Vaccination:
An Updated Analysis of the Health Risks – Part 2

by Gary Null, PhD and Martin Feldman, MD

In Part 1 of this series, we discussed the reasons why we should challenge the assumption that vaccines are safe and effective. These reasons include the adverse effects associated with vaccines, the unsound principles on which they are based, questions about whether vaccinations have really eliminated disease, the toxic ingredients used in vaccines, and vaccine failures and waning immunity. In Part 2, we look at the effects of specific vaccines, including those for diphtheria, pertussis, tetanus, polio, chickenpox, hepatitis B, measles, mumps, and rubella.

DIPHTHERIA, TETANUS, AND PERTUSSIS VACCINE

Pertussis Vaccine

Despite high levels of childhood vaccination coverage for pertussis (whooping cough), the largest outbreak of this disease in four decades has occurred in recent years. There were 25,827 reported cases of pertussis in 2004 (the actual incidence could be higher due to underreporting), compared with a low of 1,010 in 1976.[1]

According to the Centers for Disease Control (CDC), the reported rate of pertussis per 100,000 population increased from 1.8 in 1994 to 8.9 in 2004. The 2004 rate was the third consecutive annual increase in the incidence of pertussis. The CDC notes that two-thirds of reported cases of pertussis now occur among adolescents and adults due to the waning of vaccine-induced immunity. This waning occurs five to ten years after receipt of the vaccine.[2]

In 2006, the CDC's Advisory Committee on Immunization Practices (ACIP) addressed the rise of whooping cough among adolescents by recommending that they receive another dose of pertussis vaccine. The Tdap vaccine (which also contains tetanus and diphtheria toxoids) is now recommended for all children age 11 to 18 and replaces the tetanus-diphtheria booster previously given to adolescents. The Tdap booster adds to the five doses of diphtheria, pertussis, and tetanus that children already receive before their seventh birthday.[3]

Several research papers suggest that immunization programs have not yet brought pertussis under control. A 2006 article reports that pertussis "has reemerged worldwide as a cause of substantial morbidity and mortality in infants, children, and adolescents, despite high vaccination rates."[4] Another report, published in 2005, states that an increased incidence of pertussis "has been observed worldwide since the introduction of widespread vaccination." These researchers say that there has been "a general shift in the age distribution of pertussis toward older groups" and that "despite high coverage rates for primary immunization in infants and children, pertussis continues to be a global concern, with increased incidence widely noted."[5]

On the other hand, the merit of the pertussis vaccine is indicated by a 2006 paper. This research evaluated state-level rates of nonmedical exemptions (those based on religious or personal beliefs) to mandatory vaccination from 1991 to 2004 and the incidence of pertussis among people 18 and younger from 1986 to 2004. The study found that an increased incidence of pertussis was associated with state policies granting personal belief exemptions and the easier granting of exemptions.[6]

Replacement of the Whole Cell Pertussis Vaccine

The US made a major vaccine substitution in the 1990s when it replaced the diphtheria, tetanus, and *whole cell* pertussis vaccine (DTP) with a diphtheria, tetanus, and *acellular* pertussis vaccine (DTaP).[7] The whole cell vaccine has been associated with serious adverse reactions (such as seizures and encephalopathy).[8]

Studies have since found a decline in the number of adverse reactions to pertussis-containing vaccines. An analysis of reports made to the Vaccine Adverse Event Reporting System (VAERS) from 1991 to 2001 found that the overall reporting rate decreased substantially after use of the acellular petussis vaccine compared with the whole cell version (12.5 vs. 26.2 reports per 100,000 net doses distributed).[9]

Tetanus Toxoid

The literature includes articles on neurological reactions to the tetanus vaccination[10-15] and other adverse reactions.[16-18]

POLIO VACCINE

Three types of polio vaccines have been used throughout the world: 1) the OPV, or oral polio vaccine (Sabin vaccine), consisting of live attenuated poliovirus; 2) the IPV, or inactivated polio vaccine (Salk vaccine), consisting of killed poliovirus and given by injection; and 3) the eIPV, an enhanced potency inactivated polio vaccine, consisting of killed poliovirus with high viral antigen content.

