

# **Vaccination and Controversies in History**

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## **Introduction**

For health and medical scholars, vaccination is one of the top ten achievements of public health in the 20<sup>th</sup> and in the 21<sup>st</sup> centuries. Despite the progress recorded in the treatment of diseases, vaccination is the most effective preventive measure in the history of humanity. Today, there are 70 different vaccines approved by the FDA, 16 are included in the childhood vaccination schedule. Vaccination contributed to the elimination of a few diseases and to eradication of smallpox worldwide. Vaccines also provide important benefits in the reduction of the direct and indirect costs associated with illness. We can affirm, "Vaccination and Controversies in History is in fact "The Controversial Story of Medicine's Greatest Lifesaver." The reasons for dispute are relative to morality, ethics, effectiveness, and safety.

Let us consider the common controversies around some vaccines in history:

### **1. The Small Pox Vaccine:**

It is the first vaccine developed in England in the late 1800s by Edward Jenner; it was very effective in reducing the number of deaths from smallpox from 30% to one to two percent. The vaccine was met with enthusiasm, but also dread. European countries made the vaccine mandatory for the poor, the armies and the common people. That decision provoked immediate criticism:

- The method of inoculation was scary
- The theory that smallpox results from decaying matter in the atmosphere, not from a virus.
- People have the God-given right to control their bodies and of their children.
- Personal liberty.

The States responded with three Vaccination Acts:

- 1853: Mandatory vaccination for infants up to three (3) Months.

- 1867: The age requirements extended to 14 years plus penalties for vaccine refusal.
- 1898: Removed penalties and added a "Conscientious objects (certificate for patients who did not believe in vaccination safety).

The anti-vaccination society in England in 18--- by the British Anti-Vaccinationist William Tebb's visit to America helped create the Anti-Vaccination Society in 1879.

**DPT VACCINE:** vaccine against three infectious diseases - Diphtheria, Pertussis (Whooping cough) and Tetanus. In 1970, an international controversy against DPT appeared in Europe, Asia, Australia, and North America.

The allegation from a big hospital in London that affirmed that thirty-six (36) children suffered from neurological conditions after receiving the DPT. Vaccine Television documentaries and newspaper reports drew the public attention to the controversy. As a result, vaccination rates dropped and three major epidemics of whooping cough (Pertussis) followed. A documentary: "DPT: Vaccination Roulette" by the physician and vaccine opponent fueled the controversy. The National Childhood Encephalopathy Study indicated that the risk was very low. The media storm resulted in several lawsuits, increased vaccine prices, and several companies stopping the production of DPT.

## **Controversies about vaccines accused of causing autoimmunity:**

### **a) MMR VACCINE:**

Hilleman developed the triple vaccine against measles, mumps, and rubella (MMR) in the late 1960s. It contained live viruses attenuated. 500 million doses are inoculated in 60 countries. The first 20 years of vaccination helped prevent measles in 52 million children and the vaccine saved thousands of children from mental retardation.

Controversy: in 1998, a single study by a British Doctor Wakefield and colleagues linked the MMR vaccine, specifically the measles component, to intestinal inflammation and autism. The Lancet published the story in 2004.

Autism is a neurodevelopmental condition that has a strong genetic component and whose genesis begins in utero.

Despite all the scientific studies that showed that the MMR was safe, the controversy had a huge impact on the parents. The consequence was the decline of the vaccination rates with subsequent epidemics.

The British Medical Council ruled against Wakefield. Several epidemiological studies showed that there was no association between MMR and autism. However, the controversy continued even after the British Medical Journal (BMJ) published a series of reports showing that Wakefield had committed a scientific fraud by falsifying data for personal profit.

#### **b) THIMEROSAL:**

Thimerosal is a preservative of certain drugs and vaccines since 1930. It protects them from bacterial contamination.

Controversy: Thimerosal increases the risk of autism and other neuro-developmental disabilities.

Evidence: Thimerosal contains ethylmercury (not methylmercury) which does not accumulate in the body to harmful levels with consecutive levels. However, the pressure from the movement "**Green our vaccines**" aiming at removing any toxin or chemical material from vaccines led the removal of thimerosal from childhood vaccines, but autism prevalence continued to increase.

#### **c) OTHER VACCINES ASSOCIATED WITH AUTOIMMUNITY:**

Controversy: Vaccines such as BCG (TB), smallpox, tetanus, pertussis, rubella, mumps, and hepatitis B cause autoimmunity and increases the risk of chronic diseases. Autoimmunity involves an immune response directed against self-antigens (organs of the body).

Evidence: No mechanism to explain how vaccines could cause autoimmune disease. Epidemiological studies have not supported the hypothesis that vaccines could cause autoimmune diseases.

