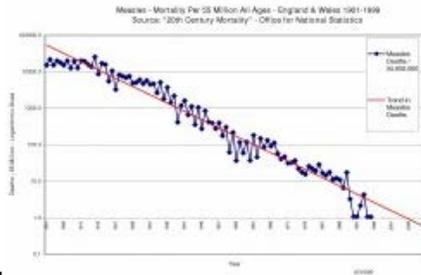
This is the data the drug industry do not want you to see. Here 2 centuries of UK, USA and Australian official death statistics show conclusively and scientifically modern medicine is not responsible for and played little part in substantially improved life expectancy and survival from disease in western economies.

The main advances in combating disease over 200 years have been better food and clean drinking water. Improved sanitation, less overcrowded and better living conditions also contribute. This is also borne out in published peer reviewed research:

- [“The questionable contribution of medical measures to the decline of mortality in the United States in the twentieth century”](#). [McKinlay JB](#), [McKinlay SM](#), Milbank Mem Fund Q Health Soc. 1977 Summer; 55(3): 405-28.

- "[Symposium: Accomplishments in Child Nutrition during the 20th Century. Infant Mortality in the 20th Century, Dramatic but Uneven Progress](#)" Myron E. Wegman School of Public Health, University of Michigan: J. Nutr. 131: 401S–408S, 2001.

The Measles mortality graphs are enlightening [more below] and contradict the claims of Government health officials that vaccines have saved millions of lives. It is an unscientific claim which the data show is untrue. Here you will also learn why vaccinations like mumps and rubella for children are medically unethical and can expose medical professionals to liability for criminal proceedings and civil damages for



administering them.



[Click Graph to Enlarge - Opens In New Window]

The success of the City of Leicester, England was remarkable in reducing smallpox mortality substantially compared to the rest of England and other countries by abandoning vaccination between 1882 and 1908 [see more below].

This contrasts how the drug industry has turned each child in the world into a human pin-cushion profit centre.

And do vaccines cause autistic conditions? If you read nothing else we strongly recommend you read this: [PDF Download – Text of May 5th 2008 email from US HRSA to Sharyl Attkisson of CBS News](#). In it the US Health Resources Services Administration [HRSA] state to CBS News reporter Sharyl Attkisson

We have compensated cases in which children exhibited an encephalopathy, or general brain disease. Encephalopathy may be accompanied by a medical progression of an array of symptoms including autistic behavior, autism, or seizures."

Despite all the lies and deceit by health official worldwide, the question "do vaccines cause autism" was answered after the Hannah Poling story broke in the USA in February 2008 [see CHS article [here](#)]. Hannah developed an autistic condition after 9 vaccines administered the same day. Under the media spotlight numerous US health officials and agencies conceded on broadcast US nationwide TV news from CBS and CNN. Full details with links to the original sources can be found in this CHS article: [Vaccination Causes Autism – Say US Government & Merck’s Director of Vaccines](#). [Blue Text added 10 April 2011]

The financial markets have known for 20 years and more the pharmaceutical industry’s blockbuster patented drugs business model would eventually fail We now see the Bill Gates’ type business model emerging – almost everyone has Windows software on their PC – almost everyone will be vax’ed. Gates

quickly became a multi-billionaire. With vastly more people to vaccinate than computers requiring software the lure of money is many times greater. All this whilst we watch as childhood prevalence of asthma, allergies, autism, diabetes and more have increased exponentially as the vaccines have been introduced.

Can “vaccinatable” diseases “return” despite vaccination? Yes. If you are too poorly nourished your body is likely to lack essential nutrients needed to maintain its immune system sufficiently to withstand disease. This will happen regardless of how many vaccinations you have had. This was experienced in Eastern Europe following the collapse of the old Soviet Bloc and the economic chaos which ensued, leaving many in great poverty.

For the same reason vaccines do not “work” and “save” lives in impoverished African and other third world economies. The majority of third world child deaths still occur despite vaccination. These children need proper food, clean water to drink and wash in and sanitation. We give them vaccines instead.

Contents

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[Scurvy Mortality](#)

[Typhoid & Scarlet Fever – Mortality UK, USA & Australia](#)

[Measles Mortality UK & USA](#)

[Mumps Mortality – England & Wales](#)

[Rubella Mortality – England and Wales](#)

[Mortality, Life Expectancy, Healthcare Costs UK, USA and Worldwide](#)

[Mortality USA and UK](#)

[Disease Mortality UK, USA & Australia](#)

[Mortality Measles, Scarlet Fever, Whooping Cough, Typhoid, Diphtheria, Influenza, Pneumonia & Tuberculosis](#)

[Diphtheria Mortality – England, USA & Australia](#)

[Whooping Cough \(Pertussis\) Mortality Rates – UK, USA & Australia](#)

[Tetanus Mortality – England & Wales 1901 to 1999](#)

[Smallpox Mortality – UK, USA & Sweden](#)

Leicester & Smallpox

[Extracts From “Leicester: Sanitation Versus Vaccination” by J.t. Biggs J.p.](#)

[Table 21. – Smallpox Fatality Rates Compared with “Unprotected” Leicester – 1860 to 1908.](#)

[Table 29. Small-pox Epidemics – Cost and Fatality Rates Compared](#)

[ED Note 15 Oct 2009: As information like that here has become available health officials are changing from scaremongering parents into vaccinating with claims their child could die. Now they claim vaccinating reduces the



numbers of cases of disease [ie. instead of deaths] and produce graphs of dramatic falls in reported cases (instead of deaths) when measles vaccine was introduced.

This is again misleading. A dramatic fall in the numbers of reported measles cases would be expected. Doctors substantially overdiagnose measles cases especially when they believe it is a possible diagnosis. Doctors were told the vaccine prevented children getting measles when introduced in the late 1960's so after that time a substantial reduction in diagnoses would be expected.

Examples of recent overdiagnoses of measles when there are measles "scares" are proportionately up to 74 times (or 7400% overdiagnosed). Figures and sources follow the next paragraph.

What health officials are also doing is relying on very old and unreliable data which ignores that measles has become progressively milder so the risks of long term injury have diminished – (and death is the most extreme form of long term injury – shown here by official data to have diminished rapidly and substantially over the past 100 years without the risks posed to children's health by vaccines).

Measles Over Diagnosed – Up to 7400%

A. Laboratory confirmed cases of measles, mumps, and rubella, England and Wales: October to December 2004

Notified: 474, Tested: 589†, Confirmed cases: 8

RATE OF OVERDIAGNOSIS:- $589/8 =$ proportionately **7400% or 74 times overdiagnosed**

SOURCE: CDR Weekly, Volume 15 Number 12 Published: 24 March 2005

[Note from Source: "†Some oral fluid specimens were submitted early from suspected cases and may not have been subsequently notified, thus the proportion tested is artificially high for this quarter."]

B. Total confirmed cases of measles and oral fluid IgM antibody tests in cases notified to ONS*: weeks 40-52/2005

Notified: 408, Tested: 343, Confirmed cases: 22

RATE OF OVERDIAGNOSIS:- $343/22 =$ proportionately **1560 % or 15.6 times overdiagnosed**

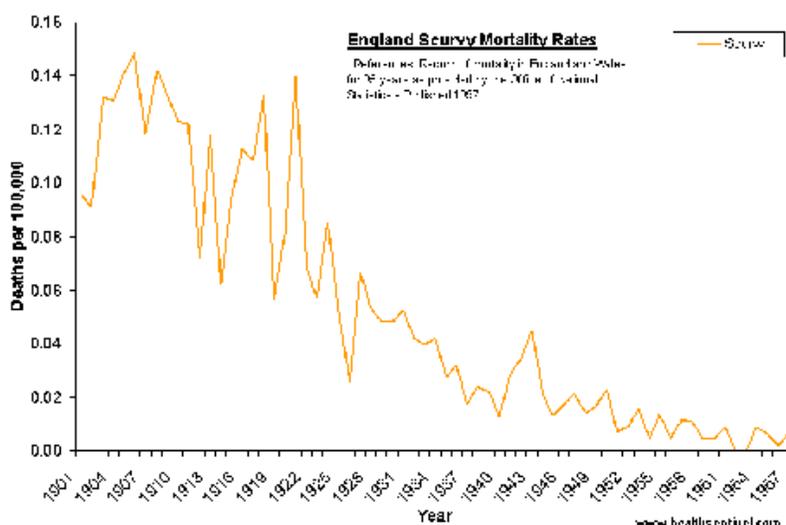
SOURCE: CDR Weekly, Volume 16 Number 12 Published on: 23 March 2006

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[Scurvy Mortality Rates](#)

To start you with something simple, Scurvy, Typhoid and Scarlet Fever are good examples to use as comparisons with "vaccinatable" diseases.

[Click Graph to Enlarge - Opens In New Window]



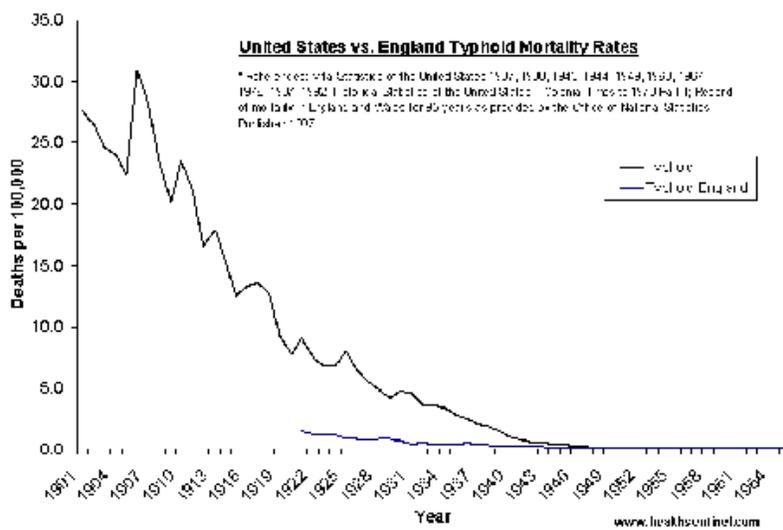
Medicine and especially drugs and vaccines played no part in the fall in Scurvy death rates and the same can be seen for other diseases. Scurvy is a condition caused by a lack of vitamin C. Poor nutrition, particularly a lack of fresh fruit and vegetables, can result in Scurvy. Mortality rates fell dramatically as living conditions improved.

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[Typhoid & Scarlet Fever – Mortality UK, USA & Australia](#)

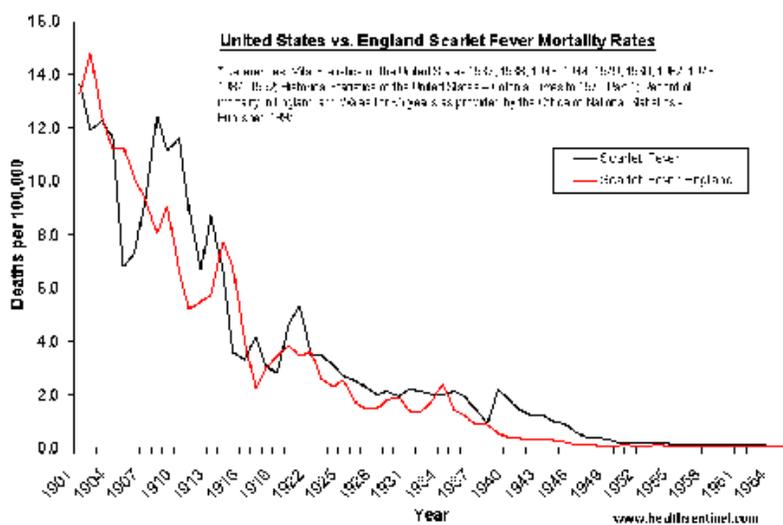
Typhoid and Scarlet Fever vanished without vaccines but with clean water, better nutrition, sanitation and living conditions.

[Click Graph to Enlarge - Opens In New Window]

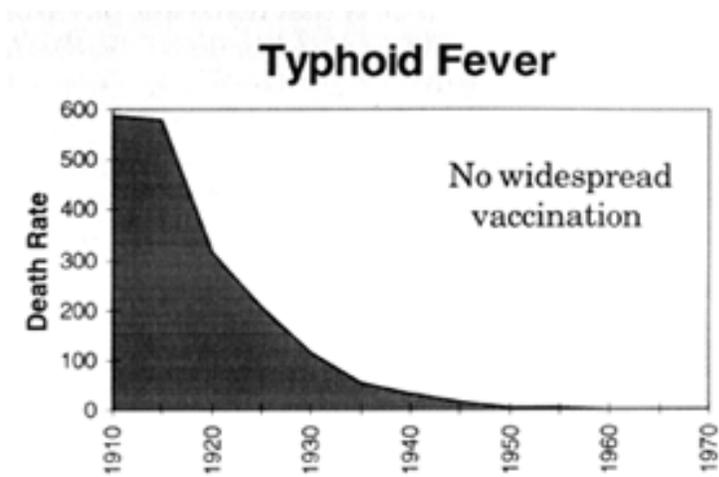


USA Compared to UK Typhoid Mortality 1901 to 1965 – Published: Roman Bystrianykh

[Click Graph to Enlarge - Opens In New Window]

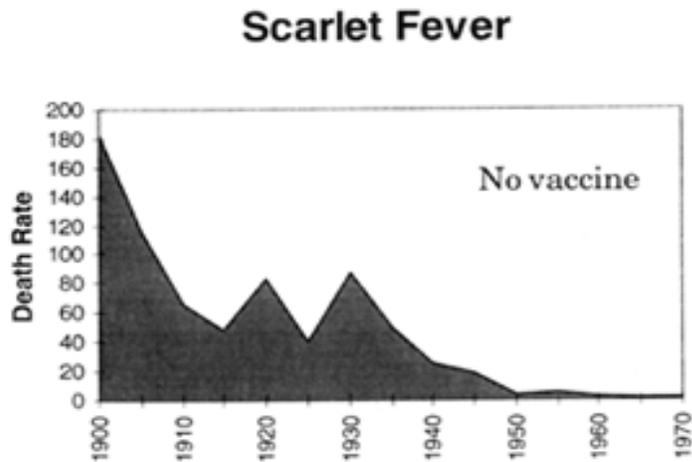


USA Compared to UK Scarlet Fever Mortality 1901 to 1965 – Published: Roman Bystrianykh



Australia Typhoid Mortality Rates 1880 to 1970

[SOURCE: Data - Official Year Books of the Commonwealth of Australia, as reproduced in Greg Beattie's book "[Vaccination A Parent's Dilemma](#)" - [Downloadable Now](#)]



Australia Scarlet Fever Mortality Rates 1880 to 1970

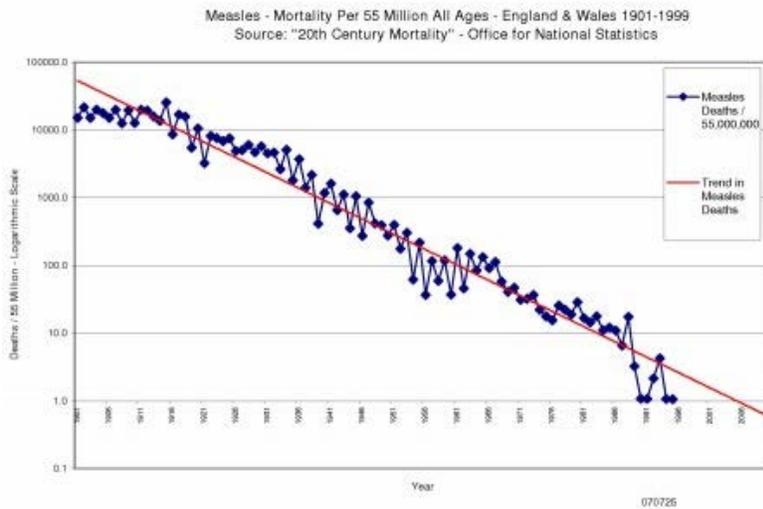
[SOURCE: Data - Official Year Books of the Commonwealth of Australia, as reproduced in Greg Beattie's book "[Vaccination A Parent's Dilemma](#)" - [Downloadable Now](#)]

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[MEASLES MORTALITY UK & USA](#)

By 2007 the chance of anyone in England and Wales dying of measles if no one were vaccinated was less than 1 in 55 million. The chance of being struck by lightning is 30 to 60 times higher: [Tornado & Storm Research Organisation](#)

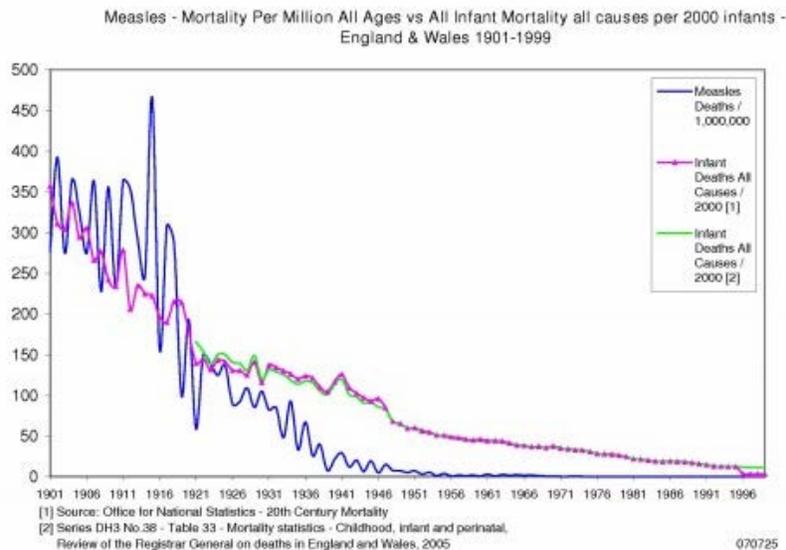
[Click Graph to Enlarge - Opens In New Window]



Measles Mortality England & Wales 1901 to 1999 – Logarithmic Scale [By Clifford G. Miller - For Evidence in the Dr Jayne Donegan General Medical Council Hearings August 2007, Manchester, England]

Note that what seem large fluctuations after MMR vaccination was introduced in 1988 are not so large and are a feature of plotting the graph on a logarithmic scale. This can be seen in the following graph, plotted on an analog scale.

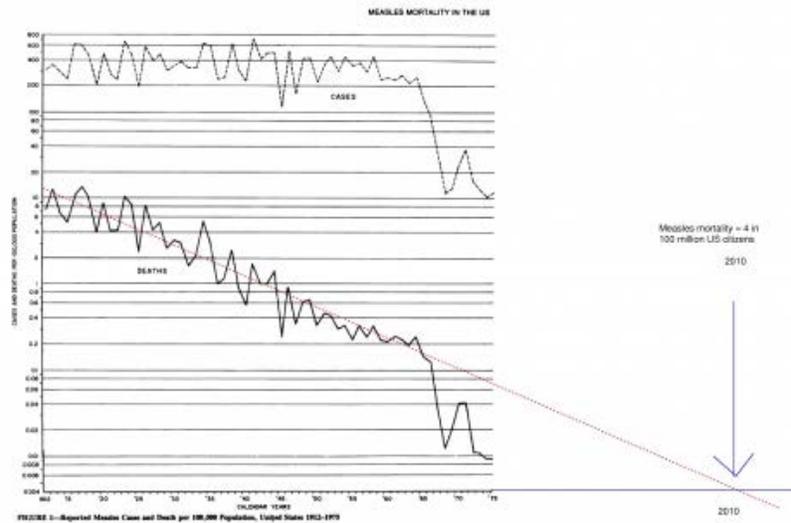
[Click Graph to Enlarge - Opens In New Window]



Measles Mortality England & Wales 1901 to 1999 – Analog Scale – [By Clifford G. Miller - For Evidence in the Dr Jayne Donegan General Medical Council Hearings August 2007, Manchester, England]

The graph below is from a peer refereed medical paper: [Englehardt SF, Halsey NA, Eddins DL, Hinman AR. Measles mortality in the United States 1971-1975. Am J Public Health 1980;70:1166–1169.](#) The red dotted trendline has been added. This shows US measles mortality was falling regardless of whether vaccination was used. By 2010 overall measles mortality in the USA was to fall to around 1 in 25 million without vaccines. As the severity of measles declined, long term complications would also. Whilst people still caught measles it was not the dreaded disease we are told it is today.