In the United States, the IPV (enhanced potency version) has been recommended for routine childhood vaccination against polio since 2000. Before that, the live attenuated OPV was the polio vaccine of choice for more than three decades. This vaccine, however, actually caused polio – vaccine-associated paralytic poliomyelitis (VAPP) – in a small percentage of recipients.[19] The risk of VAPP "became more difficult to justify" as polio was controlled worldwide and importations of wild poliovirus to the US became less likely, according to an article in the *Journal of the American Medical Association*.[20] As a result, in 1996, the government recommended a sequential schedule using both IPV and OPV for the childhood polio vaccination series. The ACIP then recommended the all-IPV schedule in 2000.

According to the CDC, the overall risk for VAPP is approximately one case in 2.4 million OPV doses distributed, while the first-dose risk is one case in 750,000 doses distributed. The OPV has caused the only indigenous cases of polio reported in the US since 1979. Between 1980 and 1998, 144 cases of VAPP were reported.[21] Another VAPP case occurred in 1999, and in 2005, a case of imported VAPP was reported in the US after an unvaccinated American woman traveled to Central America and was exposed to an infant vaccinated with OPV.[22] In late 2005, four cases of vaccine-derived poliovirus (VDPV) involving a poliovirus strain used in the OPV were identified in unvaccinated children in an Amish community in Minnesota. The source of these infections is not known, since the OPV has not been used in the US since 2000.[23]

The temporary nature of vaccine-induced immunity can create a more dangerous situation by postponing the child's vulnerability until adulthood, when death from the disease is 30 times more likely.

Polio Vaccine and SV40-Related Cancers

Research conducted in the past few decades has revealed that several types of cancer may be associated with the receipt of polio vaccines more than 40 years ago that were contaminated with a monkey virus. In 1960, it was discovered that the Salk IPV was contaminated with SV40 (simian virus 40), which was derived from the monkey cells used to grow the vaccine viruses. The SV40 survived inactivation with formaldehyde, the method used to kill the poliovirus for use in the vaccine. More than 98 million Americans were vaccinated during the time period (from 1955 to 1963)[24] when injectable and oral doses of the polio vaccine were contaminated with SV40. These people today have SV40 sequences integrated into their genetic code.

Animal studies have demonstrated the ability of SV40 to integrate its DNA into that of the host cell and induce malignancy. Unfortunately, studies show that the virus retains these same properties in humans and is associated with increased rates of certain cancers.[25] Integration and replication of SV40 has been documented in 13% to 43% of non-Hodgkin's lymphomas,[26,27] 47% to 83% of mesotheliomas (malignant tumors of the lining of the lungs),[28,29] 11% to 90% of different types of brain tumors,[30-33] 50% of osteosarcomas,[34] more than 33% of other types of bone tumors,[35,36] and 28% of bronchopulmonary carcinomas.[37]

A continuing concern is that SV40 may be transmitted from person to person. The virus has been detected in people born in the 1980s and 1990s, decades after the tainted polio vaccine was no longer in use.[38] SV40 is now present in children, as noted by Kurt Link, MD in his 2005 book *The Vaccine Controversy*, and the CDC takes this as evidence that SV40 is a naturally acquired infection unrelated to exposure to the contaminated polio vaccine. But, as Dr. Link states, it is more likely that people infected by the vaccine have transmitted SV40 to others or to their offspring (such as through semen). The implication, he says, is that "any SV40 problems may not, as had been hoped, fade away with time. There is even now, ironically, work being done to provide a vaccine against SV40."[39]

It should be noted that other research indicates there is no association between SV40 and an increased risk of rare cancers such as ependymomas, osteosarcomas, and mesotheliomas. One study compared rates of cancer after 30 ➤

years in birth cohorts who were likely to have received SV40-contaminated vaccine as infants with children with rates in people who not unexposed. Age-specific cancer rates were not significantly elevated for those exposed to the tainted vaccine.[40] Another study found no increased number of cancer deaths among 1,073 people who received SV40-contaminated vaccine,[41] and a 35-year follow-up found no deaths from the types of tumors that have been linked to SV40.[42]

CHICKENPOX VACCINE

Another example of changes to the US vaccination protocol was the addition in 2006 of a second dose of varicella (chickenpox) vaccine to the childhood immunization schedule. This dose is recommended for universal vaccination of all children at age four to six and for any child, adolescent, or adult who previously has received only one dose. The first dose of the varicella vaccine was recommended for children in 1995.[43]

