Ray Peat's Newsletter

The only thing that will redeem mankind is cooperation. Bertrand Russell

Contexts for Vaccinations

The science of inoculation or vaccination was established hundreds of years ago, based on the practical reasoning that, "if something doesn't kill you it makes you stronger." The practice of smallpox inoculation was refined, by the end of the 18th century, by people devising ways to reduce the risk of death from the inoculation while retaining the strengthening effect. For example, in Hamnavoe, Scotland in the 1780s, John Williamson (called "Johnnie Notions" for his inventiveness) developed a method of treating smallpox pus or scabs with smoke and camphor to weaken it, and treated thousands of patients without a single death. He introduced a small amount of the matter intradermally, bloodlessly (Tudor, 1882). Recently, it has been learned that there is a tremendous difference in the immune reaction to intradermal and subcutaneous or intramuscular vaccinations.

Later, in 1796, Edward Jenner demonstrated that an infection with cow pox produced immunity to cow pox, and within 3 years he had gathered evidence that it also produced resistance to smallpox. By the 1930s, using similar vaccines, smallpox had been eliminated in a few countries.

Although a proposal was made in 1958 to the World Health Organization to have an organized campaign of vaccination to eradicate smallpox throughout the world, there were many people opposed to the project, and it was only in 1967 that the project began, using "ring vaccination" around outbreaks to prevent spreading. The last natural case of smallpox occurred ten years later. The project cost an average of $23 million per year, with the affected nations paying two thirds of the cost.

In recent years the US Centers for Disease Control have been spending about $4.5 billion annually just for vaccines for children. The total annual cost of vaccines is over $50 billion**;** the US accounts for about half of the vaccines used. The ongoing yearly expenditure on mass vaccination is 70 times greater than the total cost ($230 million, $717 million in current dollars) of eradicating the deadliest epidemic, smallpox, by targeted vaccination. Mass vaccination is obviously better business than targeted vaccination.

The people and organizations that present themselves as medical authorities are giving the public a radically false picture of the history of vaccination, and of the present situation in vaccine research.

Science, in the modern sense, wasn't involved in Johnny Notions' knowledge of how to weaken the smallpox agent, and how to inoculate it intradermally**;** it was intelligence and intuition. His good results made the treatment popular, laws and public relations weren't needed. Since the middle of the last century in the U.S., the practice of science has become closely integrated with government, and "evidence based" medicine is beginning to be legally enforceable. The great growth of the vaccine industry since the 1960s has been a prominent part of the corporate medicalization of society.

Vaccination was practiced successfully long before the existence of microbes was known. The idea of adding adjuvants resulted from the observation that vaccination was more effective when there was inflammation at the injection site. The development of vaccines has been empirical, the result of trial and error, and knowledge of the relevant developmental processes within the organism has been developing only recently.

Long after the 2001 "precautionary" removal of mercury from childhood vaccines, the CDC's disproportionate attention to denying the association of a link between mercury and autism seems to be intended to distract from the broader safety issue of systemic inflammation.

Most of the people and organizations that present themselves as medical authorities are giving the public a radically false picture of the history of vaccination, and of the present situation in vaccine research. Their view seems to be that the truth would harm society. They have so far focused their most virulent attacks on the idea that the mercury in vaccines was responsible for the rapid increase in autism, but more generally they reject that vaccines cause significant harm such as brain damage or paralysis.

Around 1900, tonsils were considered to be (like the appendix) useless tissue, but they played an important role in thinking about infectious diseases. The dominant theory was that they were reservoirs of infection, and that people would be healthier without them. Tonsillectomy became the most common surgery. However, in 1910, some surgeons noticed that the children they operated on during a polio epidemic had an increased risk of contracting paralytic polio seven to fourteen days after the operation. Others later confirmed their observations, and the idea came to be called "polio provocation." In 1950, the idea was widely discussed, when an increase in the number of tonsillectomies corresponded to a sharp rise in cases of paralytic polio. Although there was no scientific validation for the value of the tonsil surgery, decades passed before the number of surgeries declined significantly.

Some people argued that the stress of anesthesia and surgery caused the weakening of resistance to the polio virus, others thought that the tonsils might form a useful part of the immune system's resistance to infection.

While the role of tonsillectomy in polio was being debated, doctors in Germany noticed that children with congenital syphilis that they treated with Neosalvarsan (Paul Ehrlich's arsenic product) developed paralytic polio, and then doctors in other countries reported similar events following vaccination with cholera vaccine and smallpox vaccine.