[Click Graph to Enlarge - Opens In New Window]

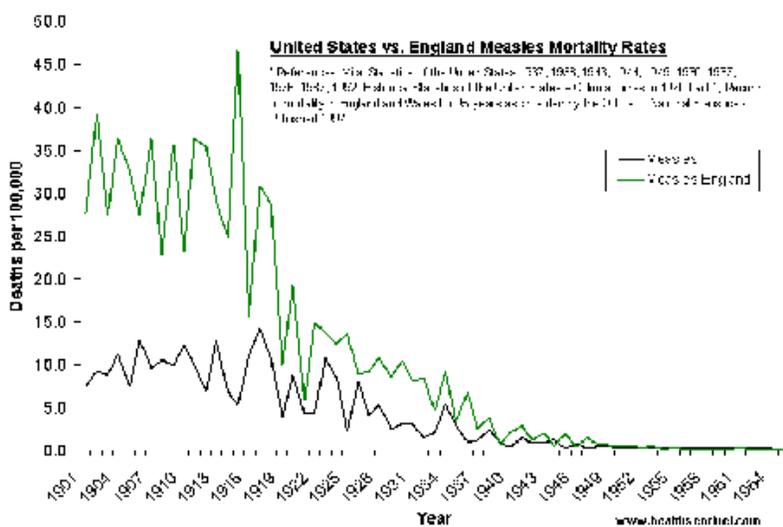


USA Measles Mortality 1912 to 1975 [Source: Measles mortality in the United States 1971-1975. Halsey et al, Am J Public Health 1980;70:1166-1169.

The seeming fall in reported ordinary [ie. non fatal] measles cases in the above Halsey graph after 1968 is misleading. Doctors are poor in accuracy of diagnosis and follow fashions. Official UK records for 2006 show that when doctors are looking for a disease, they overdiagnose suspected measles cases varying by 10 times to 74 times higher than is confirmed by laboratory testing: [**74 times overdiagnosed** SOURCE: CDR Weekly, Volume 15 Number 12 Published: 24 March 2005], [**10 times overdiagnosed**, CDR Weekly, PHLS 12:26], [**15.6 times overdiagnosed**, SOURCE: CDR Weekly, Volume 16 Number 12 Published on: 23 March 2006]

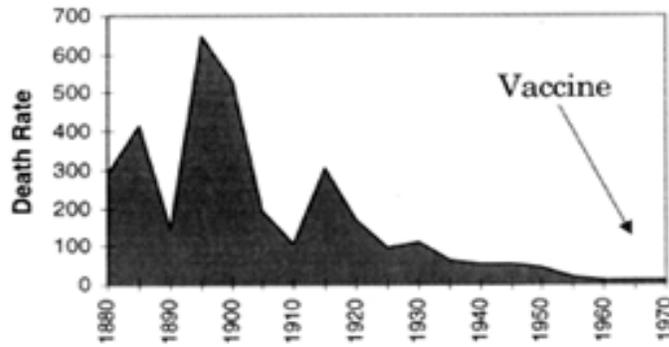
Correspondingly, when vaccination was introduced, they will tend to follow the fashion of not diagnosing measles, where they believe it controlled by vaccination. This following of fashions has been seen in other areas, including Coroner diagnoses of causes of death.

[Click Graph to Enlarge - Opens In New Window]



USA Measles Mortality Compared to UK 1901 to 1965 – Published: Roman Bystryanyk

Measles



Australia Measles Mortality Rates 1880 to 1970

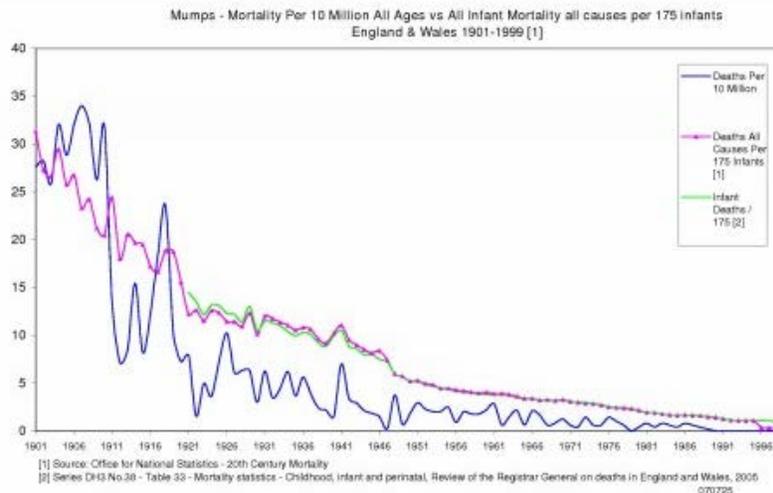
[SOURCE: Data - Official Year Books of the Commonwealth of Australia, as reproduced in Greg Beattie's book "[Vaccination A Parent's Dilemma](#)" - [Downloadable Now](#)]

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[Mumps Mortality – England & Wales](#)

It is not exaggeration but accurate to state that mumps vaccination takes the medical profession firmly into the territory of the criminal law and unethical medical treatment of children.

[Click Graph to Enlarge - Opens In New Window]



Mumps Mortality England & Wales 1901 to 1999 [By Clifford G. Miller - For Evidence in the Dr Jayne Donegan General Medical Council Hearings August 2007, Manchester, England]

Providing treatment to a patient that is not clinically needed and misleading patients as to the clinical need for a treatment so as to vitiate their consent can mean the administration of the treatment is a criminal offence: *Appleton v Garrett* (1995) 34 BMLR 23.

According to The British Medical Association ('BMA') and The Royal Pharmaceutical Society of Great Britain (RPSGB) mumps vaccination is clinically inappropriate:-

"Since mumps and its complications are very rarely serious there is little indication for the routine use of mumps vaccine": *British National Formulary ('BNF') 1985 and 1986*

Freedom of Information documents show the UK's Joint Committee on Vaccination and Immunisation and Ministry of Defence agreed as early as 1974 that:-

"there was no need to introduce routine vaccination against mumps" because "complications from the disease were rare" JCVI minutes 11 Dec 1974.

Doctors and nurses who fail to tell parents mumps vaccine in MMR is clinically unnecessary, of the exact risks of adverse reactions and then give the vaccine appear to be behaving unethically, potentially in contravention of the criminal law and liable to civil proceedings for damages. They are also unable to explain the exact risks because data on adverse reactions are not being collected properly or at all, and there is evidence showing adverse reaction data are suppressed.

A consequence is that giving MMR vaccine to children cannot be justified on clinical or ethical grounds. And as there is insufficient clinical benefit to children to introduce mass mumps vaccination, it cannot be justified as a general public health measure.

And one consequence of this unnecessary measure is that we are now putting young male adults at risk of orchitis and sterility because they did not catch natural mumps harmlessly when children and because MMR vaccination is not effective in conferring full or lasting immunity across an entire population.

One effect of MMR vaccination has been to push mumps outbreaks into older age groups. Mumps now circulates in colleges and universities: [Mumps and the UK epidemic 2005](#), R K Gupta, J Best, E MacMahon BMJ 2005;330:1132-1135 (14 May).

1 in 4 males who has achieved puberty and has not achieved immunity to mumps runs the risk of orchitis. Orchitis (usually unilateral) has been reported as a complication in 20-30% of clinical mumps cases in postpubertal males. Some testicular atrophy occurs in about 35% of cases of mumps orchitis: [Mumps](#) - Emedicine. This means one of the male testicles shrivels up. Affected men can become sterile in one testicle. This affects one in every nine males who catch mumps after puberty compared with none who catch it before puberty. It is only because most men have two testicles and only one is affected that total sterility is rare. Most men would find that little consolation. Having a shrivelled testicle would carry psychological and practical consequences for any intimate physical relationship in adult life. The message seems to be it is better for a child to catch mumps naturally before puberty.

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[Rubella Mortality, England and Wales](#)

As with mumps, rubella vaccination again takes the medical profession into the territory of the criminal law and unethical treatment of children. A graph for rubella mortality is not included because death from rubella over the last century was so rare the figures are insufficient to plot a graph of any note.

Aside from a rash the adverse effects of rubella for children are minimal. Vaccination against rubella is of no clinical benefit to a child particularly when compared to the risks of adverse vaccine reactions. If a pregnant woman catches rubella infection during the first three months of pregnancy and the child survives, this poses a risk to the unborn child of being born with congenital rubella syndrome (CRS), involving multiple congenital abnormalities.

Prior to the introduction of rubella vaccine, the number of annual cases in the UK was small, around 50 per annum. Additionally, 92% of rubella cases deliver normal healthy children: DANISH MEDICAL BULLETIN MARCH 1987 - WAVES Vol. 11 No. 4 p. 21 .This small risk can also be reduced either by

making sure all women have caught rubella as children or by vaccinating those who have not prior to puberty. This minimises the exposure of children to the vaccine and hence to unnecessary risks of adverse vaccine reactions.

In comparison birth defects from any other cause are much higher:

"Birth defects affect about one in every 33 babies born in the United States each year. They are the leading cause of infant deaths, accounting for more than 20% of all infant deaths. Babies born with birth defects have a greater chance of illness and long term disability than babies without birth defects.": [Birth Defects](#) US Centers for Disease Control and Prevention - accessed 11th May 2008

To see how egregious is the exaggeration of risk from rubella in order to scare parents into vaccinating their children, see the following:-

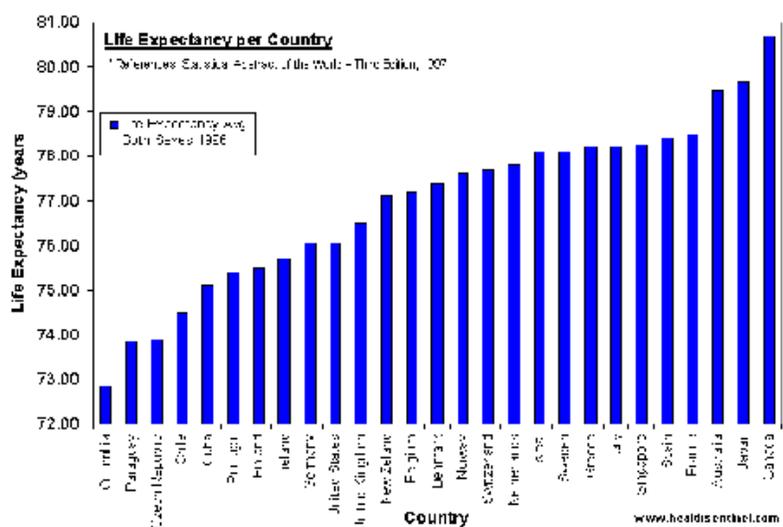
- [False Government Rubella Scare Stories - Reply to Professor Louis Z Cooper](#) 6 June 2005
- [Rubella Scares - Demonstrating the Figures are False](#) 11 August 2005
- [False Government Rubella Scare Stories - Only 20,000 Percent Overstated](#) 1 June 2005

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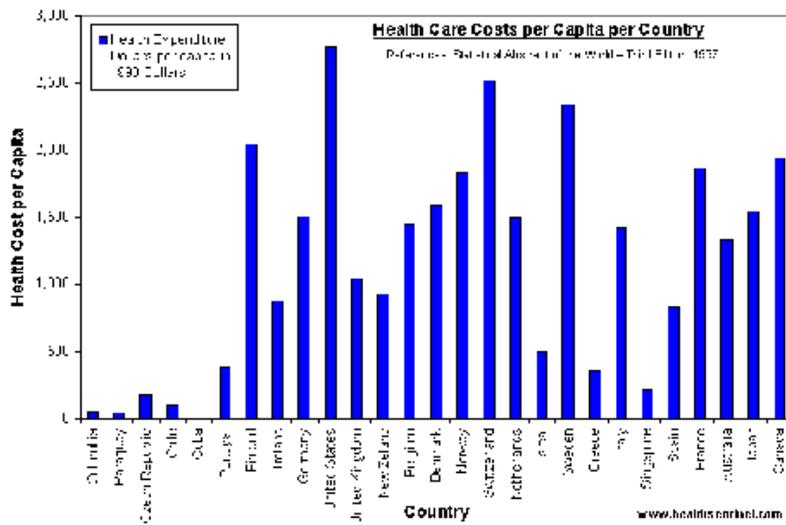
[MORTALITY, LIFE EXPECTANCY, HEALTHCARE COSTS UK, USA AND WORLDWIDE](#)

Does paying for healthcare bring you better health and a longer life? No. The following graphs show that in 1996, average life expectancy in the US was 18th of all countries, being 5 years less than Canada and behind the UK. But Americans were paying per person US\$1000 or over 1/3rd more than Canadians and nearly 2/3rds more than the British. And if you then take a look at the graphs of mortality, what were Americans getting for their money? Mortality rates were falling anyway, regardless and kept on falling. Life expectancy increased as time went by, but again substantially due to overall improved living conditions.

[Click Graph to Enlarge - Opens In New Window]

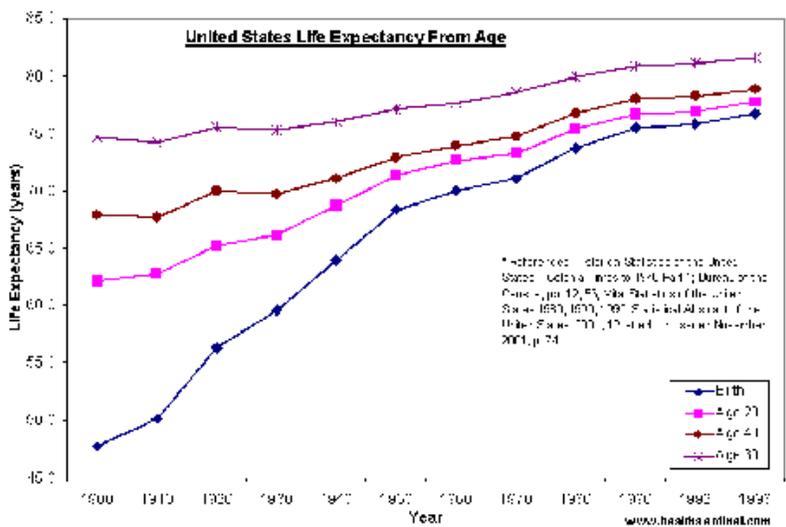


[Click Graph to Enlarge - Opens In New Window]



World Healthcare Costs (\$) 1990 – Published: Roman Bystrianyk

[Click Graph to Enlarge - Opens In New Window]

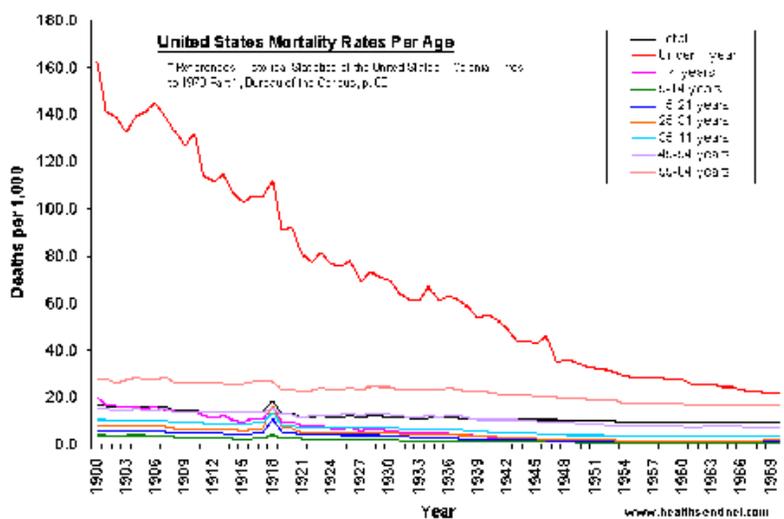


USA Life Expectancy by Age 1900 to 1998 – Published: Roman Bystrianyk

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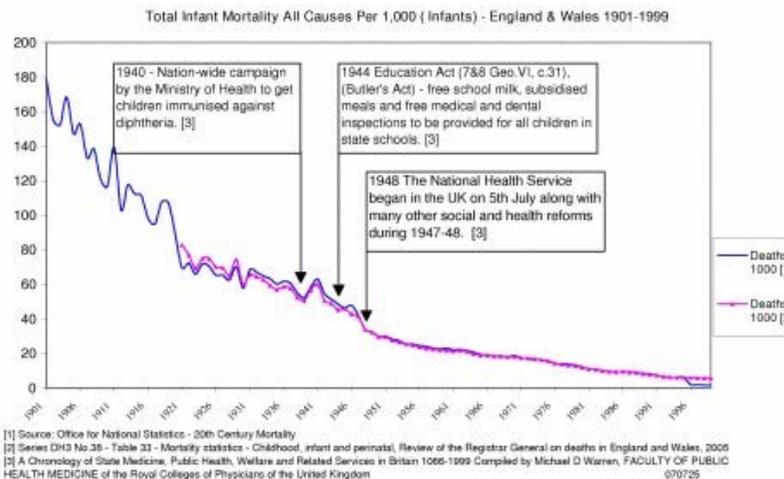
[MORTALITY – USA AND UK](#)

[Click Graph to Enlarge - Opens In New Window]



USA Mortality by Age at Death 1900 to 1970 – Published: Roman Bystranyk

[Click Graph to Enlarge - Opens In New Window]



England & Wales Total Infant Mortality 1901 to 1999

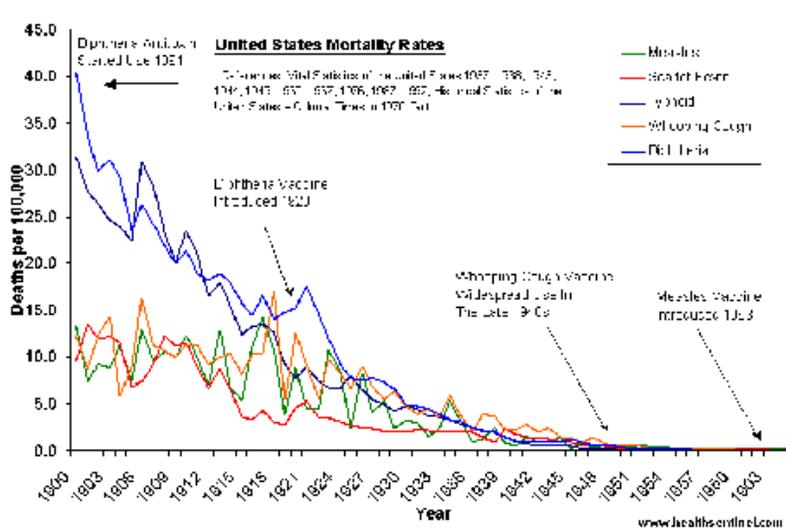
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[DISEASE MORTALITY UK, USA & AUSTRALIA](#)

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[MEASLES, SCARLET FEVER, WHOOPING COUGH, TYPHOID, DIPHTHERIA, INFLUENZA, PNEUMONIA & TUBERCULOSIS](#)

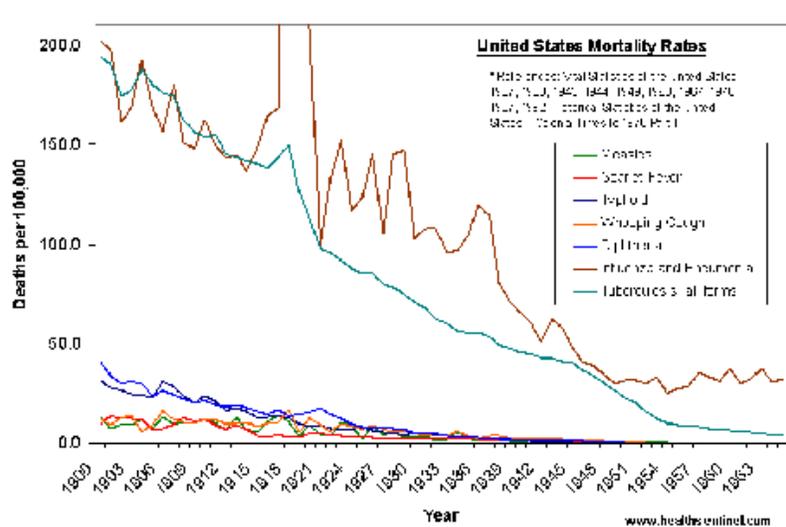
[Click Graph to Enlarge - Opens In New Window]



USA Disease Mortality 1900 to 1965 Measles, Typhoid, Pertussis (Whooping Cough), Diphtheria, Scarlet Fever – Published: Roman Bystryanik

The following is the same USA graph as just above, but with Influenza and Tuberculosis Deaths included. And you can see that Influenza deaths were not prevented by a vaccine – because for most of the period covered, there was no vaccine available at all and when it became available, it was not freely available until the present day – when guess what – ‘flu mortality had already plummeted – and guess what else – it does not work particularly well either – in fact so badly it may well be best avoided.