The ACIP recommended the second dose at four to six years of age "to further improve protection against the disease."[44] The fact is, outbreaks of varicella have occurred despite increasing coverage with the first dose of the vaccine. In a survey of 59 jurisdictions (states, large cities, and US territories) by the CDC, 45 jurisdictions were notified of at least once varicella outbreak in 2004, and 13 were notified of six or more. Data obtained on 190 outbreaks in 2004 showed that two-thirds of such outbreaks occurred in elementary schools.[45]

Varicella outbreaks may occur even in highly vaccinated communities, and vaccinated children are still at risk of contracting the disease.[46, 47, 48] According to the CDC, 11% to 17% of vaccinated children have developed chickenpox – so-called "breakthrough varicella" – in recent outbreaks of the disease among vaccinated schoolchildren.[49] In three studies, rates of infection in vaccinated individuals ranged from 18% to 34%, anywhere from five to ten years following immunization.[50-52]

In other recent studies of chickenpox outbreaks, vaccine effectiveness against varicella of any severity ranged from 44% to 87%. Effectiveness was as high as 97% for moderate or severe illness.[53-58] Research also shows that people with breakthrough varicella tend to have milder illness than do unvaccinated people who contract the disease,[59] although the vaccinated individuals can be just as infectious.[60]

VAERS received 6,574 reports of adverse events for the varicella vaccine from March 17, 1995 to July 25, 1998. Approximately four percent of reports concerned serious events (such as anaphylaxis, thrombocytopenia, pneumonia, and convulsions) and deaths.[61]

The Dangers of Adult Chickenpox

In most cases, chickenpox is a benign, self-limiting disease in children, and the natural immunity derived from contracting the disease is permanent. Vaccine-induced immunity, on the other hand, lasts only an estimated six to ten years. The temporary nature of vaccine-induced immunity can create a more dangerous situation by postponing the child's vulnerability until adulthood, when death from the disease is 30 times more likely.

The National Vaccine Information Center (NVIC), Vienna, Virginia, advises parents to seriously consider not using the chickenpox vaccine in healthy children. According to Barbara Loe Fisher, cofounder and president, "The case/fatality ratio in healthy children is one death per 100,000 children. In adults, it rises to 31 deaths per 100,000. So it basically is an experiment. That is really what happens with most of these vaccines that they bring out. They really don't know what the long-term effect is going to be." Dr. Link, however, cautions that if most children are immunized according to the current US policy of universal vaccination, "it may be unwise to try to avoid vaccination because of the hazard of later acquiring varicella as an adult."[62]

The temporary immunity provided by the vaccine is a particular concern for pregnant women. Normally, 90% of adult women are immune to varicella and transfer this immunity to their babies during pregnancy. But the immunity induced by vaccination, which lasts only five to ten years, may be gone by the time a woman enters her reproductive stage, leaving pregnant women at risk of contracting the infection and transmitting it to the fetus. Fetal varicella syndrome is characterized by multiple congenital malformations and is often fatal for the fetus.[63] In addition, children born to women whose vaccine-induced immunity has faded are unprotected during the first year of life, when their immune system is still developing, and may suffer fatal complications if exposed to the infection.

Another potential problem in the coming years is an increase in the rate of shingles due to widespread use of the varicella vaccine. As Dr. Link explains, the varicella zoster virus causes both chickenpox and herpes zoster (shingles). The virus could lie dormant for many years and later become active and cause shingles due to a reduction in immunity. One report states that mass vaccination with varicella "is expected to cause a major epidemic of herpes zoster."[64] And while some research has not found an increase in the rate of shingles, reports Dr. Link, it will be years before we know whether the vaccine virus is too weak to be activated or the immunity produced by the vaccine is too weak to control the virus.[65]

It is of interest that the FDA approved the first vaccine for herpes zoster in 2006. Zostavax is a live vaccine licensed for use in people age 60 and older. In a study of approximately 38,000 people, the vaccine reduced the incidence of herpes zoster by about 50% overall. Effectiveness ranged from 64% for people age 60-69 to 18% for those 80 and older.[66]