#### **d) ALUMINUM IN VACCINES:**

Aluminum is present in vaccines as an adjuvant to boost the immune response. Aluminum salts are adjuvants in hepatitis A, hepatitis B, diphtheria, tetanus vaccines. The allegation pretended that aluminum in vaccines cause autoimmune diseases and other disorders.

Evidence: studies showed that aluminum levels after several doses of aluminum-containing vaccines are well below the toxic range and there is no correlation found between infant blood or hair aluminum and vaccination history. Higher levels of injected aluminum adjuvant correlated with lower incidence of autoimmune diseases.

## **2. INFLUENZA VACCINE AND THE GUILLAIN-BARRÉ SYNDROME:**

The Guillain-Barre Syndrome is a disease characterized by the attack of nerves by the person's own immune system. It affects mostly males and adults.

Issue: the Guillain-Barre Syndrome was a consequence of vaccination during the Swine Flu Vaccination Program of 1976. At that time, the risk was to be one person per 100,000 vaccinated.

Evidence: subsequent studies showed an increased risk in some seasons. In seasons of increased risk, the absolute risk increase is one or two additional cases of GBS per million vaccines. Other vaccines did not increase the risk of GBS. The risk of GBS is greater following a national influenza infection than following vaccination.

## **3. HPV: HUMAN PAPILLOMAVIRUS VACCINE:**

HPV protects against cervical cancer in women following human papillomavirus (HP) infection. HP is a group of 200 related viruses. Only 40 of them can spread during direct sexual contact. Gardasil is the vaccine used in several countries. It is administered to girls less than 15. It is made of virus like particles.

Issues:

- The safety of the vaccine: It is alleged that HPV increases the risk of autoimmune diseases and other disorders
- In several African countries, HPV sterilizes girls.
- Ethical/moral issues: HPV encourages sexual promiscuity. Instead of vaccination, it would be better to put emphasis on religious/moral/sexual education than to vaccines.

Evidence: Several large populations – based studies have not found increased risk of autoimmune or neurological diseases. The HPV does not prevent sexual/moral/religious education.

## **4. PENTAVALENT VACCINE:**

It protects against five major infections: diphtheria, tetanus, whooping cough (pertussis), hepatitis B and Haemophilus influenza type b (Hib).

Issue: Too many vaccines given early in life might overwhelm the immune system and predispose to health and developmental problems.

Evidence: Infants have the theoretical capacity to respond to at least 10,000 vaccines at one time. Childhood vaccines do not cause long-lasting, gross alterations of the immune system. Epidemiologic studies have not found an increased risk of disease on developmental disorders according to the number of vaccines or vaccine antigens received in early childhood.

### **CONTROVERSIES ABOUT COVID-19 VACCINES:**

More than 2 years since the identification of the COVID-19 virus several COVID-19 vaccines are available today and still some other vaccines are still knocking at the door of the approval. Several controversies exist that relate to these vaccines. We can say history keep on repeating itself:

- How did SARS-Cov-2 (the COVID-19 virus originated in the first place;
- Vaccines are produced to kill people in order to reduce the world population;
- COVID-19 is connected to the 5 G network;
- The efficacy and the safety of these vaccines considering that they produced in less than one year;
- Are boosters necessary for the general population
- COVID-19 vaccines contain a microchip that help control people remotely;
- Why should African countries had to wait longer while vaccines were already available in developed countries?
- Are the vaccines in used in Africa of the same quality as those in use in Western countries?
- Why should vaccines that have not yet received complete approval be mandatory?
- Compulsory vaccination violates individual rights or religious principle;
- The vaccine is the mark of the beast of the Bible prophecy.

### **The Role of Media:**

80 years before Facebook and other social media platforms, opinions and controversies are spread by newspaper, radio, and television. Today, anti-vaccination activities originate from an individual or from a small group of individuals Then they spread the false information or the Fake news through internet and these become in a short time an issue of concern for a great number of people. Parents and children researching information about vaccines or any health topic may have difficulties distinguishing reputable sources of information from the less trustworthy.

**Conclusion:**

Whether today or in the history, two major themes emerge from vaccination controversies:

- 1) The perception among critics that vaccines, individually or collectively, cause more harm than the disease they intent to prevent;
- 2) He close association between the promotion of vaccines and mandatory vaccination policies intended to ensure compliance.

These controversies on vaccination have three major consequences;

- 1) Reduction of the positive acceptance of the vaccine;
- 2) Decrease of the coverage and uptake of vaccines;
- 3) Threat to the health of children and adults.

At the end, thousands of people (children and parents) die after an untold suffering.