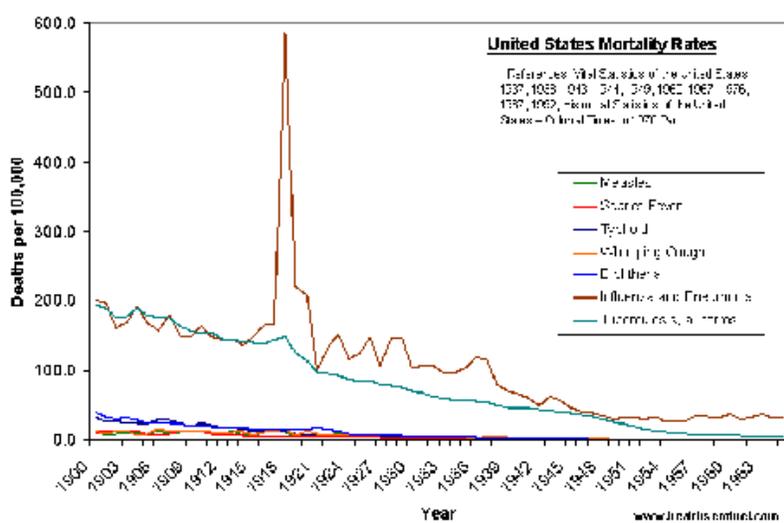
[Click Graph to Enlarge - Opens In New Window]



USA Disease Mortality 1900 to 1965 Measles, Typhoid, Pertussis (Whooping Cough), Diphtheria, Scarlet Fever, Influenza & Pneumonia, Tuberculosis – Published: Roman Bystryanik

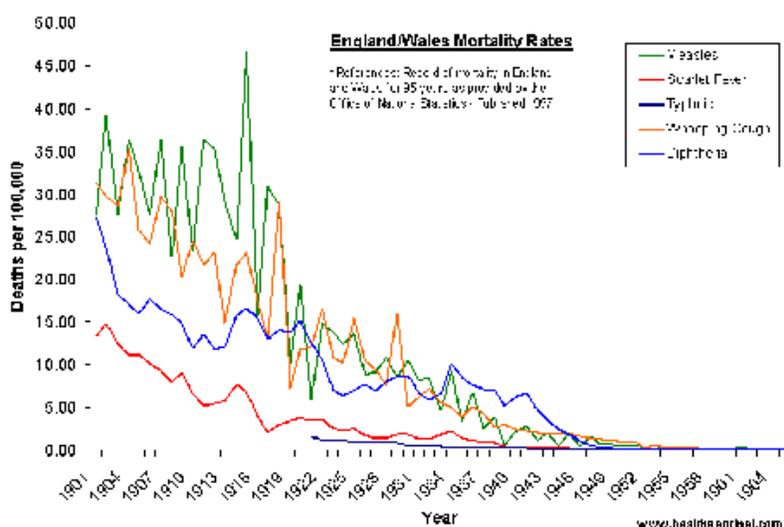
The following is the same graph as above but showing the full curve for influenza and pneumonia mortality.

[Click Graph to Enlarge - Opens In New Window]



USA Disease Mortality 1900 to 1965 Measles, Typhoid, Pertussis (Whooping Cough), Diphtheria, Scarlet Fever, Influenza & Pneumonia, Tuberculosis – Published: Roman Bystryanik

[Click Graph to Enlarge - Opens In New Window]



UK Disease Mortality 1901 to 1965 Measles, Typhoid, Pertussis (Whooping Cough), Diphtheria, Scarlet Fever – Published: Roman Bystryanik

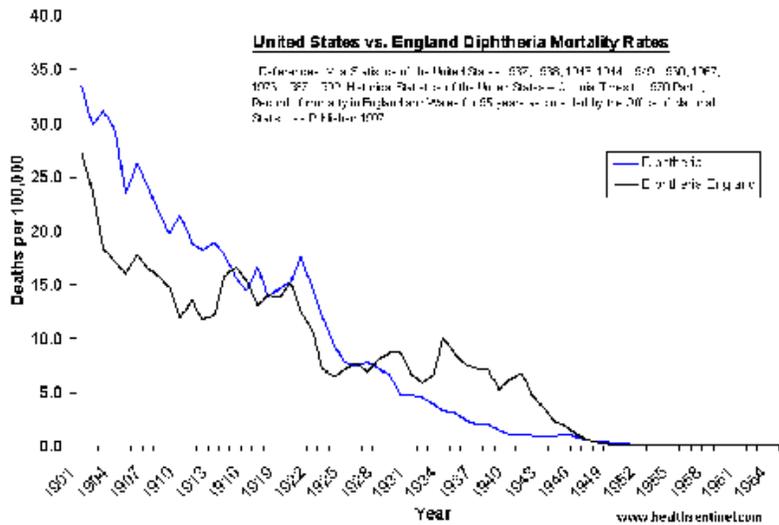
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[DIPHTHERIA MORTALITY](#)

[England, USA & Australia](#)

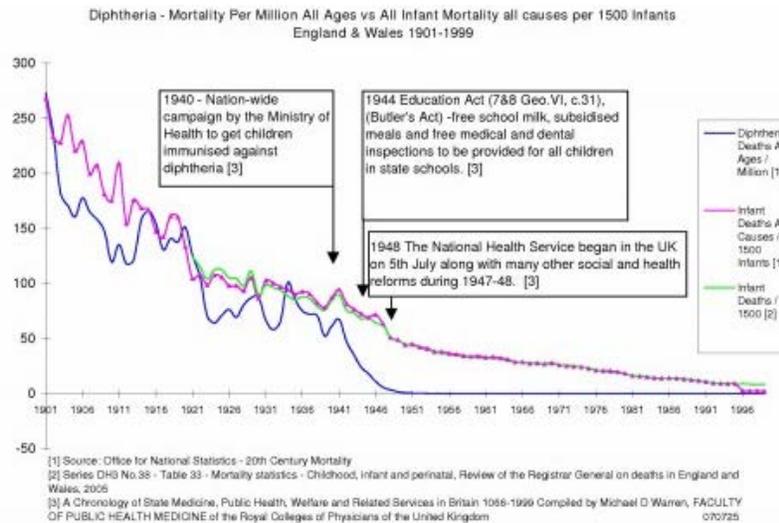
Here we see Diphtheria mortality falling all by itself. In the UK, although the vaccine was introduced in 1940, most children particularly under 5 did not get it and there was a large catch-up campaign in 1945-6. The under 5 age group are the most at risk from infectious disease. But can you see any difference in the rate of fall of mortality from Diphtheria after 1946 in the UK? No? Surprised? The “success” of diphtheria vaccine is another unscientific quasi religious faith of the medical professions which is not backed up by scientific data.

[Click Graph to Enlarge - Opens In New Window]



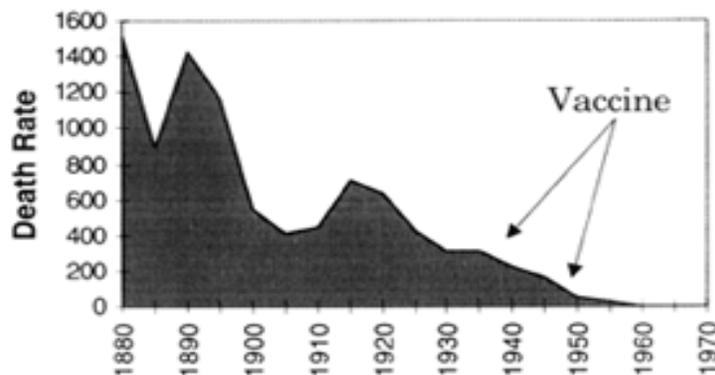
USA Compared to UK Diphtheria Mortality 1901 to 1965 – Published: Roman Bystryanyk

[Click Graph to Enlarge - Opens In New Window]



England & Wales Diphtheria Mortality 1901 to 1999 – [By Clifford G. Miller - For Evidence in the Dr Jayne Donegan General Medical Council Hearings August 2007, Manchester, England]

Diphtheria



Australia Diphtheria Mortality Rates 1880 to 1970

[SOURCE: Data - Official Year Books of the Commonwealth of Australia, as reproduced in Greg Beattie's book "[Vaccination A Parent's Dilemma](#)" - [Downloadable Now](#)]

Diphtheria vaccine was introduced to the UK in 1940. It is certain beyond doubt that diphtheria vaccine **played no part** in the sudden fall in diphtheria mortality from 1941 to 1946 [see graph] . The records show most children went unvaccinated **until after the major fall**. The graph of total infant mortality as a benchmark also shows the vaccine made no discernible difference to diphtheria mortality at any other time.

By the end of 1941:-

“about 36 percent of school age children had been immunised but only about 19 percent of the younger children”: [British Journal of Nursing October 1948 p121](#).

It was not until 1946-7 – after the substantial fall in diphtheria mortality had taken place that a major effort was made to vaccinate the children who had been missed. 969,000 children under 5 were “immunised”: [British Journal of Nursing October 1948 p121](#). With an annual birth rate in the region of 200,000 that represented most of the children born during 1941 to 1946. So diphtheria vaccination could not have been responsible for the fall.

But we can identify what was most likely responsible. We can see the impact of the social health and welfare reforms of 1944, 1947 and 1948. Free school milk provided, among other nourishment, vitamin A to help children’s immune systems fight disease. It is vitamin A which the World Health Organisation is keen to provide to third world children now for the same reason.

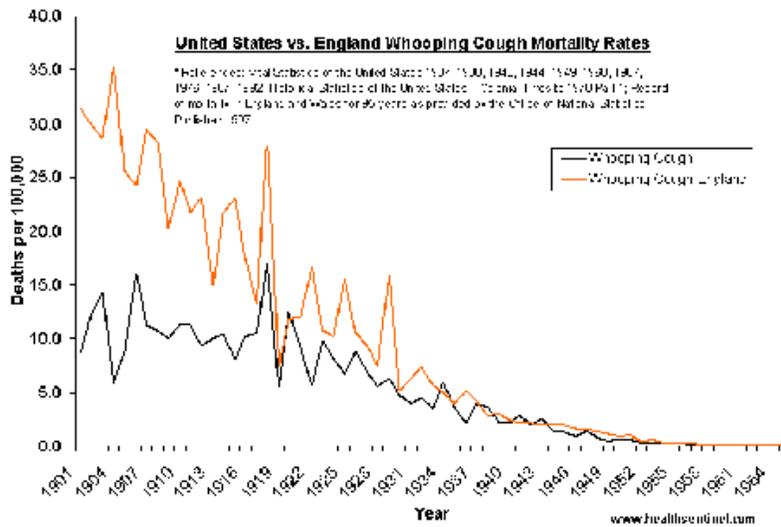
It can be seen that the benchmark decline in general infant mortality (ie. all causes of infant death) closely follows the decline in diphtheria mortality in the general population. This again demonstrates that the decline in diphtheria mortality was part of a general trend and had little or nothing to do with the introduction of vaccination.

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[WHOOPING COUGH \(PERTUSSIS\) MORTALITY – UK, USA & Australia](#)

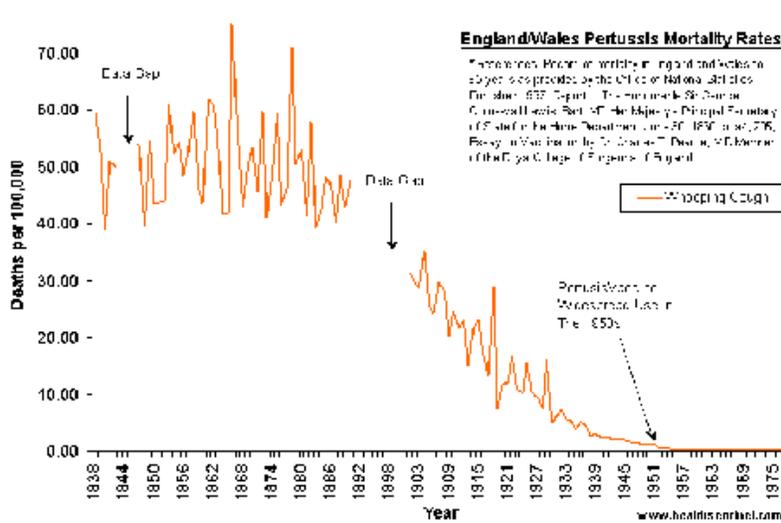
Whooping Cough or Pertussis – again, the mortality rates fell substantially well before any vaccines were introduced. The contribution, if any, to overall health has been negligible. The decline in general infant mortality closely follows the decline in Whooping Cough mortality in the general population. This again demonstrates that the decline in Whooping Cough mortality was part of a general trend and had little or nothing to do with the introduction of vaccination:-

[Click Graph to Enlarge - Opens In New Window]

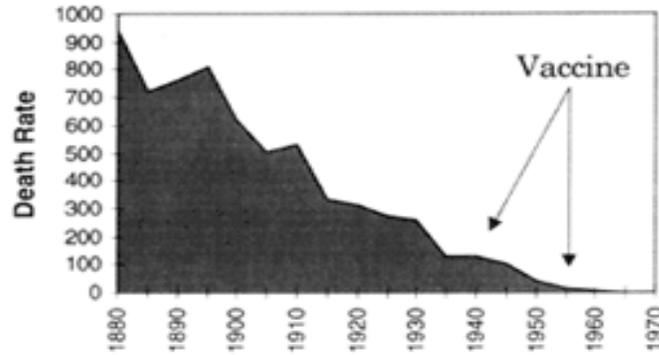


USA Compared to UK Whooping Cough (Pertussis) Mortality 1901 to 1965 – Published: Roman Bystryanyk

[Click Graph to Enlarge - Opens In New Window]



Whooping Cough

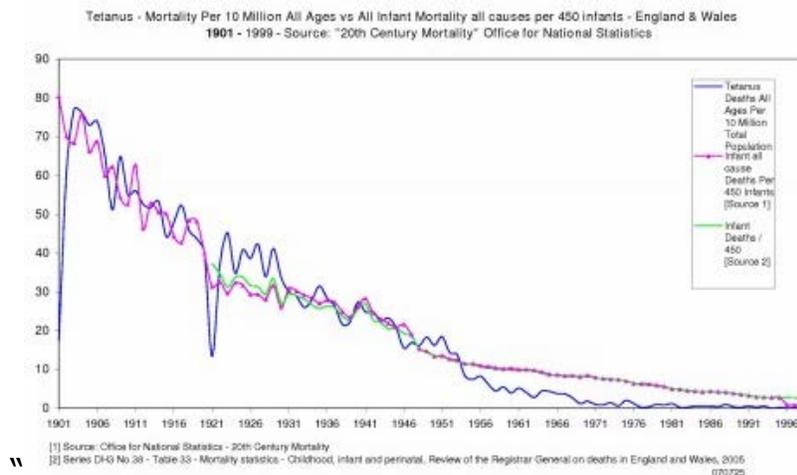


Australian Whooping Cough (Pertussis) Mortality 1880-1970 - [SOURCE: Data - Official Year Books of the Commonwealth of Australia, as reproduced in Greg Beattie's book "[Vaccination A Parent's Dilemma](#)" - [Downloadable Now](#)]

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[Tetanus Mortality – England & Wales 1901 to 1999](#)

[Click Graph to Enlarge - Opens In New Window]



Tetanus Mortality England & Wales 1901 to 1999 [By Clifford G. Miller - For Evidence in the Dr Jayne Donegan General Medical Council Hearings August 2007, Manchester, England]

Tetanus Mortality England & Wales 1901 to 1999

This graph demonstrates that the administration of tetanus vaccine is likely to be pointless and puts children especially at risk of adverse reactions to the vaccines.

There is only one respect in which modern medicine could have had an indirect effect. This came with the social reforms of 1947-48 which saw the introduction of the National Health Service. Coupled with this was the start of the reduction in numbers of farm workers with the start of increased mechanisation and industrial scale farming in Britain after the 1939-1945 World War. The numbers of farm labour fell by half post war and the increase in mechanisation also reduced the chances of the injuries which were likely to result in tetanus

Fewer agricultural workers coupled with better access to healthcare would result in better treatment of

wounds. Tetanus thrives in deep wounds which are not properly cleansed. So by having fewer agricultural workers and better wound care could reduce the incidence of tetanus cases. So if the reduction in tetanus mortality in the 1950s is anything other than part of the continuing decline with better standards of living, those two reasons are the most likely explanations.

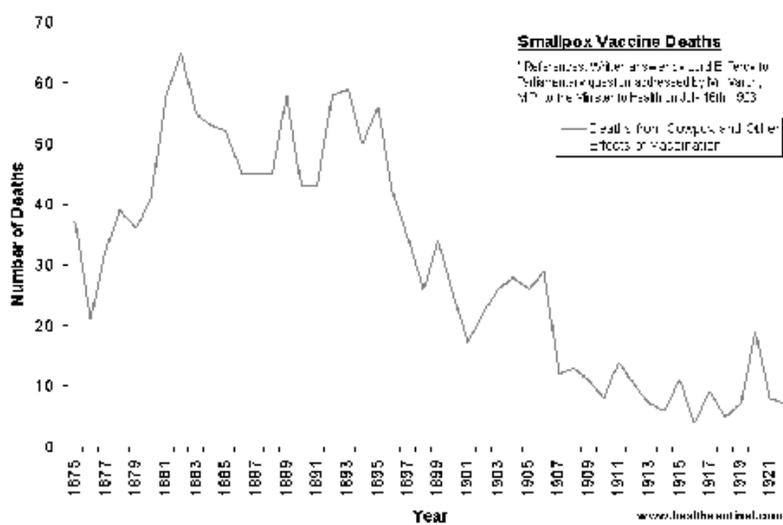
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[SMALLPOX MORTALITY-UK, USA & SWEDEN](#)

In the graphs notice the large numbers of deaths caused by the smallpox vaccine itself. By 1901 in the UK, more people died from the smallpox vaccination than from smallpox itself. The severity of the disease diminished with improved living standards and was not vanquished by vaccination, as the medical "consensus" view tells us. Any vaccine which takes 100 years to "work" is not. On any scientific analysis of the history and data, crediting smallpox vaccine for the decline in smallpox appears misplaced.