HEPATITIS B VACCINE

The hepatitis B vaccine became commercially available in the US in 1982 and was recommended for certain high-risk groups of people. However, when vaccination programs aimed at these groups did not stem an increase in hepatitis B infections, the ACIP recommended universal immunization of infants against this disease in 1991.[67] An analysis of reports made to VAERS over 11 years – from 1991 to 2001 – found that hepatitis B was the most frequently mentioned vaccine in 1991-1995 reports and the second most commonly mentioned (after varicella) in 1996-2001 reports.[68] An earlier study found that 12,520 adverse reactions to hepatitis B were reported to VAERS from 1991 to 1994, with 14% of these reactions involving newborns and infants.[69] Approximately one-third of reactions involved an emergency room visit or hospitalization, according to the Association of American Physicians and Surgeons (AAPS). There were 440 deaths, about 180 of which were attributed to Sudden Infant Death Syndrome (SIDS).[70] Dr. Jane M. Orient, executive director of AAPS, has stated that according to a federal government study, "Children younger than 14 are three times more likely to die or suffer adverse reactions after receiving hepatitis B vaccines than to catch the disease."[71]

In adults, hepatitis B vaccination was associated with serious autoimmune disorders in one analysis of VAERS data and a review of the literature, published in 2004. These disorders included arthritis, pancytopenia/thrombocytopenia, multiple sclerosis, rheumatoid arthritis, myelitis, Guillain-Barre syndrome, and optic neuritis. In adult use of the hepatitis B vaccine, there were 465 positive re-challenge adverse events.[72]

Other articles associate the hepatitis B vaccine with complications of the nervous system[73-77] and joints[78-83] and other adverse effects.[84] The Institute of Medicine stated in 2002 that "the epidemiological evidence favors rejection of a causal relationship between the hepatitis B vaccine in adults and multiple sclerosis." (The evidence was inadequate to accept or reject a causal association with other demyelinating conditions.)[85] A case-control study published by the CDC in 2003 also found that the hepatitis B vaccine is not associated with an increased risk of multiple sclerosis or optic neuritis.[86] However, a case-control study published in 2004 concluded that its findings "are consistent with the hypothesis that immunization with the recombinant hepatitis B vaccine is associated with an increased risk of MS and challenge the idea that the relation between hepatitis B vaccination and risk of MS is well understood."[87]

The purpose of vaccinations is to reduce the risks of complications associated with the diseases they are ➤

designed to prevent. Complications from a vaccine should not outweigh those derived from the disease. And yet, according to Dr. Philip Incao, who has studied vaccinations and the immune system for three decades, in the case of hepatitis B, "...the conclusion is obvious that the risks of hepatitis B vaccination far outweigh its benefits."[88]

Are Vaccine-Induced Antibodies Only Temporary?

Vaccine supporters claim that the development of an antibody response to a vaccine virus equals protection against the disease. So we now vaccinate children against hepatitis B to prevent them from contracting the disease later in life. But for this to occur, the level of antibodies that are supposed to be protective must remain high for very long periods of time.

A study published in 2004 reports that antibodies to hepatitis B surface antigen (anti-HBs) had disappeared by five years of age in most of the low-risk children studied who were vaccinated from birth against hepatitis B.[89] A study in the Gambia found that fewer than half of vaccinees had detectable anti-HBs 15 years after vaccination and that vaccine efficacy against infection among 20- to 24-year-olds was 70.9%. A positive finding was that hepatitis B vaccination in early life can provide long-lasting protection against carriage of the hepatitis B virus – a major risk factor for liver cirrhosis and hepatocellular carcinoma – despite decreasing levels of anti-HBs.[90]

One study of adult hepatitis B vaccination evaluated the persistence of anti-hepatitis-B antibodies in 635 homosexual men immunized against the virus. After five years, antibodies no longer existed in 15% and had declined sharply – below levels deemed to be protective – in another 27%. Hepatitis B developed in 55 men, and two became carriers of the virus.[91] Another study found that after three years, 36% of individuals who initially responded to the hepatitis B immunization lost anti-hepatitis-B antibodies.[92]

Why then are we needlessly vaccinating millions of children if by the time they'll be adults and might be exposed to the virus, they won't have the antibodies that are supposed to protect them? And, in any case, are these antibodies offering protection against the disease?