In 1951, at the annual meeting of the American Public Health Association, three officials from the New York State Department of Health (Korns, et al., 1952) presented the results of their epidemiological study to test the validity of five studies that had recently been published in British medical journals confirming the polio provocation theory—an increase in paralytic polio following vaccinations or other injections (McCloskey, 1950**;** Gellen, 1950**;** Hill and Knowelden, 1950**;** Banks and Beale, 1950). Their study found that several kinds of injection were associated with an increased risk of paralysis in the injected limb, but that the diphtheria-pertussis-tetanus vaccine was most strongly related to the effect. When injections were in the arm, there was a median delay of 23 days between the injection and paralysis, and when the injection was in the leg the median delay was 30 days. An experiment in mice showed the same effect of localized paralysis in the injected leg (Dean, et al., 1951).

In June, 1951, the New York State Health Department advised all physicians in the state to avoid elective injections during polio season, except for babies less than 6 months old, and that even those injections should be stopped during a polio epidemic. The US Public Health Service's advice was to keep vaccinating as usual. The introduction of the polio vaccine in 1955 distracted attention from the issue of polio provocation. There was some criticism of the research methods of the Australian studies, but as far as I

know there has been no published criticism of Korns' study.

Peripheral tissues, such as muscles, are in constant two-way interaction with the central nervous system, by the transport of substances through the axons of nerves, called anterograde and retrograde axonal transport. The irritation caused by vaccines, especially with adjuvants, alters this process, causing changes in the spinal cord and brain.

In the 1980s a professor from England, H.V. Wyatt, believed doctors in Africa were seeing many cases of paralysis provoked by vaccination: "It appears that 'injection paralysis' has scientific grounds for its existence and that indeed the localization in the affected limb is a direct effect of the injection, as Congo mothers have so long asserted" (Wyatt, 1981). Wyatt's observations were confirmed more recently (2003) by Kohler, et al.: "… the only significant risk factor for paralytic illness was having received any injection in the 30 days before onset" (Mawdsley, 2013).

In 1998, two researchers in New York were able to show that muscle inflammation from a vaccine facilitated the entry of virus into the spinal cord (Gromeir and Wimmer, 1998).

Peripheral tissues, such as muscles, are in constant two-way interaction with the central nervous system, by the transport of substances through the axons of nerves, called anterograde and retrograde axonal transport. The irritation caused by vaccines, especially with adjuvants, alters this process, causing changes in the spinal cord and brain. The presence of any virus in the peripheral system, which might otherwise be relatively harmless, can gain access to the brain, leading to disabling or lethal brain injury when the axonal transport system is abnormally activated, but, more importantly, the adjuvant itself can enter the brain by this route. In the absence of the polio virus, the provocation syndrome can have effects other than localized paralysis. Before birth, or during the first few months of a baby's life, inflammation can affect the entire course of development.

Highly purified vaccines have little immunizing effect (Petrovsky, 2015)**;** traditionally, many substances have accidentally been included in the composition of vaccines—proteins, lipids, nucleic acids, and other materials from the growth medium used to make the vaccine are known to be present in vaccines, and their roles in the immune reaction hasn't been studied, except in the recognition that a clean, highly purified disease antigen is poorly immunogenic. Bacterial endotoxin is a very common accidental component of vaccines, increasing their immunogenicity. Antigens from milk, egg, gelatin and yeast are common components of vaccines (Franceschini, et al., 2015). Injected antigens, especially with an adjuvant, are used experimentally in animals to produce allergies**;** it would be odd if the same didn't happen in humans.

Injected antigens, especially with an adjuvant, are used experimentally in animals to produce allergies; it would be odd if the same didn't happen in humans.

It took more than 40 years for the polio provocation syndrome to be widely accepted, and then it faded from awareness over the next several decades, but it seems to have had a residual effect on the public health culture: the idea that, if a vaccine hasn't produced swelling, fever, anaphylaxis, shock, paralysis, or death within two months, it is safe. Probably the most important reason for defining the safety of a vaccine within a discrete time limit was the ideology of the "immune system" derived from Paul Ehrlich's chemotherapy, lock and key chemoreceptors, neutralizing antibodies, and magic bullet doctrines. These were based on an "all or none" molecular reductionism.

Ehrlich's 1908 Nobel Prize was shared with Elie Metchnikoff, an embryologist whose idea of

immunity was conceived within a holistic view of the organism. At that time, embryological research was defining the field of biology; it hadn't yet been displaced by a genetic determinist view. Ehrlich's reductionism not only coincided with the developing ideology of genetics, but it was of great economic interest.