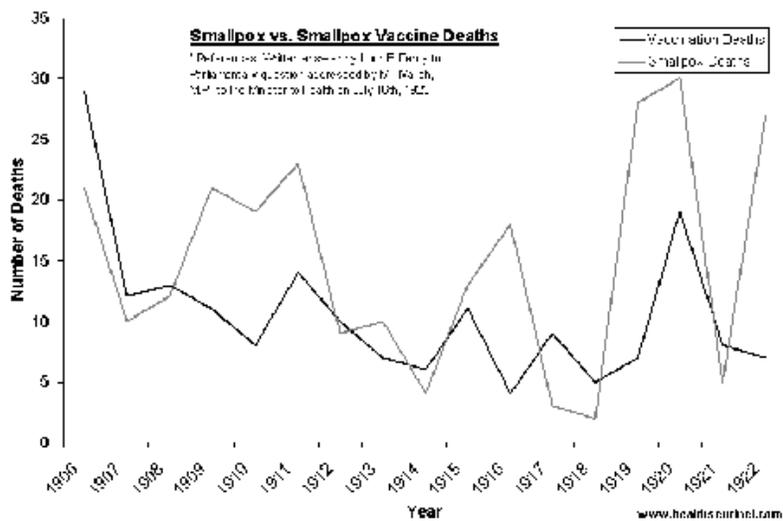
When during 1880-1908 the City of Leicester in England stopped vaccination compared to the rest of the UK and elsewhere, its survival rates soared and smallpox death rates plummeted [see table below]. Leicester's approach also cost far less.

[Click Graph to Enlarge - Opens In New Window]



UK Deaths Caused by Smallpox Vaccination 1875 to 1922 – Published: Roman Bystrianyk

[Click Graph to Enlarge - Opens In New Window]



UK Deaths from Smallpox Vaccine Compared To Smallpox Mortality 1906 to 1922 – Published: Roman Bystryanik

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[Extracts from "LEICESTER: Sanitation versus Vaccination" By J.T. Biggs J.P.](#)

[[Download Entire Book](#) as .pdf 43 Mb - Or [Read Online](#)]

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TABLE 21

SMALLPOX FATALITY RATES, cases in vaccinated and re-vaccinated populations compared with "unprotected" Leicester – 1860 to 1908.

Name.	Period.	Small-Pox. Cases	Small-Pox. Deaths.	Fatality-rate per cent. of Cases
Japan	1886-1908	288,779	77,415	26.8
British Army (United Kingdom)	1860-1908	1,355	96	7.1
British Army (India)	1860-1908	2,753	307	11.1
British Army (Colonies)	1860-1908	934	82	8.8
Royal Navy	1860-1908	2,909	234	8.0
Grand Totals and case fatality rate per cent, over all		296,730	78,134	26.3
Leicester (since giving up vaccination)	1880-1908	1,206	61	5.1

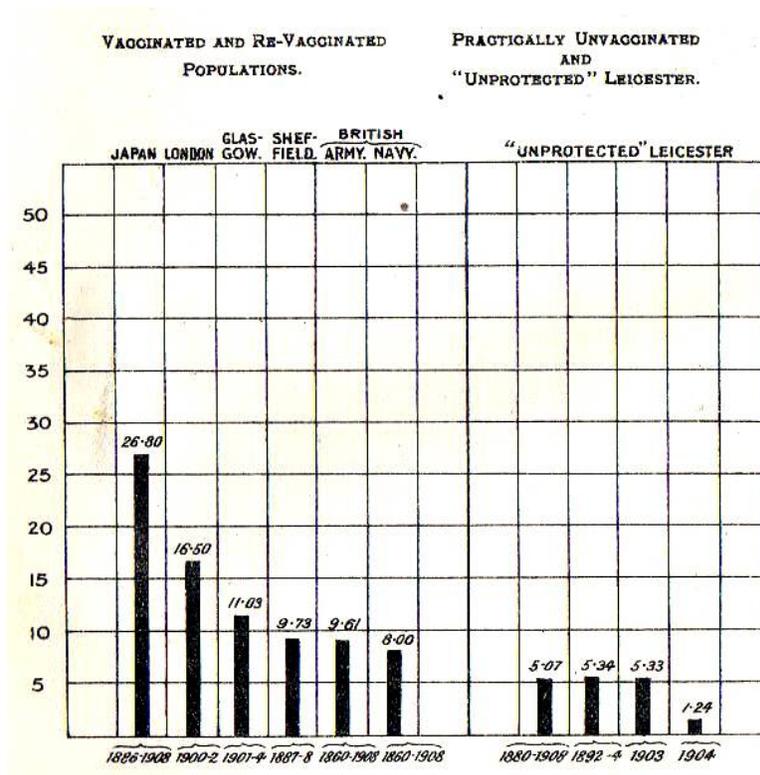
Biggs said "In this comparison, I have given the numbers of revaccinated cases, and deaths, and each fatality-rate separately and together, so that they may be compared either way with Leicester. In pro-vaccinist language, may I ask, if the excessive small-pox fatality of Japan, of the British Army, and of the Royal Navy, are not due to vaccination and revaccination, to what are they due? It would afford an interesting psychical study were we able to know to what heights of eloquent glorification Sir George Buchanan would have soared with a corresponding result—but on the opposite side."

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TABLE 29.

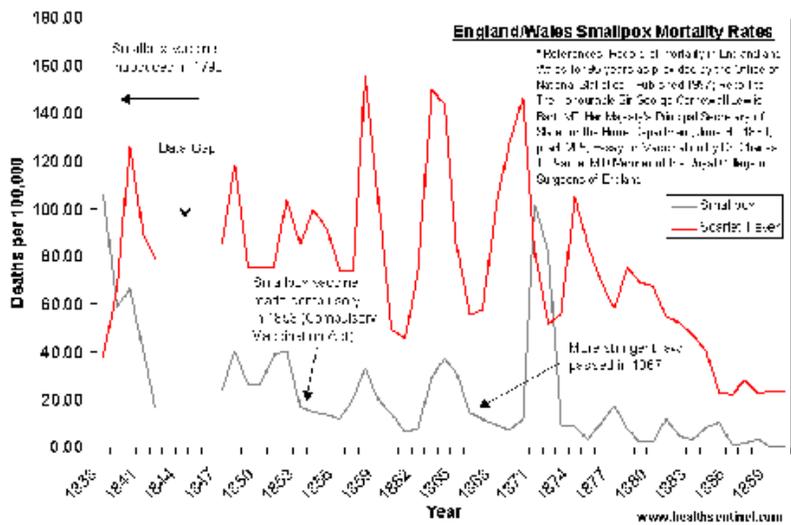
Small-Pox Epidemics, Cost, and Fatality Rates Compared

	Vaccinal Condition	Small-Pox Cases	Small-Pox Deaths	Fatality-rate Per Cent	Cost of Epidemic
London 1900-02	Well Vaccinated	9,659	1,594	16.50	£492,000
Glasgow 1900-02	Well Vaccinated	3,417	377	11.03	£150,000
Sheffield 1887-88	Well Vaccinated	7,066	688	9.73	£32,257
Leicester 1892-94	Practically Unvaccinated	393	21	5.34	£2,888
Leicester 1902-04	Practically Unvaccinated	731	30	4.10	£1,602



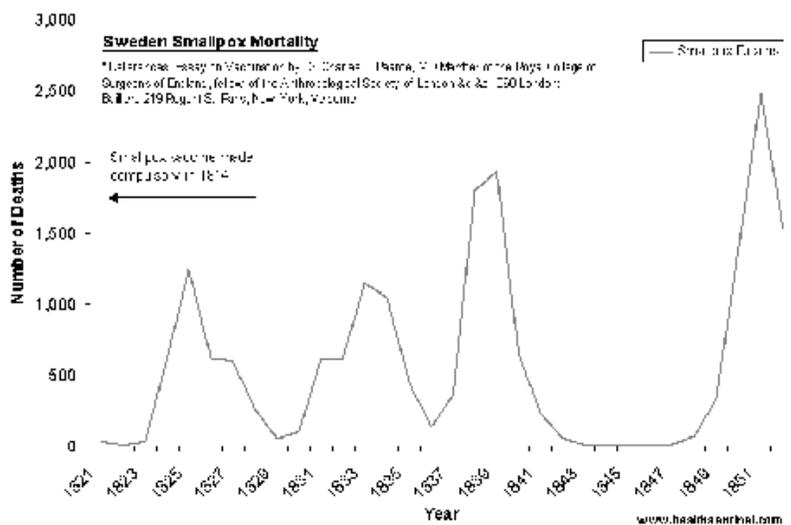
City of Leicester Smallpox Deaths 1880-1908

[Click Graph to Enlarge - Opens In New Window]



UK Smallpox Mortality Rates Compared to Scarlet Fever 1838 to 1890 – Published: Roman Bystrianyk

[Click Graph to Enlarge - Opens In New Window]



Sweden Smallpox Mortality Rates 1821 to 1852 – Published: Roman Bystrianyk

SOUNDING BOARD

A Different View of Smallpox and Vaccination

Thomas Mack, M.D., M.P.H.

According to federal,¹ academic,² and lay³ observers, smallpox might be used as a weapon of terrorism. Variola virus is presumed to be available,⁴ and a terrorist could introduce it, leading to secondary spread and deaths. Current policy is to promote vaccination, initially to 1/2 million hospital-selected health care providers⁵ and subsequently to as many as 10 million others.⁶ This policy should be compared with alternatives in the light of the likely outcome of an introduction of variola virus into this country. Three decades ago, I was among those who investigated the dynamics of smallpox transmission by direct observation in Pakistan.

RISK OF SMALLPOX

Smallpox was eradicated because its chain of transmission is inherently vulnerable. The clinical characteristics of an infectious patient restrict spread, because most virus shedding⁷ and almost all transmission⁸ occur during the first week of florid rash, and this period coincides with rapidly evolving symptoms severe enough to keep infectious patients in bed. Although the virus can be isolated from pharyngeal washings at the onset of rash and from month-old scabs,⁹ neither of these seems to be important in practice.⁸ Moreover, the physical appearance of an unvaccinated person with variola major is alarming and quite unlike anything else, including the appearance of persons with varicella. Once they are infectious, 98 percent of previously unvaccinated patients have disease severe enough¹⁰ to be recognized by any professional or layperson familiar with the characteristic appearance (Fig. 1). Whether clustered densely or sparsely, the lesions, uniform in stage and set deeply in the dermis of the face and extremities,¹¹ are unmistakable.

Transmission would not be expected to occur over more than very short distances. Although virus can be grown from pharyngeal washings and the face and bedding of infectious patients,¹² attempts to grow it from exhaled air or from unbroken vesicles have been unsuccessful,^{12,13} suggesting that virus is usually discharged not in droplet nuclei but

in saliva droplets too large to be wafted long distances. Moreover, the viability of artificially airborne virus is measured in minutes.¹⁴

Smallpox is not as infectious as its reputation would suggest. Whether in Punjab,¹⁵ Bengal,¹⁶ or Europe,¹⁷ variola major was almost always transmitted at the bedside of the source, not at an external location. The source of infection was reported for about 96 percent of the cases that resulted from 51 introductions into highly susceptible European populations after World War II.¹⁷⁻¹⁹ Among the 18 cases, on average, per introduction, 3.8 occurred among household contacts and only 1.1 appeared among the multitude of community residents with no acknowledged exposure. None of the 945 cases involved disease contracted on an airplane, train, or bus. Any spread into the community from an introduction would thus be limited. Past experience is likely to be a more accurate predictor of future events than models based on arbitrary assumptions.²⁰

Enhancing the vulnerability of the smallpox chain is the interval of one to three weeks^{8,17} between exposure and infectiousness. This interval provides the time to intervene and limit secondary spread. Close contacts of each case patient can be listed, located, given postexposure prophylaxis, placed under surveillance for symptoms, and isolated, if symptoms occur (and infectiousness is anticipated). If a case is identified only after contacts would have become symptomatic, attention can turn to the contacts of these contacts.

A generation ago, such control efforts were effective. Of the case patients known to be responsible for European outbreaks,¹⁷⁻¹⁹ 84 percent had consulted physicians. Even without a terrorist threat or an alert public, 78 percent of those patients, many with vaccine-modified disease, were correctly diagnosed and isolated. Twenty-five percent of the introductions into those susceptible European populations resulted in no transmission at all, 60 percent were controlled before a third indigenous generation of cases,¹⁷ and smallpox always disappeared within a few months.

Disappearance was facilitated, not impeded, by



economic development. Long before the World Health Organization's Smallpox Eradication Program began, and despite low herd immunity, unsophisticated public health facilities, and repeated introductions, smallpox disappeared from many countries as they developed economically, among them Thailand, Egypt, Mexico, Bolivia, Sri Lanka, Turkey, and Iraq.⁹ The largest and longest outbreak in postwar Europe occurred in Kosovo, in the least developed corner of the continent.¹⁹

In the United States, secondary spread would probably be greatly limited by our high level of literacy, efficient means of personal and public communication, and organized public health services. Graphic photographs would saturate the media, and subsequent infectious patients would be recognized, avoided, and reported. Contacts would seek, not avoid, medical assistance and could be efficiently kept under surveillance wherever they were. Few new diagnoses would be expected more than a month or so after an introduction.

Although virus might be weaponized for mass delivery or even altered genetically to enhance virulence or resistance to vaccine-induced immunity, such changes would not impair our ability to limit secondary spread. Even if multiple cases were produced by the same introduction,^{4,21} there is no reason to expect disease to persist longer, although more teams would be required to establish control. Smallpox as a terrorist weapon corresponds more

closely to a grenade than to a catastrophic "dirty" bomb or even a dissemination of anthrax spores.

Our greatest concern should be about transmission within hospitals. In postwar Europe, 4.4 cases per introduction occurred among caregivers and related professionals, and 6.7 cases occurred among hospital patients and visitors — numbers that together represent over 60 percent of the total. Only in hospitals has substantial transmission occurred at some distance from the beds of the source patients. Contact with infected linens has been responsible,²² as has, in one case, air recycled from a coughing patient to other rooms.¹⁸ Hospital spread also has been responsible for protracted outbreaks in Kuwait²³ and Brazil,²³ and it was responsible for the majority of cases in each of the last three outbreaks in the United States — in Seattle,²⁴ New York City,²⁵ and the Rio Grande valley.²⁶

VACCINATION POLICY

Prophylactic vaccination of contacts is an important containment strategy, although the actual effectiveness depends on the timing^{17,27} of the vaccination in relation to exposure. Nearly twice as effective as vaccine alone, however, is vaccination followed by the administration of vaccinia immune globulin.²⁸⁻³⁰

Vaccination before importation offers the only possible protection to households directly targeted by an introduction (assuming that genetic engineering has not rendered the strain of virus resistant³¹). However, we cannot identify those households in advance, and vaccinia is a dangerous live vaccine. It causes substantial morbidity among both healthy vaccinees and their pregnant or eczematous contacts.³² Despite recommendations for screening and treatment with vaccinia immune globulin, deaths from complications occurred at a rate of 1 to 2 per million primary vaccinees.³³ Today, immunosuppressed patients with chronic disease or transplanted organs and carriers of the human immunodeficiency virus with or without AIDS, especially those with skin lesions, constitute additional vulnerable groups.³⁴ Complications today will surely be several times as common as previously. Even with a rate of 3 deaths per million, primary vaccination of 250,000 persons would be more likely than not to cause death. Moreover, liability for complications is unclear, marketing prophylaxis to adults is generally unsuccessful, and herd immunity will be difficult to achieve. Vaccine complications will

be quickly, widely, and graphically reported in the media. Americans are better informed and less trusting than in the past, and noncompliance will be common.

Caregivers, at high risk of secondary transmission, deserve preferential protection. However, we cannot predict which hospitals will be affected, and undertaking staff vaccination through programs at all hospitals poses serious problems. There is substantial turnover among emergency room personnel, and some caregivers will refuse to be vaccinated. It will be difficult to protect highly vulnerable inpatients and outpatients from the spread of vaccinia. Moreover, the existence of hospital-based vaccination programs may lead to the knowing admission of patients with smallpox, putting those who are not protected at very high risk.

COSTS AND BENEFITS

Extrapolating from the European experience, we can predict that an initial smallpox introduction is likely to result in substantially fewer than 20 cases¹⁷ and 10 deaths^{11,17}; experience would lessen the impact of subsequent introductions. Many well-informed members of the general public will refuse vaccination. Every million primary vaccinations will cause at least 3 deaths from vaccinia, and the chance of preventing deaths from smallpox would be less than 0.4 percent (1 in 275 million). To prevent all potential deaths from smallpox would require universal compliance with vaccination, with as many as 800 deaths from complications. Even after an introduction, mass vaccination would do more harm than good.

About 2½ million health care professionals and technicians work in U.S. hospitals³⁵ and are at some excess risk of caring for a patient with smallpox. Vaccination of the entire 2½ million, assuming 100 percent compliance, would prevent all deaths of caregivers from smallpox, but at a cost of at least 7 to 8 deaths from vaccinia. Risk to other members of the antiterrorist infrastructure is likely to be similar to that of the general public.

BETTER OPTIONS

A terrorist introduction of smallpox could produce a short outbreak of cases and deaths, but the current vaccination policy will provide little protection, and the cost in deaths from vaccine complications will outweigh any benefit. Only if evidence suggests

that a massive attack or sustained biologic warfare is probable can such a vaccination policy be justified. Safer options would be more effective. I recommend the following.

Every effort should be made to facilitate rapid diagnosis. Posters with dramatic photographs of florid smallpox cases should be distributed widely. No suspicious patient should be admitted to or even knowingly examined at a general hospital, even one with isolation facilities and an already vaccinated staff. Alternative dedicated facilities, even National Guard field hospitals, should be identified and activated at first diagnosis. Limited numbers of pre-selected (preferably older, previously vaccinated) field investigators, diagnostic laboratory personnel, caregivers, and paramedics and some law-enforcement personnel should be recruited, vaccinated, and committed to serve wherever necessary in the event of an introduction. No more than 15,000 persons would be required. Reserves of vaccinia immune globulin should be large enough to meet the anticipated need for both treatment of complications and postexposure smallpox prophylaxis. Experts should be convened to develop protocols for post-exposure prophylaxis and treatment. Finally, the authorities and the media should provide more detail about the dangers of vaccination and more accurate, less inflammatory information about the potential for the spread of smallpox.

From the Keck School of Medicine, University of Southern California, Los Angeles.

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The Age-Old Struggle against the Antivaccinationists

Gregory A. Poland, M.D., and Robert M. Jacobson, M.D.