MEASLES, MUMPS, AND RUBELLA VACCINE

In recent years, two of three diseases targeted by the Measles, Mumps, and Rubella (MMR) vaccine – measles and rubella – have been virtually eliminated in the United States. The last major resurgence of measles occurred in 1989-1991, when more than 55,000 cases and approximately 120 deaths were reported. The ACIP recommended in 1989 that a second dose of measles-containing vaccine be added to the childhood vaccination schedule, and the incidence of measles began to fall in 1992. A record low of 37 cases were reported in 2004.[93,94] In 2000, a panel of experts convened by the CDC determined that measles was no longer endemic in the US.[95] Similarly, the incidence of rubella fell to nine cases in 2004, and it was determined that rubella is no longer endemic in the US.[96]

Despite this success, concerns remain about adverse effects of MMR vaccination. The Institute of Medicine (IOM) has found evidence that this vaccine can cause anaphylaxis, thrombocytopenia, and acute arthritis.[97,98] Other research has associated the vaccine with adverse effects on the nervous system[99-104] gastrointestinal tract,[105] and joints.[106-108]

Meryl Dorey, editor of the Australian publication *Vaccination? The Choice is Yours* and president of the Australian Vaccination Network, points out that the MMR vaccine is associated with Guillain-Barre paralysis, multiple sclerosis, and aseptic meningitis, a swelling of the lining of the brain that can be fatal. The CDC has noted that while cases of Guillain-Barre syndrome following MMR vaccination have been reported, the IOM has found the evidence "insufficient to accept or reject a causal relationship."[109]

MEASLES VACCINE

Vulnerabilities Related to the Measles Vaccine

Natural immunity to measles – derived from contracting the disease – is permanent and is transferred from mothers to babies *in utero* through the placenta. Babies born to mothers who have had the disease are protected from the infection during their first year of life by the presence of a high concentration of natural antibodies circulating in their blood. Measles vaccination, on the other hand, induces lower antibody titers than does natural infection. Neutralizing measles antibodies passed by vaccinated women to their newborns disappear rapidly, leaving the babies susceptible to the infection in their first year of life, when they are more at risk of complications.

This difference in infants' immunity levels is reflected in a 1995 study. Researchers found that 71% of nine-month-olds and 95% of 12-month-olds had no detectable neutralizing measles antibodies in their blood. All infants with detectable measles antibodies at nine or 12 months had mothers born before 1963, before the vaccine era.[110]

Research confirms that antibody response to the vaccine virus is only temporary. One study shows that four years after MMR vaccination, measles antibodies fell below the putative protective levels in 28% of children and were no longer present in another three percent of vaccinees.[111] Experimenting with high-potency vaccines produced even poorer results.[112]

Jamie Murphy, author of *What Every Parent Should Know About Childhood Immunization,* argues that rather than preventing measles, the vaccine may simply suppress it, only to have it manifest as other forms of disease with age.[113] He asserts that

quite a few diseases are associated with the measles vaccine, including "encephalopathies (brain damage), aseptic meningitis, cranial nerve palsy, learning disabilities, hyperkinesis, and severe mental retardation...."[114] Several studies have documented that measles vaccination produces immune suppression that contributes to an increased susceptibility to other infections.[115,116] One study links measles vaccination to Crohn's disease.[117]

Problems with Vaccine Testing

In a response to information provided by the World Health Organization (WHO), author and lecturer Trevor Gunn has identified shortcomings in the testing of vaccines and the rationale for mass immunization, particularly with regards to measles.[118] One problem is that vaccine studies use seroconversion, or antibody presence in the bloodstream, to indicate effectiveness. When UK health authorities say that the measles vaccine is 90% effective, they do not mean that it reduces the incidence, severity, or death rate of the disease by 90%, but rather that 90% of recipients produce a certain level of antibodies to the viral agents. However, the level of serum antibodies does not correlate with the body's ability to fight illness. People with low antibody levels may demonstrate immunity, while people with higher antibody levels may have no immunity.

Given this disconnect, says Gunn, we must "place a greater reliance on obtaining efficacy results of immunisation [sic] from population studies." These studies measure the level of disease protection in populations after they've been inoculated, using cohort groups matched for age, population, and disease exposure similarities, and so forth. Although WHO quoted references to a number of population studies in its communication with Gunn, the author says that all the studies were conducted in developing countries. Thus, the results cannot be "directly extrapolated to developed countries," where people may fear that the risks of vaccination outweigh the risk of contracting a disease such as measles.