The public health view seems to be: If a vaccine hasn't produced swelling, fever, anaphylaxis, shock, paralysis, or death within two months, it is safe. These views probably derive from Paul Ehrlich's chemotherapy, lock and key chemoreceptors, neutralizing antibodies, and magic bullet doctrines--all based on an "all or none" molecular reductionism.

Ehrlich licensed his patent on the arsenic compound Salvarsan used for treating syphilis to the Hoechst cartel, in a profit sharing arrangement. Ehrlich and his co-discoverer Hata were accused of profiteering from a dangerous drug. A newspaper publisher claimed that prostitutes were dying as a result of forced treatment with Salvarsan; he was sentenced to a year in prison for slander, but in fact the treatment was extremely dangerous.

Metchnikoff recognized that phagocytes in parts of the body remote from the inflammatory stimulus were attracted to the damaged area, and he investigated their role in tissue repair and the development of the embryo.

In the 1960s, when antibodies were being studied intensively, Metchnikoff's approach was called "innate immunity," something more primitive and undifferentiated than the evolutionarily more advanced "adaptive immunity" of the B and T cells, bone and thymus cells. At that time, however, an example of something like adaptive immunity, a learned response to a toxin, had already been demonstrated to exist in plants, and adaptive, learning or developmental processes, in the innate immune system of mammals were starting to be recognized.

Refinements of Ehrlich's idea of specific neutralizing antibodies dominated immunological research, and were recognized by several Nobel Prizes, from 1960 to 1996. Public thinking about the theory of vaccination hasn't moved beyond those ideas.

Up until the beginning of this century, inflammation had usually been thought of as a simply constructive part of the local healing process, but it was starting to be recognized to have a universal role in pathology. Tissue injury was no longer seen as a merely local event. Research was being forced toward a reconsideration of Metchnikoff's holistic, developmental view of immunity. Bystander effects, the emission by any injured cell of substances that induce a similar injury in other cells, even in remote parts of the body (Koturbash, 2007; Kovalchuk, 2016), and the persistent epigenetic changes they involve, are part of innate immunity. This system is activated by adjuvants, as well as the adaptive immune system that produces antibodies.

Until the beginning of this century, inflammation was usually thought of as a simply constructive part of the local healing process, but it began to be recognized to have a universal role in pathology.

There is still talk about the idea of increasing antigen availability ("sustained release") by adsorption of antigen onto aluminum hydroxide which is supposedly retained in the immediate area of the injection, but it has been common knowledge among immunologists for a long time that the adjuvant also produces a systemic inflammatory effect (Tritto, et al., 2009; Pelka and Lutz, 2011; Flach, et al., 2011; Thomson, et al., 2014). There was never a valid scientific basis for that idea of sustained antigen release. In reality, the adjuvant causes formation of inflammatory cytokines (Tritto, et al.) that move through the

body fluids and activate remote phagocytic cells, and the aluminum itself is transported to all parts of the body, including the brain (Gherardi, et al., 2015;Khan, et al., 2013; HogenEsch, 2002). The formation of a nodule at the injection site in 5% to 10% of aluminum injection sites can involve the formation of an active lymph node, and can turn into a sterile abscess.

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It used to be the aluminum cookware industry that talked about the harmlessness of small amounts of aluminum; now it is the government health agencies who are assuring the public that it's inconceivable that a small amount of aluminum could be harmful. Individual, dissolved aluminum atoms are toxic, but the alum in vaccines is particulate, and it is the size of the alum particles that allows them to trigger inflammation. (See my newsletter "Particles in Context," March 2019.)

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The important medical doctrine of randomized controlled trials has scientific validity, if there is an honest and meaningful difference in treatment between the experimental group receiving the drug, and the control group receiving a placebo. When evaluating the toxicity of a substance, it is always assumed that the placebo is neutral and nontoxic, such as a salt solution, a sugar, or something confidently known to be harmless. In the case of many vaccine "safety" tests, the control, as well as the vaccine, has contained aluminum (Exley, 2011). It's hard to see the use of a toxic placebo as anything but an attempt to mislead. Although journals are being pressured to withdraw articles analyzing the dangers of vaccination, none of the articles using aluminum-containing placebos has been retracted.

The US Public Health Service relies on its authority to convince the public that vaccines are safe. Rather than aggressively investigating possible harmful effects of vaccination, the CDC takes a legalistic, lawyer-like position, dismissing a large portion of reported deaths from HPV vaccine as "hearsay," because they didn't receive an autopsy report or death certificate. Vaccinators are required to report certain adverse events that occur within a definite time after the vaccination. (I suspect that anyone reading that list of reportable events—things recognized by the government to be caused by vaccines—would feel some "vaccine hesitancy.") If a death occurs 16 days after receiving a certain vaccine it isn't reportable, though it would have been the day before.