Since the introduction of the first vaccine, there has been opposition to vaccination. In the 19th century, despite clear evidence of benefit, routine inoculation with cowpox to protect people against

smallpox was hindered by a burgeoning antivaccination movement. The result was ongoing smallpox outbreaks and needless deaths. In 1910, Sir William Osler publicly expressed his frustration with the irrationality of the antivaccinationists by offering to take 10 vaccinated and 10 unvaccinated people with him into the next severe smallpox epidemic, to care for the latter when they inevitably succumbed to the disease, and ultimately to arrange for the funerals of those among them who would die (see the Medical Notes section of the Dec. 22, 1910, issue



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of the Journal). A century later, smallpox has been eradicated through vaccination, but we are still contending with antivaccinationists.

Since the 18th century, fear and mistrust have arisen every time a new vaccine has been introduced. Antivaccine thinking receded in importance between the 1940s and the early 1980s because of three trends: a boom in vaccine science, discovery, and manufacture; public awareness of widespread outbreaks of infectious diseases (measles, mumps, rubella, pertussis, polio, and others) and the desire to protect children from these highly prevalent ills; and a baby boom, accompanied by increasing levels of education and wealth. These events led to public acceptance of vaccines and their use, which resulted in significant decreases in disease outbreaks, illnesses, and deaths. This golden age was relatively short-lived, however. With fewer highly visible out-

breaks of infectious disease threatening the public, more vaccines being developed and added to the vaccine schedule, and the media permitting widespread dissemination of poor science and anecdotal claims of harm from vaccines, antivaccine thinking began flourishing once again in the 1970s.¹

Little has changed since that time, although now the antivaccinationists' media of choice are typically television and the Internet, including its social media outlets, which are used to sway public opinion and distract attention from scientific evidence. A 1982 television program on diphtheria-pertussis-tetanus (DPT) vaccination entitled "DPT: Vaccine Roulette" led to a national debate on the use of the vaccine, focused on a litany of unproven claims against it. Many countries dropped their programs of universal DPT vaccination in the face of public protests after a period in which pertussis had been well controlled through vaccination² —

how to counter antivaccinationists' false and injurious claims. The scientific method must inform evidence-based decision making and a numerate society if good public policy decisions are to be made and the public health held safe. Syncretism between the scientific method and unorthodox medicine can be dangerous.

Fourth, we must enhance public education and public persuasion. Patients and parents are seeking to balance risks and benefits. This process must start with increasing scientific literacy at all levels of education. In addition, public-private partnerships of scientists and physicians could be developed to make accurate vaccine information accessible to the public in multiple languages, on a range of reading levels, and through various media. We must counter misinformation where it is transmitted and consider using legal remedies when appropriate.

The diseases that we now seek to prevent with vaccination pose far less risk to antivaccinationists than smallpox did through the early 1900s. Unfortunately, this means that they can continue to disseminate false science without much personal risk, while putting children, the elderly, and the frail in harm's way. We can propose no Oslerian challenge to demonstrate our point but have instead a story of science and contrasting worldviews: on the one hand, a long history of stunning triumphs, such as the eradication of smallpox and control of many epidemic diseases that had previously maimed and killed millions of people; on the other hand, the reality that none of the antivaccinationists' claims of widespread injury from vaccines have withstood the tests of time and science. We believe that antivaccinationists have done significant harm to the public health. Ultimately, society must recognize

that science is not a democracy in which the side with the most votes or the loudest voices gets to decide what is right.

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From the Mayo Clinic Vaccine Research Group (G.A.P., R.M.J.), the Department of Medicine (G.A.P.), and the Department of Pediatric and Adolescent Medicine (G.A.P., R.M.J.), Mayo Clinic, Rochester, MN.

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ACOs and the Enforcement of Fraud, Abuse, and Antitrust Laws

Robert F. Leibenluft, J.D.

Hospitals and physicians are eagerly awaiting regulations for accountable care organizations (ACOs), which many observers view as the best hope provided by the Patient Protection and Affordable Care Act (ACA) for needed delivery system reform. Starting in 2012, health care providers in ACOs that furnish efficient, high-quality care to Medicare patients will share in Medicare's savings. Providers are concerned, however, that in creating ACOs they risk violating fraud, abuse, and antitrust laws.¹ To address these fears, the Department of Health and Human

Services (DHHS), the Federal Trade Commission, and the Department of Justice, under the direction of the White House, are collaborating to provide waivers, safety zones, and guidance to providers.

An ACO, as defined by the ACA, is an organization of health care providers that agrees to be accountable for the quality, cost, and overall care of Medicare patients for whom they provide the bulk of primary care services.² ACOs must have defined processes for promoting evidence-based medicine, reporting data with which to evaluate the qual-

ity and cost of care, and coordinating care. ACOs that meet specified quality standards will receive a share of the savings if Medicare's cost for the care of their assigned patients is below a certain benchmark. ACOs, along with bundled payments and other payment innovations, are intended to transform the health care delivery system both by replacing fee-for-service payments, which tend to increase utilization, and by boosting collaboration among providers so as to reduce costs and improve quality.

However, providers organizing ACOs may fear violating fraud-

manufacturers provided to the FDA, the lots of vaccine manufactured before this time that contained thimerosal as a preservative and had been released to the market had expiration dates in 2002 (FDA, 2004). Based on these changes, the maximum amount of mercury from vaccines on the recommended childhood immunization schedule that an infant (less than 6 months of age) can now be exposed to is $<3 \mu\text{g}$,³ down from $187.5 \mu\text{g}$ in 1999 (FDA, 2001, 2004).

The controversy regarding the hypothesized link between the MMR vaccine and autism began in 1998 when Dr. Andrew Wakefield and colleagues published a case series describing 12 children with pervasive developmental disorder associated with gastrointestinal (GI) symptoms and developmental regression (Wakefield et al., 1998). For eight of these children, the onset of their behavioral problems was associated, through retrospective accounts by their parents or physicians, with MMR vaccination. This study put forth a hypothesis that a new phenotype of autism characterized by GI symptoms and developmental regression could be associated with the MMR vaccine. While the authors acknowledged that the study did not prove an association between MMR and the conditions seen in these children, the report generated considerable interest and concern about a possible link between MMR vaccination and ASD—regressive autism in particular. A recent statement from 10 of the original 13 authors states that the data were insufficient to establish a causal link between MMR vaccine and autism (Murch et al., 2004).

Review

Impact of anti-vaccine movements on pertussis control: the untold story

E J Gangarosa, A M Galazka, C R Wolfe, L M Phillips, R E Gangarosa, E Miller, R T Chen

To assess the impact of anti-vaccine movements that targeted pertussis whole-cell vaccines, we compared pertussis incidence in countries where high coverage with diphtheria-tetanus-pertussis vaccines (DTP) was maintained (Hungary, the former East Germany, Poland, and the USA) with countries where immunisation was disrupted by anti-vaccine movements (Sweden, Japan, UK, The Russian Federation, Ireland, Italy, the former West Germany, and Australia). Pertussis incidence was 10 to 100 times lower in countries where high vaccine coverage was maintained than in countries where immunisation programs were compromised by anti-vaccine movements. Comparisons of neighbouring countries with high and low vaccine coverage further underscore the efficacy of these vaccines. Given the safety and cost-effectiveness of whole-cell pertussis vaccines, our study shows that, far from being obsolete, these vaccines continue to have an important role in global immunisation.

Of the vaccine-preventable diseases, pertussis rivals measles and neonatal tetanus in importance and severity among young children in the developing world. Millions of cases and hundreds of thousands of deaths occur each year. Complications are common: pneumonia in 15% of infants under 6 months of age, and severe neurological sequelae in 0.1–4.0% of patients. Pertussis is an exhausting illness that often lasts months.¹ Because the disease is so serious and so difficult to treat, prevention is paramount.

Whole-cell vaccines, whether monovalent or in diphtheria-tetanus-pertussis (DTP), have been important in the control of pertussis.¹ The decrease in pertussis incidence resulting from vaccination may have created the impression that pertussis was becoming milder and more scarce owing to medical and social development.^{2,3} As pertussis became rarer, attention shifted from the disease to the adverse events—often unrelated—that sometimes follow vaccination.⁴ In several countries, publicity surrounding such adverse events gave rise to movements opposed to whole-cell pertussis vaccination. This paper describes these anti-vaccine movements, their impact on pertussis control, and the future role of whole-cell pertussis vaccines.

Methods

We searched the literature, studied English translations of contemporary news stories, and analysed country-specific incidence of pertussis, whole-cell vaccine coverage, and vaccination schedules from data compiled by the US Centers for Disease Control and Prevention, and by WHO. We also studied books and other publications intended for lay audiences written by advocates against vaccination. From available relevant data, we compared the pertussis experiences of two groups of

countries.

Group I includes countries in which use of whole-cell pertussis vaccine (in DTP) has lasted decades—eg, Hungary, the former East Germany, Poland, and the USA. These countries have provided comprehensive DTP coverage with little or no interruption by anti-vaccine movements.

Group II includes countries in which peer-reviewed publications documented that anti-vaccine movements affected pertussis-control programmes. We defined opposition to whole-cell pertussis vaccines as activities of groups that actively or passively opposed use of the vaccines. Sweden, Japan, the UK, and The Russian Federation had active opposition to whole-cell vaccines—that is, well-organised movements that sought to stop their use by means of news stories, television interviews, lectures, popular articles, books, and other writings. Distraught parents whose children suffered adverse events blamed on whole-cell pertussis vaccination featured prominently. Some outspoken medical authorities became leaders in these movements.

Italy, the former West Germany, Ireland, and Australia had less organised, passive movements against whole-cell pertussis vaccines, in which health-care providers withheld vaccines because of safety concerns. Religious groups that oppose vaccination have been most prominent in passive movements against the vaccines. Parents concerned about vaccine safety did not feature prominently in passive movements. Characteristics of active and passive movements often overlap. Practitioners and followers of natural, alternative, and chiropractic medicine, and homoeopathy, have been prominent in both active and passive anti-vaccine movements.

We used country-specific incidences reported to WHO to compare pertussis-vaccination experiences. The numerator is number of cases, the denominator is per 100 000 of the total population. These data underestimate true incidence: pertussis is underdiagnosed, especially without classic whoop and paroxysmal cough; laboratory capabilities vary substantially; cultures are rarely undertaken for cases not admitted to hospital; reporting systems are usually passive; and surveillance efficiency varies from country to country. Although not quantitatively precise, surveillance data show overall trends and patterns.^{1,5}

Findings

Group 1: countries with sustained use of whole-cell pertussis vaccines

Hungary—Hungary's pertussis-control programme has been exemplary.⁶ Surveillance, including mandatory reporting, began in 1931. Immunisation with whole-cell pertussis vaccine has continued without interruption

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Gangarosa International Health Foundation and Rollins School of Public Health, Emory University, Atlanta, GA, USA

(Prof E J Gangarosa MD); World Health Organization, Geneva, Switzerland (Prof A M Galazka MD); Centers for Disease Control and Prevention, Georgia (GA), USA (C R Wolfe BA, R T Chen MD, L M Phillips MPH); and PHLS Communicable Disease Surveillance Centre, London, UK (E Miller FRCPATH)

Correspondence to: Prof E J Gangarosa, 5305 Greencastle Way, Stone Mountain, GA 30087-1427, USA

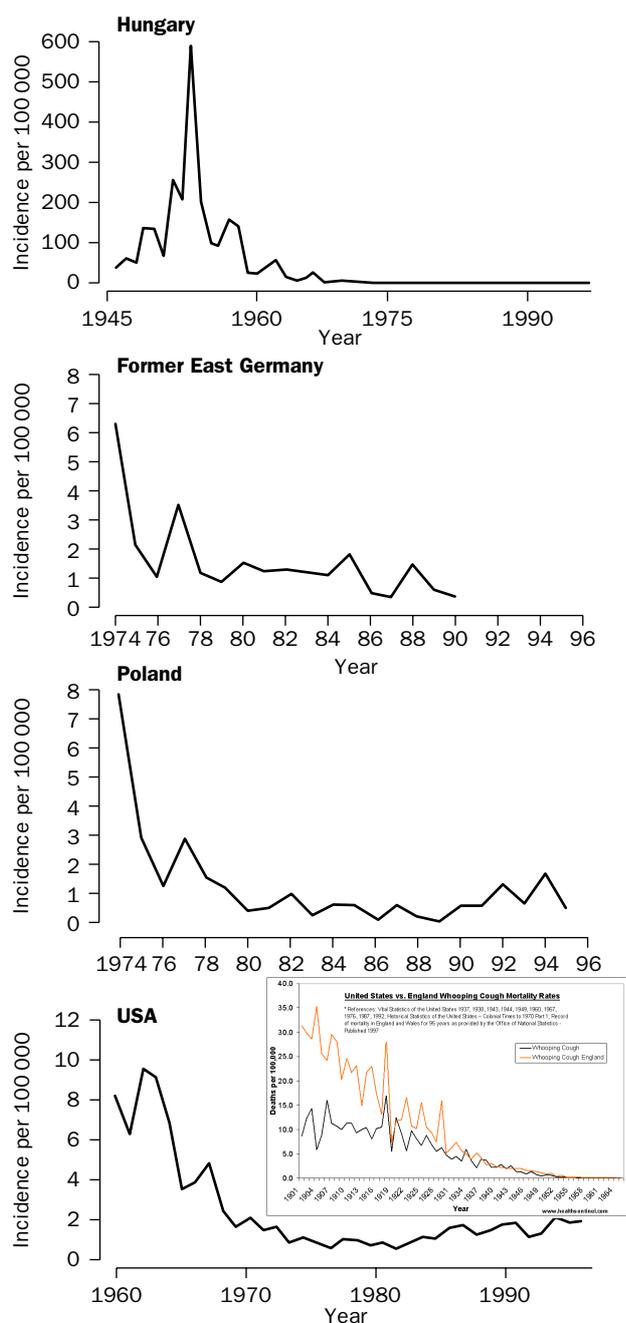


Figure 1: Incidence of pertussis in countries with sustained use of whole-cell vaccines

Note that scales vary.

country had only one to two cases per 100 000 during 1980–90, whereas the former West Germany had an incidence well over 100 times higher.⁷

Poland—since 1960, pertussis has been controlled in Poland by means of a schedule of three primary doses and a single booster dose, resulting in more than 95% coverage. Reported incidence fell from 100–200 per 100 000 in the prevaccine era to about one per 100 000 after vaccination (figure 1).

USA—pertussis has been controlled in the USA, though there has been an upward trend in incidence since 1981 (figure 1). Concerns over safety of whole-cell pertussis vaccine peaked in the early 1980s after the television programme “Vaccine Roulette” and publication of the book *A Shot in the Dark*.⁸ These gave rise to a movement against whole-cell vaccines, instigated several lawsuits against vaccine manufacturers, substantially increased vaccine prices, and caused some companies to stop production of the vaccines.⁴ Nevertheless, several developments have favoured pertussis control. Vaccines manufactured in the USA have generally been highly efficacious.^{9,10} Paediatric and primary-care organisations have strongly advocated vaccination. School-entry immunisation requirements further contributed to 90–95% DTP coverage at primary-school entry. A strong infrastructure promotes vaccination, surveillance of adverse events, and, since 1988, compensation for post-vaccination injuries.^{4,11}

Group 2: countries with pertussis-control programmes affected by active or passive movements against whole-cell vaccines

This group initially had varying success in controlling pertussis—first with monovalent whole-cell vaccine, and subsequently with DTP. Reported incidence exceeded 100 per 100 000 in the late 1940s and early 1950s, when vaccination programmes began. Coverage accelerated during the 1960s, reaching roughly 80% during the 1970s. The consequent fall in reported incidence, ranging from ten-fold to 100-fold, set the stage for movements against whole-cell pertussis vaccines.

Sweden—pertussis vaccination began in the 1950s. A substantial drop in incidence followed. In 1967, an influential medical leader, Justus Ström claimed that pertussis had become a milder disease owing to economic, social, and medical progress; this claim led him to question the need for pertussis vaccines.² By 1975, Swedish paediatricians had lost confidence in the vaccine as the incidence of pertussis increased. Some cases occurred in immunised children, and some neurological events were blamed on the vaccine. DTP coverage decreased rapidly from 90% in 1974 to 12% in 1979.¹² In 1979, the Swedish medical society abandoned whole-cell pertussis vaccine and decided to wait for a new, safer, more effective vaccine—a strategy that was soon adopted as national policy. During 1980–83, annual incidence for children aged 0–4 years increased to 3370 per 100 000,¹² with rates of serious complications approaching global rates.¹ In subsequent years, Sweden reported more than 10 000 cases annually with an incidence exceeding 100 per 100 000, comparable to rates reported in some developing countries¹ (figure 2).

Japan—vaccination against pertussis began in 1947. By 1974, there were few cases and no deaths.¹³ During a

since 1955. Vaccine coverage with three primary and two booster doses has been nearly 100%. Reported incidences fell from more than 100 per 100 000 in the prevaccine era to less than one per 100 000 after vaccination, where they have remained for almost 30 years (figure 1).

The former East Germany—Germany before unification provides striking contrast in pertussis experiences. The former West Germany adopted a non-compulsory vaccination policy, resulting in low coverage. The former East Germany, however, achieved control (figure 1) by requiring vaccination to consist of three primary doses and a single booster dose of DTP. Thus, in 1989, DTP coverage in the former East Germany was 95%. The

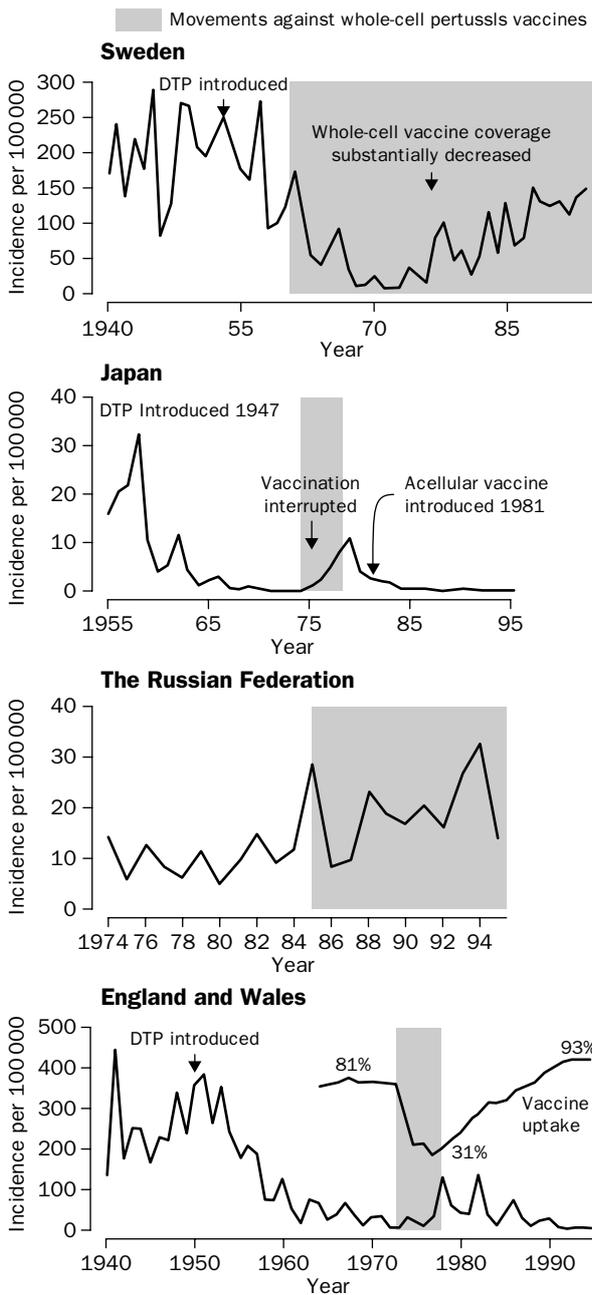


Figure 2: Incidence of pertussis in countries affected by active anti-vaccine movements
 Note that scales vary.

national debate about adverse events resulting from smallpox vaccine, news reports of neurological reactions after DTP vaccination gave rise to Japan's movement against whole-cell pertussis vaccines. Activists alarmed the public with "unbalanced arguments concerning vaccine risks" and claimed that "vaccination would no longer be needed" because "there was practically no more pertussis in the community".¹⁴ This national debate effectively created "a social problem".¹⁵ In response, the Okayama Prefectural Medical Association switched from DTP to diphtheria-tetanus vaccine (DT) only. After two infants died within 24 h of receiving DTP, the Ministry of Health and Welfare eliminated whole-cell pertussis vaccine altogether. They later allowed it only for children

older than 2 years. Pertussis coverage for infants fell from nearly 80% in 1974 to 10% in 1976.¹³ A pertussis epidemic occurred in 1979 with more than 13 000 cases and 41 deaths. Japan began replacing whole-cell with acellular pertussis vaccines in 1981, and a striking fall in pertussis incidence followed (figure 2).