In addition, notes Gunn, population studies referenced by WHO show the difficulties of vaccine testing. One study, for example, suggests that measles vaccination reduces childhood mortality by 30%. However, the control group was not non-vaccinated, but rather included children who did not seroconvert and thus were assumed to have no immune response to the vaccine. In this case, we would not know whether deaths in the control group were due directly to the vaccine, to its lack of effectiveness, or to lack of natural immunity provided by the measles itself. In another group in this study, 15 of 123 did not have antibody conversion after vaccination, so their results were excluded as well. Three of this group actually died. We do not know the cause of these deaths, or whether the remaining 12 in the group were prevented from getting the disease.[119] In another study, the cohort group was cherry-picked for people who did not have a history of measles. This group may have been less likely to die from measles in general or may be heartier in general than the people who were selected against in the study.[120]

MUMPS VACCINE

Although mumps infection is a largely benign disease when contracted during childhood, it becomes more dangerous in older children and adults, who are more susceptible to severe neurological, testicular, and ovarian complications from the infection. It is alarming to see that vaccination is clearly shifting the occurrence of this disease from young children toward those who are older.[121] A large outbreak of mumps occurred in the United States in 2006,

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with 5,783 cases being reported to the CDC in less than ten months (from January 1 to October 7). The median age for the mumps patients was 22 years, and the highest age-specific rate was among people 18 to 24 years of age, many of them college students.[122]

Questions About Efficacy

The resurgence of mumps raises concerns about vaccine failure. Although the CDC does not know the vaccination history of all the 2006 cases, it has reported that 63% of 1,798 patients in Iowa (which had the highest number of cases) had received one or two doses of the MMR vaccine.[123]

Other mumps outbreaks have occurred in highly vaccinated populations in the US and Europe.[124-126] The populations in several of these studies had virtually complete vaccination coverage. In a high school population with more than 95% coverage, 53 of 54 students who got the disease had been vaccinated.[127] In a Tennessee school with 98% coverage, 67 of 68 students who got mumps had been vaccinated. Thus, mumps cases, in this instance, were attributed mostly to vaccine failure.[128]

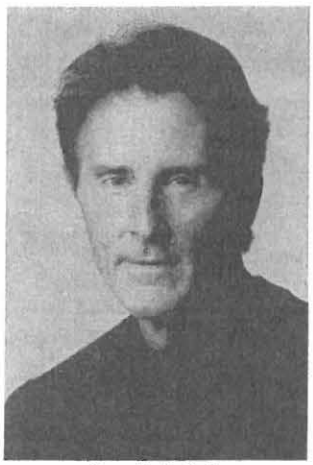
RUBELLA VACCINE

A study published in 1981 found that 15 years after receiving rubella vaccination, one in 11 children lost protection and became susceptible to re-infection.[129] This is worrisome because rubella infection is especially dangerous when contracted during pregnancy, since the fetus may develop malformations if exposed to the virus. Again, the lack of permanent immunity offered by vaccinations is creating serious problems down the line.

Viera Scheibner, a retired research scientist, notes that in a 1991 report on the adverse effects of pertussis and rubella vaccines from the Institute of Medicine, "the evidence indicated a causal relationship between RA 27/3 rubella vaccine and acute arthritis in 13% to 15% of adult women. Also, some individuals were shown to go on to develop chronic arthritis."[130]

In Part 3, we will look at rotavirus, meningococcal, and smallpox vaccines; provocation diseases associated with vaccination; economic and legal issues; and the right to refuse vaccination.

Gary Null, PhD
2307 Broadway
New York, New York 10024 USA
646-505-4660/ Fax 212-472-5139
precisemd@aol.com



Gary Null, PhD

Gary Null, PhD, has authored more than 50 books on health and nutrition and numerous articles published in research journals. He holds a PhD in human nutrition and public health science from the Union Graduate School. Null maintains a website at www.garynull.com, which presents information on how to optimize health through nutrition, lifestyle factors, and alternative medicine.

Martin Feldman, MD, practices complementary medicine. He is an Assistant Clinical Professor of Neurology at the Mount Sinai School of Medicine in New York City.

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