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The most common cause of death during a short time following a vaccination is anaphylactic shock. The CDC requires a death certificate, listing a cause of death, or an autopsy report, before they will acknowledge that a death has occurred. It is well known that death from shock isn't likely to be recognizable in an autopsy (Pumphrey and Roberts, 2000). Even with the system rigged as it is, payments for deaths and

injuries caused by vaccination have exceeded $4 billion.

Although certain types of vaccine consistently generate many more adverse event reports than other vaccines, the CDC finds that the reported events are not more likely than similar events in the general population.

In 1986, Congress passed a law to protect vaccine manufacturers from financial liability resulting from harm done by vaccines, but required the US Department of Health & Human Services (HHS) to work with manufacturers in an effort to reduce the harmful effects of vaccines.

The CDC, praising their vaccination campaigns, says "…the reality is that Americans have never been healthier than we are today," but that's not the reality presented by the actual figures on disease and death—life expectancy has begun decreasing in the US, and a great variety of chronic diseases are increasing rapidly in young people. Inflammatory bowel disease, allergy, breast cancer, testicular cancer, infertility, rheumatoid arhtritis, and premature births are among the growing health problems in the US.

In the 1950s and '60s, for the USPHS,"national security" took precedence over public health, when they suppressed studies on the incidence of leukemia, fetal deaths, infant mortality and birth defects caused by ionizing radiation from bomb tests and nuclear power reactor leaks. The truth about radiation's biological effects would have hurt the nuclear industry. The passage of the Price-Anderson Act of 1957, protecting the nuclear power industry from liability for damage caused by a nuclear disaster, revealed the political power of that industry.

In 1986, Congress passed a law to protect vaccine manufacturers from financial liability resulting from harm done by vaccines. Realizing that corporations, freed from product liability, would have no incentive to improve the safety of their vaccines, the law required the Secretary of HHS to report regularly to Congress on the progress that they were making, working with the manufacturers, to reduce the harmful effects of the vaccines. It was only through a lawsuit, when the Freedom of Information Act failed to evoke a response, that the Dept. of Health and Human Services was forced, in 2018, to reveal that it had no evidence showing that it had done anything to improve the safety of vaccines during those 30 years.

US military personnel are required to salute their superiors in rank in the US Public Health Service**;** insubordination is taken very seriously in all the US Uniformed Services**;** hierarchy and obedience aren't compatible with scientific objectivity. In the 1970s, Anthony Morris, the man in charge of evaluating vaccines, was telling his superiors that the influenza vaccines were worse than useless. In July, 1976, as the "swine flu" vaccine was being prepared for an "imminent pandemic," he was warning them of its dangers, and was fired for insubordination. He went on Phil Donahue's television show, and warned the public of its dangers and ineffectiveness.

In 2018, under pressure from a lawsuit, HHS was forced to reveal that it could provide absolutely no evidence of its work to improve vaccine safety in the 30 years since the 1986 law was passed.

Three years later, November 4, 1979, CBS's "60 Minutes" reviewed the swine flu episode, and showed that there had been no such epidemic. One soldier, who had been in bed with flu symptoms, collapsed during a forced march and later died**;** four others with the virus recovered. David Sencer, who had been head of CDC at the time, said that no other cases had been confirmed anywhere in the world. There were more than 300 claims for deaths caused by the vaccine, and thousands of cases of paralysis. That vaccination campaign was stopped because of the high incidence of the paralytic syndrome, but it was only in 2017 that the Guillaine-Barre Syndrome was include in the official list of vaccine injuries.

The polio provocation episode showed that people in public health agencies, given a few decades, can sometimes learn and change their behavior when it doesn't cost them anything. The Anthony Morris episode showed that in 1976 scientific honesty was unwelcome in the USPHS. The passage of the 1986 law exempting vaccine manufacturers from financial responsibility, and the huge increase in vaccine profits, have made the situation immeasurably worse.

Supplements of certain nutrients, such as vitamins A and D, can greatly reduce the risk of infectious disease, as well as chronic disease. The elimination of poverty and malnutrition can prevent many epidemics—poverty is a reservoir of infection. The study of vaccines, "vaccinology," in isolation from the developmental effects of nutrition and environmental stress, is a pseudoscience, blind to the mechanisms that produce harmful long range effects. A typical "vaccinology" curriculum includes a section on ways to overcome "vaccine hesitancy." When education or research is financed by the drug industry, or their agents in government, it must be approached critically.

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