UK—after a 1974 report, ascribing 36 neurological reactions to whole-cell pertussis vaccine,¹⁶ persistent television and press coverage interrupted a successful vaccination programme (figure 2). A prominent public-health academic, Dr Gordon Stewart, claimed that the protective effect of the vaccine was marginal and did not outweigh its danger.³ Others reached opposite conclusions based on the fall in pertussis incidence after introduction of the vaccine in the 1950s.¹⁷ Although health authorities resisted pressure to withdraw the vaccine, loss of confidence in it led to a sharp reduction in coverage. Pertussis epidemics followed (figure 2). Confidence was restored after publication of a national reassessment of vaccine efficacy that showed "outstanding value in preventing serious disease".¹⁸ Provision of financial incentives for general practitioners who achieved the target of vaccine coverage contributed to the recovery.¹⁹ Disease incidence declined dramatically, and has since been low (figure 2).

The Russian Federation—The Soviet Union assigned high priority to compulsory immunisation, thereby achieving control of vaccine-preventable diseases, including pertussis. The anti-government bias of Perestroika gave rise to an active anti-vaccine movement that targeted DTP. Inspired by the virologist Galina Chervonskaya, the mass media initiated an active campaign to discredit vaccination. Another prominent physician, A V Pichnohkov, asserted that the vaccine would cause leukaemia and was "stressful" for the child's system. Chervonskaya, Pichnohkov, and other paediatricians have propounded an excessive list of contraindications, specifying more than 50 diagnoses in which DTP vaccine should not be given. A series of "unbalanced statements" about the dangers and ineffectiveness of vaccines were featured in medical journals, on radio, on television, and in the popular press. Parents and physicians lost confidence in vaccines, and chose not to immunise children. DTP coverage fell by 30%, setting the stage for diphtheria and pertussis epidemics.²⁰ Along with perhaps the largest postwar diphtheria outbreak, The Russian Federation has reported one of the highest incidences of pertussis in the developed world (figure 2).

Ireland—Ireland's vaccination programme initially lowered pertussis incidence from 79 per 100 000 in 1955 to about ten per 100 000 in the mid-1970s. The trend reversed in the mid-1970s with opposition to whole-cell pertussis vaccine in the UK.²¹ Vaccine coverage fell from more than 60% in the early 1970s to 30% after 1976. Epidemics occurred in 1985 and 1989. In 1990, only 65% of infants had received three primary doses. Incidence remained higher than ten per 100 000 through 1993 (figure 3).

Italy—Binkin and colleagues²² studied pertussis in Italy (figure 3) using a national vaccination-coverage survey done in 1985, sales data from vaccine manufacturers, and Italy's infectious-diseases surveillance system. Fewer than 40% of children under 5 years were vaccinated, and



about 25% had experienced clinical pertussis by the age of 5 years. Among children younger than 1 year, one in 14 was admitted to hospital for pertussis, and one in 850 of these admissions died. The reported annual incidence between 1980 and 1989 was 22 times higher than in the USA. A seroepidemiological study of pertussis by Stroffolini and colleagues confirmed “a great exposure of children” and “extremely low” vaccine coverage in Palermo.²³ In a 1991 telephone survey,²² Binkin found that paediatricians’ attitudes about whole-cell pertussis vaccine varied widely. In some regions, only 20% of paediatricians recommended DTP, compared with 100% in other regions. By contrast, another survey showed that mothers accepted the vaccine—87% perceived pertussis as a dangerous disease, 69% were aware that the vaccine was available, 90% believed that the vaccine was protective, and 87% said they would accept their paediatrician’s advice on vaccination. Binkin reported that the factors that gave rise to Italy’s pertussis dilemma were the attitudes, knowledge, and practices of physician providers.²² In 1995, only 50% of children in Italy had received three primary doses and a single booster as part of their routine schedule.

Australia—Australia controlled pertussis during the 1970s, with an incidence rate as low as one per 100 000 (figure 3). However, confidence in the vaccine waned when news was received from the UK about alleged neurological reactions associated with the vaccine.²⁴ In a postal survey from the early 1990s, McIntyre and Nolan found that up to 58% of randomly selected vaccine providers would give DT when DTP was indicated.²⁵ In 1993, Lester and Nolan warned that “geographically clustered populations of children who have inadequate pertussis protection could promote epidemic outbreaks”.²⁵ A large outbreak with more than 5000 cases occurred in 1994 (figure 3).

Dr Viera Scheibner, Australia’s prominent opponent of whole-cell pertussis vaccines, claims that these vaccines are ineffective and “constitute an assault on the immune system”. Her 1996 book has been marketed as “the most well documented evidence against vaccines to be found anywhere in the world”.²⁶

The former West Germany—the contrast between the former West Germany and East Germany provides perhaps the most striking example of the national danger of antivaccine movements. Finger and colleagues analysed vaccination histories and incidence of pertussis among West German children at school entrance.⁷ Coverage with whole-cell pertussis vaccine was fairly constant at 11.0% and 11.2% for children born in 1976 or 1983, respectively. Pertussis was reported in 35% (1976) and 37% (1983) of these children. The authors estimated that incidence in West Germany was 180 per 100 000 during this period. They attributed the high incidence to health-care providers who believed the disease to be a “normal” childhood illness.

Contrasting experiences of neighbouring countries with high and low DTP protection, 1985-95

The efficacy of whole-cell vaccine is also evident in the comparison of experiences in adjacent countries with different DTP protection—measured by the percentage of infants covered and the number of primary and booster doses in immunisation schedules. Without complete information, we assume a generally uniform whole-cell

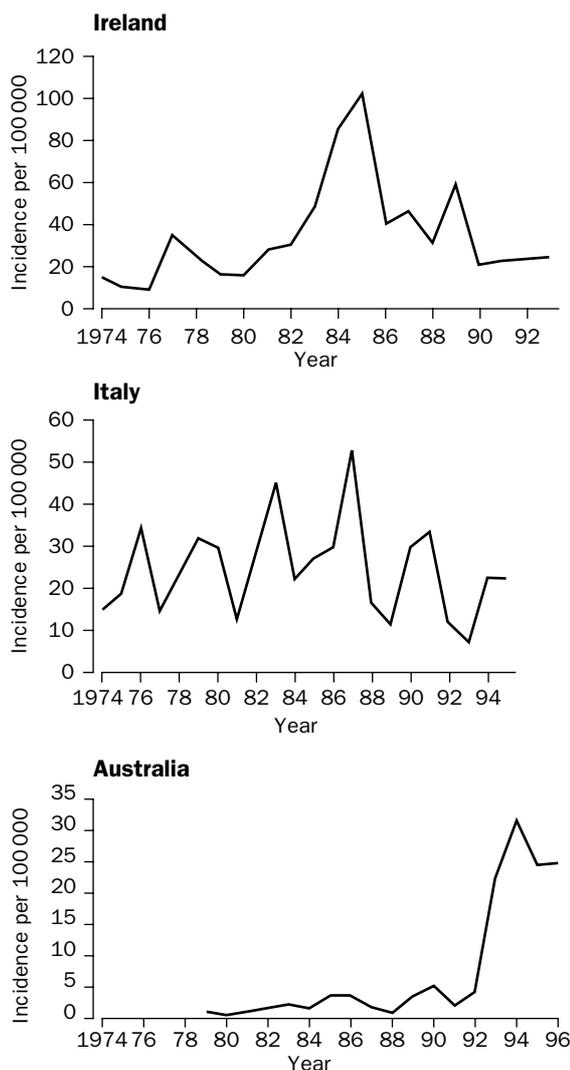


Figure 3: Incidence of pertussis in countries affected by passive anti-vaccine movements

Note that scales vary.

vaccine efficacy with the exception of reported anomalies²⁷—eg, low efficacy in Canada²⁸ and in a 1996 field trial in Europe.²⁹ Higher vaccine coverage in Norway, Portugal, Hungary, and the USA corresponded to a pertussis incidence ten to 100 times smaller than in each country’s respective lower-protected neighbour—ie, Sweden, Spain, Greece, and Canada (figure 4). The most striking comparison, between the former West Germany and East Germany, cannot be quantified because pertussis was not reportable in West Germany.

Discussion

Our findings provide strong evidence of a causal relation between movements against whole-cell pertussis vaccine and pertussis epidemics, based on Hill’s criteria:³⁰ strength of association (eg, incidence ratios exceeding 100 to 1, Sweden *vs* Norway; 150 to 20 comparing peak incidence for Sweden in 1990 during antivaccine era *vs* Sweden in 1972 with highest whole-cell vaccine coverage); consistency of findings under different surveillance systems, time periods, and populations; specificity of infection affecting primarily unvaccinated or undervaccinated individuals; temporal relation

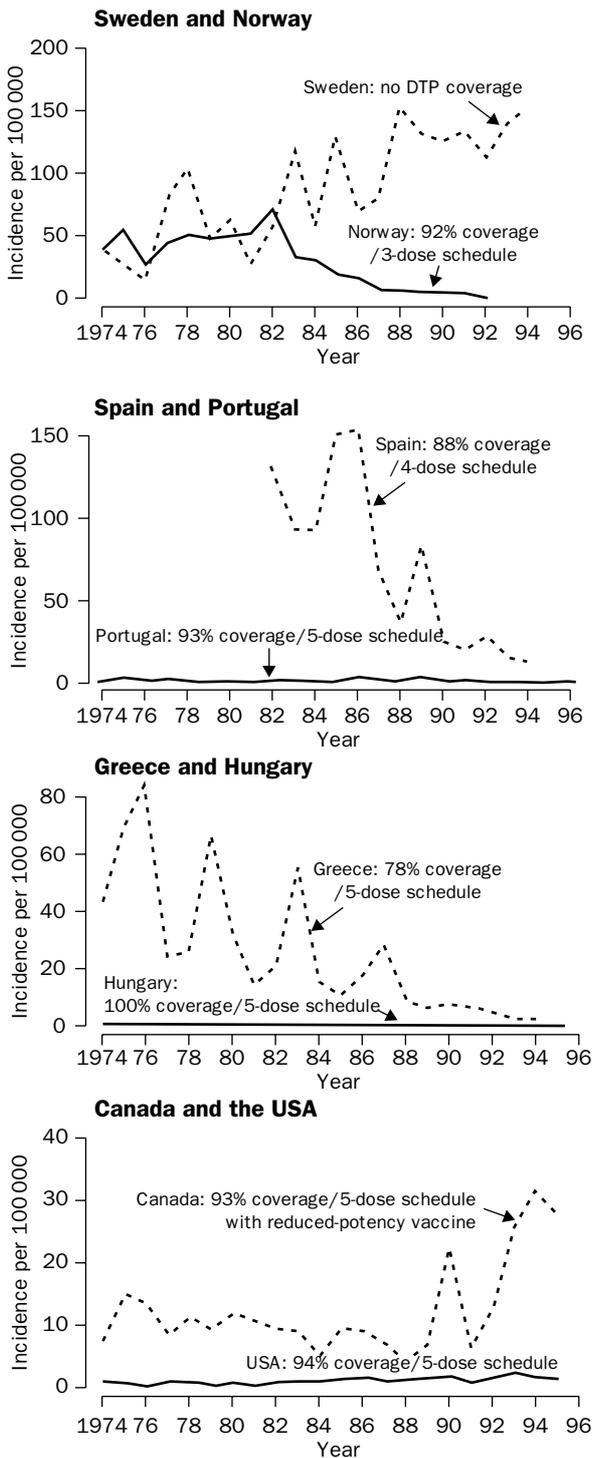


Figure 4: Incidence of pertussis in neighbouring countries with high vs low DTP vaccine coverage

Note that scales vary. Information on coverage and dose schedules based on 1993-95 data.

(epidemics follow cessation of vaccination and recede with resumed vaccine coverage); biological gradient (dose-response effect seen—eg, in incidence *vs* vaccine coverage in the UK, 1963-95); plausibility that vaccination is protective, that herd immunity suppresses transmission, and that successful disease-control encourages complacency⁴; coherence of evidence—ie, no conflict with the natural history of pertussis; and experimental evidence plus analogy—eg, smallpox

eradication, in which high vaccine coverage prevents disease through mass vaccination and surveillance-containment strategies.

This study shows overall trends, though not a precise comparison of reported incidence, since practices of pertussis diagnosis and surveillance differ according to country.¹ A policy against whole-cell pertussis vaccination had a qualitatively similar adverse impact in Sweden, Japan, the UK, The Russian Federation, Ireland, Italy, the former West Germany, and Australia. Conversely, sustained vaccination has controlled pertussis in Hungary, Poland, the former East Germany, and the USA. A dose-response relation is evident: extremes of vaccination coverage (eg, Hungary *vs* Sweden) spanned reported incidence of ten to 100 times, whereas smaller differences in coverage or efficacy (eg, USA *vs* Canada) showed intermediate effects.

Anti-vaccine advocates do not mention, minimise, or deny the consequences of compromised immunisation programmes.^{8,26} This article documents those consequences. Cases among children deprived of vaccine may have exceeded hundreds of thousands, and disease-related clinical complications (eg, pneumonia, encephalopathy, and seizures) may have numbered tens of thousands. Anti-vaccine movements have had some beneficial effects. Their call for safer vaccines underscored the need for acellular vaccines against pertussis, and their efforts have encouraged surveillance of adverse events and development of vaccine-injury compensation programmes.

Our findings also corroborate Fine and Clarkson's analysis³¹ that once high vaccine uptake and herd immunity are attained, perceived vaccine risks tend to deter individuals from being vaccinated. The result is a lowering of vaccine uptake, contrary to the community's common interest in maintaining high numbers of immunised individuals. What follows is a "tragedy of the commons"—a loss of confidence in vaccine and a resurgence of disease.³² These tragedies were abetted by anti-vaccine advocates through unbalanced news media accounts of perceived vaccine risks.³³ Some of these advocates have been prominent figures in science and medicine.^{2,3,26,34} They have argued that vaccines compromise the immune system, inappropriately questioned vaccine efficacy when sporadic cases occurred in immunised children,³⁵ advocated a long list of unwarranted contraindications to vaccination, warned that adverse events to the vaccine might be more common than reported, and attributed "disappearance" of pertussis to social and medical developments rather than vaccination. These messages undermined confidence in whole-cell pertussis vaccines, and, though discredited in medical literature, are still commonly cited in anti-vaccine literature.^{8,26}

Severe side-effects of whole-cell pertussis vaccines are so rare that they defy measurement. The American Academy of Pediatrics, the USA's National Vaccine Advisory Committee, and the Advisory Committee on Immunization Practices, concur that whole-cell pertussis vaccine is not a proven cause of brain damage, sudden infant death syndrome (SIDS), infantile spasms, or Reye's syndrome.^{36,37} Anaphylactic reactions to DTP components are exceedingly rare. In the USA, lawsuits have favoured plaintiffs alleging complications related to whole-cell pertussis vaccination, but the High Court of the UK ruled that a causal link had not been proven.³⁸

Mild local and systemic reactions (fever, fussiness, drowsiness, and brief loss of appetite) are fairly common with the vaccine, whereas moderate reactions (long periods of crying, sometimes at an unusually high pitch, limpness, and pallor) are rare.

Since acellular vaccines cause fewer side-effects,^{9,27,29} some developed countries (eg, the USA) plan to switch to such vaccines after using up existing supplies of whole-cell pertussis vaccines. However, use of whole-cell pertussis vaccines in the UK will probably continue pending studies of acellular pertussis vaccine's relative efficacy, reactivity, and compatibility with *Haemophilus influenzae* type-B vaccine.³⁹ The choice between whole-cell and acellular pertussis vaccines involves trade-offs between safety, efficacy, practicality, and cost. In addition to fewer mild or moderate reactions, acellular vaccine could interrupt disease transmission by means of its potential use in adolescents and adults. However, the best acellular vaccines may not provide protection equal to that of the best whole-cell vaccines.²⁷ Replacement of whole-cell pertussis vaccines with acellular vaccines might conceivably lead to less effective control at substantially higher costs. Despite the advantages of acellular vaccines, we believe that lower costs and better protection are compelling reasons for use of whole-cell pertussis vaccines to continue in many countries, particularly those with limited resources.⁴⁰ Scientists and physicians who choose acellular vaccine for their country have a special responsibility to strengthen their surveillance to monitor disease impact, costs, and rare adverse events—information that will guide others in the future.

Whereas our study focused on morbidity following anti-vaccine movements against whole-cell vaccines, other reports indicate that pertussis mortality also increased. Excess sudden postperinatal deaths were inversely related to vaccination coverage during pertussis outbreaks in several observational studies and in two ecological studies—one in the UK⁴¹ and the other in Scandinavia.⁴²

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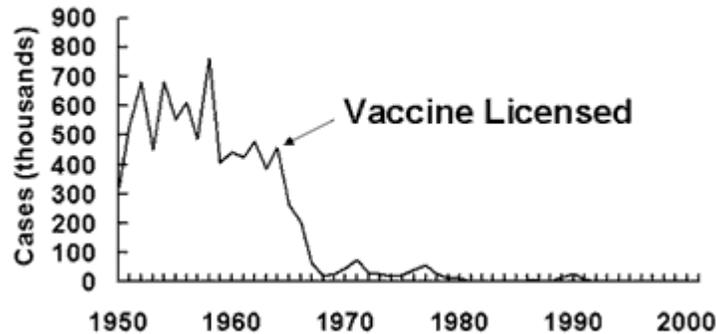
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I give below the first of the CDC common misconception answers to the common anti-V argument that the dramatic decreases shown in CDC sorts of pro-V charts fail to take into account the far more-dramatic-yet decreases over the time from roughly 1900 due to improvements in national nutrition and hygiene or medical practices like quarenteen. The anti-V's argue that something very helpful in preventing these diseases had already been going on for more than half a century before the introduction of vaccines and was far more helpful than vaccines themselves. They then point to possible very significant side-effects of our ever-increasing vaccine schedule, side-effects that have never been scientifically tested for. Indeed, the anti-V people say that correlation is not causation, and the charts that the pro-V people show are only correlations that have not been probed as to confounding factors. Whatever that was going on before the introduction of a vaccine might very likely still be going on afterwards and be responsible for a good part of the decline in disease incidence after just as it presumably was before.

MISCONCEPTION #1 - Diseases had already begun to disappear before vaccines were introduced, because of better hygiene and sanitation.

Statements like this are very common in anti-vaccine literature, the intent apparently being to suggest that vaccines are not needed. Improved socioeconomic conditions have undoubtedly had an indirect impact on disease. Better nutrition, not to mention the development of antibiotics and other treatments, have increased survival rates among the sick; less crowded living conditions have reduced disease transmission; and lower birth rates have decreased the number of susceptible household contacts. But looking at the actual incidence of disease over the years can leave little doubt of the significant direct impact vaccines have had, even in modern times. Here, for example, is a graph showing the reported incidence of measles from 1950 to the present.

Measles—United States, 1950-2001



There were periodic peaks and valleys throughout the years, but the real, permanent drop in case of measles in the U.S. coincided with the licensure and wide use of measles vaccine beginning in 1963. Graphs for most other vaccine-preventable diseases show a similar pattern. Are we expected to believe that better sanitation caused incidence of each disease to drop, just at the time a vaccine for that disease was introduced?

**{sic - original asterisk marking this footnote not apparent on the CDC page}* The incidence rate of hepatitis B has not dropped so dramatically yet because the infants we began vaccinating in 1991 will not be at high risk for the disease until they are at least teenagers. We therefore expect about a 15 year lag between the start of universal infant vaccination and a significant drop in disease incidence.

Hib vaccine is another good example, because Hib disease was prevalent until just a few years ago, when conjugate vaccines that can be used for infants were finally developed. (The polysaccharide vaccine previously available could not be used for infants, in whom most cases of the disease were occurring.) Since sanitation is not better now than it was in 1990, it is hard to attribute the virtual disappearance of *Haemophilus influenzae* disease in children in recent years (from an estimated 20,000 cases a year to 1,419 cases in 1993, and dropping) to anything other than the vaccine.

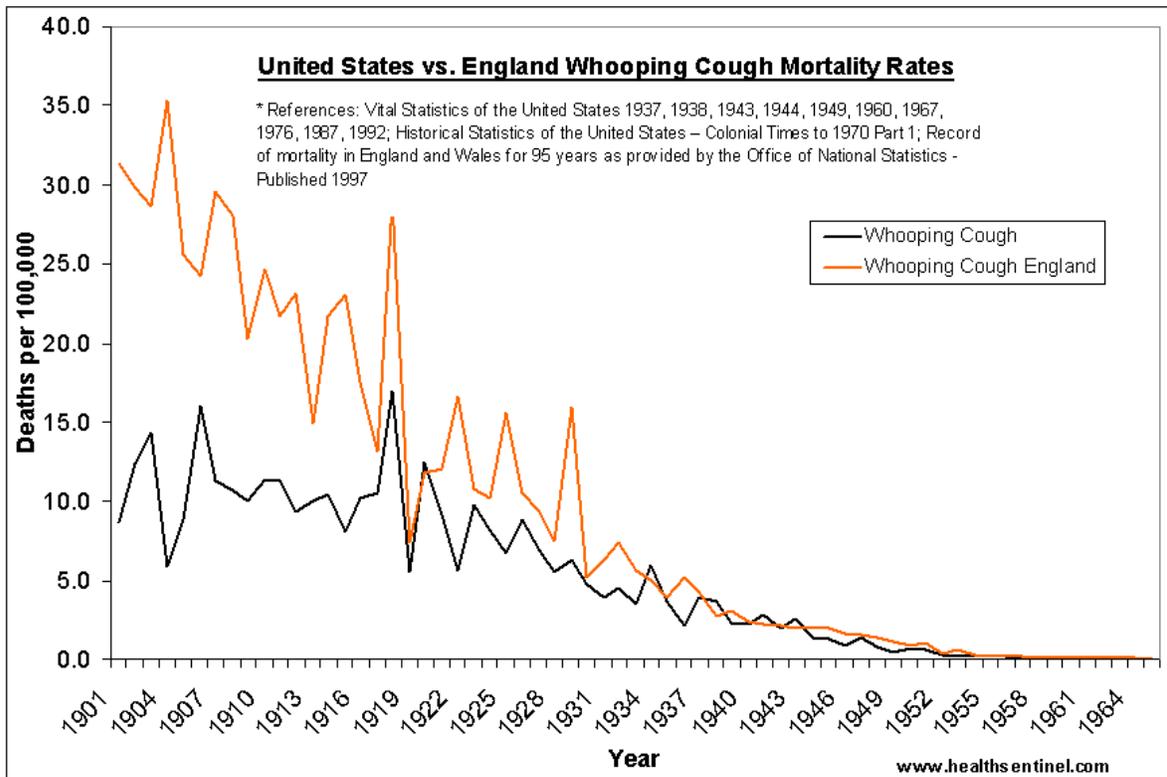
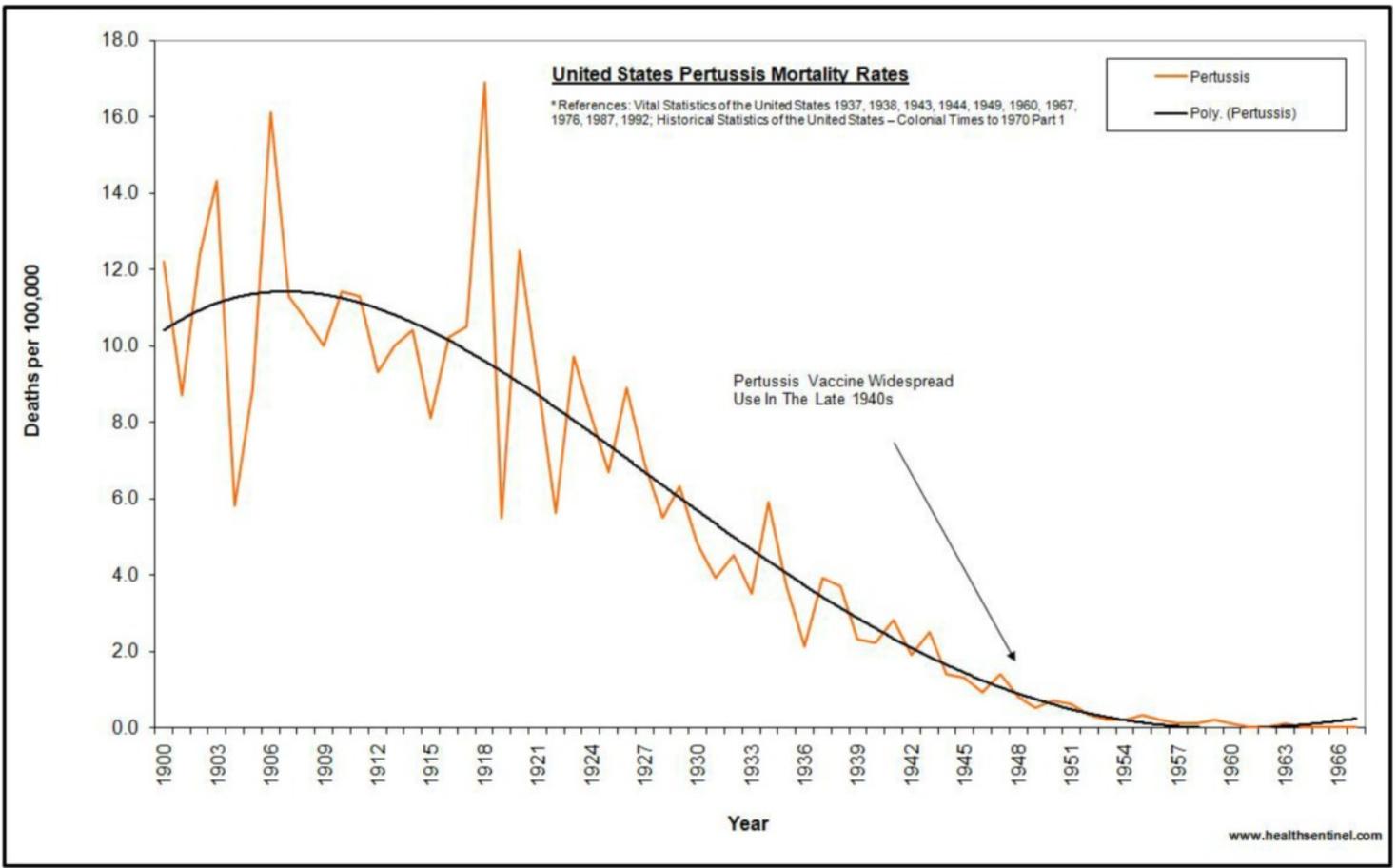
Varicella can also be used to illustrate the point, since modern sanitation has obviously not prevented nearly 4 million cases each year in the United States. If diseases were disappearing, we should expect varicella to be disappearing along with the rest of them. But nearly all children in the United States get the disease today, just as they did

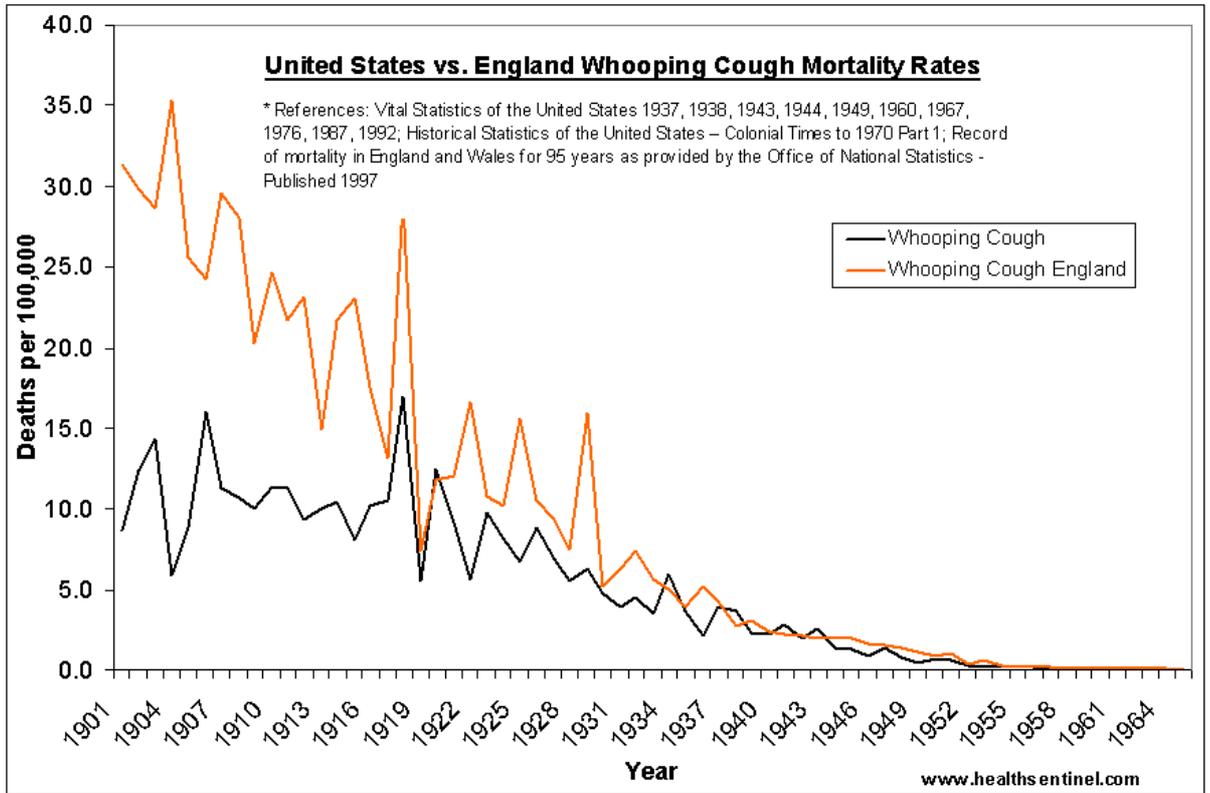
20 years ago or 80 years ago. Based on experience with the varicella vaccine in studies before licensure, we can expect the incidence of varicella to drop significantly now that a vaccine has been licensed for the United States. Active surveillance in a number of countries and cities demonstrate a 76-86% decrease in varicella cases from 1995-2001.

Finally, we can look at the experiences of several developed countries after they let their immunization levels drop. Three countries - Great Britain, Sweden, and Japan - cut back the use of pertussis vaccine because of fear about the vaccine. The effect was dramatic and immediate. In Great Britain, a drop in pertussis vaccination in 1974 was followed by an epidemic of more than 100,000 cases of pertussis and 36 deaths by 1978. In Japan, around the same time, a drop in vaccination rates from 70% to 20%-40% led to a jump in pertussis from 393 cases and no deaths in 1974 to 13,000 cases and 41 deaths in 1979. In Sweden, the annual incidence rate of pertussis per 100,000 children 0-6 years of age increased from 700 cases in 1981 to 3,200 in 1985. It seems clear from these experiences that not only would diseases not be disappearing without vaccines, but if we were to stop vaccinating, they would come back.

Of more immediate interest is the major epidemic of diphtheria which occurred in the former Soviet Union from 1989 to 1994, where low primary immunization rates for children and the lack of booster vaccinations for adults have resulted in an increase from 839 cases in 1989 to nearly 50,000 cases and 1,700 deaths in 1994. There have already been at least 20 imported cases in Europe and two cases in U.S. citizens working in the former Soviet Union.

{end of first CDC answer to common misconceptions}





Alfred Russel Wallace and the Antivaccination Movement in Victorian England

Thomas P. Weber

Alfred Russel Wallace, eminent naturalist and codiscoverer of the principle of natural selection, was a major participant in the antivaccination campaigns in late 19th-century England. Wallace combined social reformism and quantitative arguments to undermine the claims of provaccinationists and had a major impact on the debate. A brief account of Wallace's background, his role in the campaign, and a summary of his quantitative arguments leads to the conclusion that it is unwarranted to portray Victorian antivaccination campaigners in general as irrational and anti-science. Public health policy can benefit from history, but the proper context of the evidence used should always be kept in mind.

In 2009, the scientific community commemorated the 200th birthday of Charles Darwin and the 150th anniversary of the publication of *On the Origin of Species by Means of Natural Selection*. These occasions also directed the view of a wider public to the unjustly neglected figure of Alfred Russel Wallace (1823–1913) (Figure), explorer and codiscoverer of the principle of natural selection. In the past few years, Wallace's work has in fact enjoyed increasing attention among the historians of science, as several new biographies and studies prove (1–5). But unlike Darwin, Wallace always was and probably will remain a serious challenge to the history of science: he stubbornly refuses to fit into the mold of the typical scientific hero. Wallace made without any doubt lasting contributions to biologic science, but the second half of his life was by and large devoted to what from today's perspective are utterly lost causes: He became a passionate advocate of spiritual-

ism, supported land nationalization, and fervently objected to compulsory smallpox vaccination.

The motives behind Wallace's campaigns are sometimes difficult to fathom. He published copiously because this served for a long time as his major source of income, but these writings only show the public face of Wallace. Unlike Darwin, Wallace did not leave behind a large number of private letters and other personal documents; therefore, his more private thoughts, motives, and deliberations will probably remain unknown.

I provide a short introduction to Wallace's life and work and then describe his contributions to the British antivaccination campaigns. Wallace's interventions were influential; he was popular and well liked inside and outside scientific circles and, despite his controversial social reformism, commanded deep respect for his achievements and his personal qualities until the end of his long life.

I also briefly analyze the similarities and differences between the Victorian and contemporary vaccination debates. It has recently been argued that comparative historical analysis can play a major role in public health policy (6,7). In contemporary vaccination controversies, history is frequently used as a source of arguments (8,9), but the historical argument often is not based on up-to-date historical understanding. The polarizing controversies surrounding vaccination have never completely gone away, and the nearly unbroken tradition of debate apparently entices participants to reuse old arguments without making certain that their context is still valid. Vaccination involves national and international politics and the deeply personal sphere of child care. It is thus probably inevitable that culturally influenced ideas of bodily integrity and health from time to time are at odds with so-called vaccination technocracies (10).

Author affiliation: Ispra, Italy

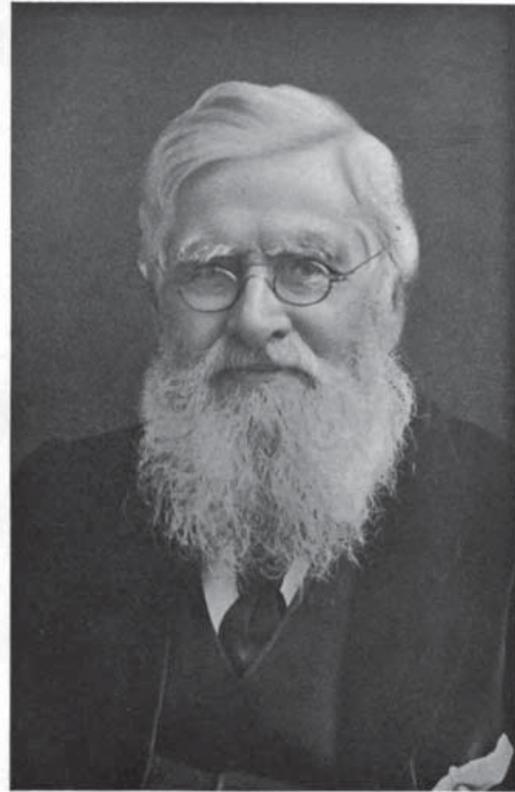
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Alfred Russel Wallace

Alfred Russel Wallace's humble origins contrast sharply with Charles Darwin's privileged background. Wallace was born on January 8, 1823, in the Welsh village of Llanbadoc into an impoverished middle-class family. In 1836, when his parents could no longer support him, he was taken out of school to earn a living. He joined his brother John in London to work as a builder. In London, he regularly attended meetings at the Hall of Science in Tottenham Court Road, where followers of the utopian socialist Robert Owen lectured. Thus, as an adolescent, he became acquainted with radical sciences such as phrenology (11). In 1841, when Wallace was working as a land surveyor in Wales, a slump in business enabled him to devote more time to his developing interests in natural history. A few years later, while working as a teacher in Leicester, Wallace met the 19-year-old amateur entomologist Henry Walter Bates, who introduced him to beetle collecting. Wallace returned to Wales, but he stayed in touch with Bates; in their letters they discussed natural history and recent books. In 1847, inspired by reading the best-selling and scandalous *Vestiges of the History of Creation*, an anonymously published book that offered a naturalistic, developmental history of the cosmos and life, Wallace and Bates decided to travel to the Amazon River basin to study the origin of species, paying for their journey by working as professional specimen collectors.

Wallace spent the next 14 years of his life, interrupted only by a stay in England from October 1852 until early April 1854, collecting specimens in the Amazon Basin and the Malay Archipelago. As with Darwin, the geographic variation of supposedly stable species nurtured in Wallace the idea of organic change. An 1855 paper, *On the Law Which Has Regulated the Introduction of New Species*, is Wallace's first formal statement of his understanding of the process of biological evolution. In this paper, he derives the law that "every species has come into existence coincident both in time and space with pre-existing closely allied species." In February 1858, while having a severe malaria attack, Wallace connected the ideas of Thomas Malthus (1766–1834) on the regulation of populations with his earlier reasoning and developed a concept that was similar to Darwin's mechanism of natural selection. Eager to share his discovery, Wallace wrote an essay on the subject as soon as he had recovered and sent it off to Darwin. This innocent act by Wallace set off the well-known and often recounted story of Darwin's hurried writing and publication of *On the Origin of Species*.

Wallace returned to England in 1862 after the initial storm of reaction to Darwin's theory had blown over. Together with Thomas Henry Huxley (1825–1895), he became one of the most vocal defenders of the theory of evolution. In the years up to 1880 he also wrote a large number



Alfred R. Wallace

Figure. Alfred Russel Wallace (1823–1913). Perhaps best remembered today in history of science as the codiscoverer of the principle of natural selection, Wallace also played a prominent role in the antivaccination movement in late 19th century England.

of essays, letters, reviews and monographs that secured his position as one of the foremost naturalists in the United Kingdom; this status, however, did not translate into a permanent position or even some semblance of financial security. Only in 1881, after an intervention by Darwin and other eminent scientists, did he receive a Civil List Pension of 200£ per year. After 1880, having finished most of his major monographs, Wallace more and more directed his attention toward social issues and turned into a social radical—his conversion to spiritualism had already occurred in the 1860s. He remained faithful to his radical course until his death in 1913.

The first Vaccination Act in England was passed in 1840; it outlawed variolation (i.e., the practice of infecting a person with actual smallpox) and provided vaccination that used vaccines developed from cow pox or vaccinia virus free of charge. The 1853 Act made vaccination mandatory and included measures to punish parents or guardians

who failed to comply. Changes in the law passed in 1867 permitted the authorities to enforce vaccination more efficiently. The law allowed the repeated prosecution of parents who failed to have their child vaccinated. The 1871 Act authorized the appointment of vaccination officers, whose task it was to identify cases of noncompliance. In 1889, in response to widespread public resistance, Parliament appointed a Royal Commission to draft recommendations to reform the system. The Commission published its conclusions in 1896. It suggested allowing conscientious objection, an exemption which passed into law in 1898. In the early 20th century, <200,000 exemptions were granted annually, representing ≈25% of all births (12).

The first vaccination act mainly incited resistance from heterodox medical practitioners who were forced out of business. Large-scale popular resistance began after the 1867 Act with its threat of coercive cumulative penalties. The social and political diversity of the British antivaccination movement is vividly described by Durbach (12). Many of the ≈200 organizations were quite eccentric, even by the standards of the time. However, Durbach's analysis and other analyses (13) show that it is not correct to portray antivaccinationists indiscriminately as antirational, antimodern, and antiscientific. Just considering the details of the vaccination practice of the mid-19th century does much to make many criticisms understandable. For instance, the widespread arm-to-arm vaccination, used until 1898, carried substantial risks, and the instruments used (14) could contribute to severe adverse reactions. Furthermore, many antivaccinationists appealed, like their opponents, to enlightenment values and expertly used quantitative arguments.

Wallace himself apparently did not hold strong opinions about vaccination until the mid-1880s. He had received a vaccination as a young man before he left for South America, and all 3 of his children were vaccinated as well. Wallace was recruited some time in 1884 to the antivaccination movement through the efforts of his fellow spiritualist William Tebb (1830–1917), a radical liberal who in 1880 had cofounded the London Society for the Abolition of Compulsory Vaccination. Wallace's commitment to the antivaccination cause was without doubt motivated by his social reformism, which in turn was underpinned by spiritualism and Swedenborgianism (3,15). These metaphysical foundations led him to a holistic view of health; he was convinced that smallpox was a contagious disease, but he also was certain that differences in susceptibility caused by nutritional or sanitary deficiencies played a major role in the epidemiology of the disease.

Despite his strong metaphysical commitments, Wallace, however, always remained a devoted empiricist and was among the first to use a statistics-based critique of a public health problem. Some of the groundwork for Wal-

lace's quantitative critique was laid by the highly regarded, but controversial, physicians Charles Creighton (1847–1927) and Edgar Crookshank (1858–1928). They attacked simplistic interpretations of and conclusions from Edward Jenner's work (16) and demonstrated how difficult it is to determine vaccination success and vaccination status and to know what kind of contagion was actually used in an inoculation or vaccination. In works such as *Vaccination Proved Useless and Dangerous* (1889) or *Vaccination a Delusion, Its Penal Enforcement a Crime* (1898), Wallace mounted his attack on several claims: 1) that death from smallpox was lower for vaccinated than for unvaccinated populations; 2) that the attack rate was lower for vaccinated populations; and 3) that vaccination alleviates the clinical symptoms of smallpox.

Both provaccinationists and antivaccinationists relied heavily on time series of smallpox mortality rate data, which showed a general decline over the 19th century overlaid by several smaller epidemic peaks and the large pandemic peak of 1870–1873. Their conclusions from these data differed according to the way these data were subdivided into periods (17). For example, if it were assumed that vaccination rates increased in 1867, when cumulative penalties were introduced and fewer dared to challenge the vaccination law, and not in 1871, when the smallpox pandemic accelerated, then the rate of decline of smallpox mortality rates was lower when vaccination was more prevalent. Wallace concluded from his analysis that smallpox mortality rates increased with vaccination coverage, whereas his opponents concluded the exact opposite. Wallace argued that the problem of determining vaccination status was serious and undermined the claims of his opponents. He asserted that the physicians' belief in the efficacy of vaccination led to a bias in categorizing persons on the basis of interpretation of true or false vaccination scars. Additionally, epidemiologic data for vaccination status were seriously incomplete. Depending on the sample, the vaccination status of 30%–70% of the persons recorded as dying from smallpox was unknown. Furthermore, if a person contracted the disease shortly after a vaccination, it was often entirely unclear if the patient should be categorized as vaccinated or unvaccinated. Provaccinationists argued that the error introduced by this ambiguity was most likely to be random and thus would not affect the estimate of the efficiency of the vaccine. In contrast, Wallace believed that doctors would have been more willing to report a death from smallpox in an unvaccinated patient and that this led to a serious bias and an overestimation of vaccine efficiency.

Wallace's holistic conception of health influenced his argument as well. He was convinced that susceptibility to the disease of smallpox was not distributed equally across social classes. Weakened, poor persons living in squalor were in his opinion less likely to get vaccinated.

At the same time they would have higher smallpox mortality rates because their living conditions made them more susceptible to the disease. He supported his hypothesis that susceptibilities differ with the observation that the mortality rate of unvaccinated persons had increased to 30% after the introduction of vaccination, while the vaccinated had enjoyed a slight survival advantage. This demonstrated to Wallace that factors other than vaccination must have played a major role.

Conclusions

The numerical arguments used by Wallace and his opponents were based on an actuarial type of statistics, i.e., the analysis of life tables and mortalities. Inferential statistics that could be more helpful in identifying potential causes did not yet exist. The statistical approach to the vaccination debate used by Wallace and his opponents could simply not resolve the issue of vaccine efficiency; thus, each side was free to choose the interpretation that suited its needs best. However, despite its indecisive outcome, the debate was a major step in defining what kind of evidence was needed (17). It is also unjustified to portray the debate as a controversy of science versus antiscience because the boundaries between orthodox and heterodox science we are certain of today were far less apparent in the Victorian era (18). What the scope and methods of science were or should be were topics still to be settled. It is thus unwarranted to portray the 19th-century antivaccination campaigners generally as blindly religious, misguided, or irrational cranks. This judgment certainly does not apply to Alfred Russel Wallace.

Wallace was modern, but he represented an alternative version of modernity, a version that has been sidelined in historiography until recently but has lately been acknowledged as a central cultural feature of the late 19th century (19). Movements such as spiritualism were not resurrections of ancient traditions but used interpretations of the most recent natural science, such as experimental psychology, evolutionary biology, and astronomy (20), or electromagnetism (21). Some, like Wallace, also contested the social role that emerging professional sciences should play. Wallace strongly favored a natural science that also addressed moral, political, social, and metaphysical concerns, and with this inclination he ran against the tide that was more concerned with developing a barrier between politics and disinterested, objective science. In the case of vaccination, Wallace argued that liberty and science need to be taken into account, but that liberty is far more important than science. Wallace only appears to have been such a heretical figure if a large portion of the social, political, and intellectual reality of Victorian and Edwardian England is blotted out of the picture.

To argue that, then as now, the controversies are between religiously motivated, irrational eccentrics and ra-

tional, disinterested science is historically inaccurate and distracts from substantial differences in social, political, and economic context between then and now. The Victorian vaccination legislation was part of an unfair, thoroughly class-based, coercive, and disciplinary healthcare and justice system: poor, working-class persons were subjected to the full force of the law while better-off persons were provided with safer vaccines and could easily avoid punishment if they did not comply. The National Health Service, established in 1948, was planned to bring more social justice to health care. The new health system no longer was stigmatizing and coercive. The development has not stopped there: today, there is an increasingly strong emphasis on individual choice and involvement in decision making in the healthcare system in Great Britain. Patients have become customers. The contemporary vaccination controversy has to be seen against the opportunities and challenges offered within this new environment. It has become evident that population-based risk assessments of vaccine safety often fail to convince in this new context (10). Parents instead evince a clinical, individual-based attitude when assessing the risks of vaccination—their own children are often judged not to be average.

In Great Britain, such attitudes are reinforced by the recent developments, mentioned above, in the healthcare system that encourage choice and autonomy and also by individualized perspectives concerning parenting and child development. Such a clinical perspective of parents can, however, cut both ways. The individually witnessed causal relationship between therapy and recovery in the case of tetanus and diphtheria was instrumental in the widespread public acceptance of immunization (17). A similar mechanism is at play in the contemporary controversies: perceived causal relationships between vaccination and the appearance of complications undermine the claims that vaccines are generally safe.

This analysis also illustrates that contemporary vaccination controversies take place in specific historical contexts. Colgrove (22) depicts in detail how vaccination became an accepted public health intervention in the United States and what factors have fueled and influenced historical and contemporary controversies. For example, compared with most countries in Europe, the risk of costly litigation for pharmaceutical companies in the United States is much higher and the role of the state is seen as far more restricted. This specific background influences forms of provaccination and antivaccination campaigning, but it also needs to be taken into account that the increasing availability of Internet resources accessible from everywhere may contribute to making the arguments and the debate more uniform across the globe.

Modern vaccines save lives. But worries surrounding vaccination need to be taken seriously. And the lessons

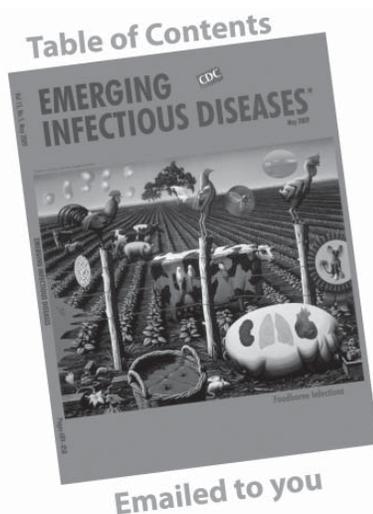
taught by history are, as usual, complex. As pointed out forcefully by Leach and Fairhead (10), vaccine delivery systems must suit social, cultural, and political realities. Paternalistic and coercive attitudes were harmful in the 19th century and are even less appropriate in the 21st century.

Dr Weber is a biologist working in the fields of public health and consumer protection. He also publishes regularly in the history of science and has a particular research interest in the history of evolutionary biology.

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Address for correspondence: Thomas P. Weber, via Marsala 17, 21014 Laveno Mombello, Italy; email: tp_weber@yahoo.de



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From *Vaccine (The Controversial Story of Medicine's Greatest Lifesaver)*
by Arthur Allen, pages 67 (bottom) to 69, closing out his chapter,
The Peculiar History of Vaccinia. (Footnotes given at the end of this extract.)

Despite Haggard's fervid book, fiction alone could not dismiss the fact that tainted vaccines provided an excellent reason for shunning mandatory vaccination. Some of London's finest writers put themselves to work excoriating the system. Lord Alfred Russel Wallace, the naturalist who helped discover evolution, employed a series of arguments that would become the model for antivaccine arguments over decades to come.³⁹

Wallace led the reader down a path of half-truths, each of which appeared to steal away a bit of the rationale for vaccination. At the end of the path, if you traveled without blinking, was the rejection of smallpox vaccination. He started with a competing philosophy of health. The medical profession, he argued, exaggerated the gravity of smallpox, which wasn't such a bad disease when contracted by an otherwise healthy person. Smallpox, in Wallace's view, was like all other "filth diseases"-it would disappear when nations and cities did away with "foul air and water, decaying organic matter, overcrowding and other unwholesome surroundings."⁴⁰ Vaccination's failures, Wallace went on, had been obscured by the fact that public vaccinators did not care for vaccinated patients who subsequently became ill.⁴¹ Further, there had been no controlled experiments comparing populations of vaccinated and unvaccinated people-true enough. In short, Wallace argued, vaccination did not protect against smallpox and weakened, rather than strengthened, the constitution. For proof one need only examine the poor health of the city of London, where vaccination was widespread and the authorities, he claimed, concealed the death and destruction it caused.⁴² Vaccine, he concluded, actually *caused* smallpox. Witness the prevalence of smallpox in areas where authorities vaccinated the most. In Ireland there was less smallpox than in Scotland, although Ireland was undervaccinated and Scotland among the most vaccinated areas of the UK. Leicester, which did away with compulsory vaccination in 1873, had only one smallpox death per 10,000 population in 1894, while heavily vaccinated Birmingham suffered 63 cases and 5 deaths per 10,000.

Wallace's claims were eloquently argued, but they ignored inconvenient facts. Vaccination was of course most frequent in areas where smallpox was greatest, because people generally did not vaccinate until an epidemic threatened. And while it was true that overcrowding and poor general health contributed to the spread and mortality of smallpox, there was an important caveat: while smallpox fatality had diminished over the nineteenth century, the death rate from other infectious diseases had risen. It was true that Leicester for a time controlled smallpox without vaccination, but only through rigorous isolation and quarantine practices.⁴¹

Wallace typified the scientists who would battle vaccination over the years-mavericks who had made their names by overturning established theories,

and who as a result identified strongly with antiestablishment points of view. The writer Michael Shermer calls this the "heretic personality" type. Wallace was also a dabbler in spiritualism and other controversial beliefs; he strayed into bad science, in Schermer's view, because of a personality flaw that made him a little too open-minded. The eighth of nine children, the son of a disgraced small-town lawyer, Wallace had drifted through his early years learning various trades. He was never fully accepted in the aristocratic class to which Darwin belonged.⁴⁴ Having dismissed the authorities in his own field, Wallace assumed that the dons of public health were just as unreliable.

George Bernard Shaw was another famous heretic who joined the antivaccination side, though Shaw's attacks were closer to the mark, drawing power from the genuine problems of vaccination and medicine's defensive refusal to admit them. Shaw's most important writing on the subject is in the preface to *The Doctor's Dilemma*, a satirical play about medicine whose protagonist is modeled on Shaw's friend Almroth Wright, the creator of the first typhoid fever vaccine.⁴⁵ Shaw was quite rightly skeptical of medical science, which had not yet turned the corner past which the average patient received a net benefit by consulting with the average physician.⁴⁶ Medicine was still "very imperfectly differentiated from common cure-mongering witchcraft," he wrote, and people only went to doctors under "the old rule that if you cannot have what you believe in you must believe in what you have."⁴⁷ Like many a Brit, Shaw was also sentimental about animals. Experiments on beasts were cruel, morally groundless—"you may not torture my dog, but you may torture dogs"—and largely a waste of time—"burning down London to test a patent fire extinguisher." He felt that vaccination had become a cult, with doctors circling the wagons to defend it despite all flaws. "The Radicals who used to advocate as an indispensable social reform the strangling of the last king with the entrails of the last priest, substitute compulsory vaccination for compulsory baptism without a murmur." And like Wallace, Shaw argued that vaccination supporters "steal credit" from sanitary reforms that had diminished the threat of cholera, typhus, plague, and to a lesser extent tuberculosis. As for Pasteur's rabies vaccine, "the vaccinated people mostly survived, but so do most victims of dog bites."

In 1898, Parliament, following the Royal Commission's recommendation, passed a law allowing "conscientious objectors" to avoid vaccination. The Anti-Vaccination League made wide use of the new clause, signing up objectors with door-to-door campaigns. Vaccination rates, which stood at 80 percent in 1898, fell to 50 percent in 1914 and 18 percent in 1948. That year Britain ended compulsory vaccination. When smallpox broke out, the authorities vaccinated contacts of the patients and

quarantined those who would not be vaccinated. This was surprisingly effective. By 1960, four times as many Brits were dying of vaccination side effects than of smallpox.⁴⁸

Having struggled for half a century with compulsory vaccination, Britain made peace with the antivaccinators by essentially surrendering to them. In the United States, compulsory vaccination was only beginning, and so was the struggle over it. There was no federal vaccination law, but as the public health movement grew, state laws tightened, and many cities began excluding unvaccinated pupils from schools. These laws and practices galvanized the previously passive resistance to immunization. The more the public resisted, the more stridently the newly empowered public health officials defended the vaccine. The smarter among them understood the need for improvement in smallpox vaccination. Vaccines were unreliably available, of uncertain origin, and difficult to make safe. They did not always offer good protection. But medicine was not powerful enough to be self-critical, so it persisted in its blinkered unanimity: whatever the dangers and drawbacks of vaccinating, it had to be done, unquestioningly. With a single voice, public health cried, "Vaccinate! Vaccinate!"

39. Alfred Russel Wallace, *Vaccination a Delusion; Its Penal Enforcement a Crime* (London: Anti-Vaccination League, 1901).
40. Ibid, 267–68.
41. Ibid, 223.
42. Ibid., 242–74.
43. Scott Edward Roney, *Trial and Error in the Pursuit of Public Health: Leicester, 1849–1891*, doctoral dissertation at the National Library of Medicine, 2002.
44. Michael Shermer, *The Borderlands of Science* (Oxford University Press, 2001): 162–64.
45. This comes from Steven Lehrer, *Explorers of the Body* (New York: Doubleday, 1979).
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47. George Bernard Shaw, *The Doctor's Dilemma, with a Preface on Doctors* (New York: Brentano's, 1913): vi–xc.
48. Cyril M. Dixon, *Smallpox* (London: Churchill, 1962): 452–69. According to Dixon's data, from 1953 to 1957 there were 34 cases of smallpox and 10 deaths in England and Wales. From 1951–1958 there were 243 serious reactions, including 42 deaths, attributed to vaccine.

Conclusions to date -- Aug 26, 2011

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It is instructive and highly significant for my understanding of this world of people, that I have found it so difficult to discover any prima facie argument that the smallpox vaccine was or is either effective or safe.

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While I cannot say that such an argument is not plainly and clearly presented somewhere in the world of medical science or history, I can certainly say that it is not to be found in Arthur Allens's book or in Pollard and Jacobson's NEJM article.

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I will continue to look around for the missing argument, but the fact of its absence in two places where it is so obviously called for by any ordinary respect for reason in human discourse is, as I say, itself highly significant. (I am only just beginning to survey the large amount of material on the CDC website. My first good find merely stated, without attribution or effort to convince, that "Vaccinia vaccine is a highly effective immunizing agent that enabled the global eradication of smallpox.")

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Absent any even superficial argument for the position that smallpox vaccination actually worked to reduce the incidence of the disease in the last two centuries, and given the very persuasive statistics interpreted in the bookmarked articles *Dark History*, *Smallpox Vaccine: Does It Work?* *Vaccines Did Not Save Us* and *Sanitation vs Vaccination*, a thinking person can only conclude that smallpox was not eliminated by the vaccine, which very likely did not work very often and very often created serious complications, and certainly should not be relied on in preference to hygiene and isolation to protect a person.

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I have limited myself here to the case of smallpox just for starters. I have done more reading in other areas of vaccination practice and policy, and I mean to write up my thinking on those topics also. But the status of the smallpox inoculation as flagship of world vaccination policy makes it a necessary starting point.