



Central European
Digital Media
Observatory



Vaccines are unfairly targeted in misinformation campaigns

Coffee Beans

**Prof. RNDr. Vanda Boštíková, Ph.D., Prof. RNDr.
Aleš Macela, DrSc**

Too much misinformation causes social chaos and health problems. One of the most common targets of misinformation in biomedical issues are vaccines. This is followed by topics focusing on pandemic or epidemic disease spread, medical treatments or eating disorder issues. The topic of bone decalcification or overproduction of mucus in the human body due to the consumption of dairy products is very popular in terms of misinformation campaigns. A separate chapter is misinformation in the area of drug addiction, with an emphasis on marijuana and opioid use. The pressure from politicians and misinformation doesn't spare even reputable health organisations, whose decisions are intended to protect the health of the human population and not to harm it.

Vaccines are widely regarded as one of the greatest discoveries of mankind. The World Health Organization speaks of tens of millions of cases of people protected from the impact or death due to the suppression of serious infectious diseases solely by the administration of vaccines. Despite this, there is a growing anti-vaccination movement worldwide (1). One consequence, for example, has been a major measles epidemic in the United States (2019), where this potentially deadly virus has long been considered eliminated (4).

Another example is the history of the introduction and subsequent withdrawal of the RotaShield vaccine targeting rotavirus infections. Rotaviruses are the causative agents of diarrhoeal diseases that kill several hundred thousand children annually, mostly in developing countries. The vaccine was taken off the market in the U.S. by CDC decision in 1999, even though the relationship between its use and the incidence of intestinal intussusception in vaccinated children, especially infants, was supported by studies that suffered from a fundamental flaw – the data presented in these studies were based on imprecise, crude estimates of the incidence of naturally occurring intussusception, and even then only in the US paediatric population (2,3).

Many experts considered these studies insufficient to support the claim that intestinal invaginations in children vaccinated with RotaShield were due to the vaccine. In February 2000, World Health Organisation conference was held on the issue and, following the decision of the American CDC, the prevailing opinion was to withdraw the vaccine from the market worldwide. Thus, the number of children who died as a result of rotavirus infections during the unavailability of the RotaShield vaccine between 1999 and 2006 remains an ethical issue today. Currently, two vaccines are available for immunoprophylaxis of children against rotavirus infections, namely Rorrix and Rotateq, which are completely safe after a number of studies. Dr. Albert Kapikian of the US National Institute of Allergy and Infectious Diseases (NIAID), the father of RotaShield, made no secret of his opinion that the vaccination, which was discontinued on the basis of not entirely accurate analyses, had run into "Political ambition and the devastating influence of negative press reports" (2,3,6).

The present day is characterized by a number of misinformation and misconceptions about vaccination, which can be generalised in the following overview:

Myth 1: Routine vaccinations can be postponed until the current SARS-CoV-2 pandemic is over.

Vaccines for children, as well as for adults, are essential for maintaining our health and well-being. The World Health Organization, as well as the American Academy of Pediatrics and the Centers for Disease Control and Prevention (CDC) in Atlanta, USA, for example, strongly caution against missing the deadlines set by the vaccination schedules. Delaying vaccination is a high-risk issue both for the health of the unvaccinated individual and for the health of the community in which the individual lives.

Myth 2: After vaccination, it is possible to become ill with the disease being vaccinated against.

Vaccines do not cause disease. Some people may experience mild, usually quickly resolving, side effects after receiving a vaccine. These include soreness at the injection site or increased temperature, and general tiredness. According to the World Health Organization, serious side effects from vaccines are very rare.

Myth 3: If everyone around me is immune, I don't need to be vaccinated.

Getting vaccinated is like wearing mask or a respirator – it's not just about protecting the individual, it's also about protecting those around them. Most vaccine-preventable diseases are spread through person-to-person contact. When one person in a community gets sick, the disease can easily spread to other people. The more people who are vaccinated, the less risk there is of the disease spreading.

Myth 4: The flu vaccine protects against COVID-19.

There is no evidence to support the claim that the flu vaccine protects against COVID-19 disease caused by SARS-CoV-2. It is important to be vaccinated with both the influenza vaccine and the SARS-CoV-2 vaccine. If we don't get the flu vaccine, we can potentially get both SARS-CoV-2 and flu at the same time, which can lead to a significant burden on our immune system and a complicated course of illness.

Myth 5: Vaccines can cause autism.

Vaccines do not cause autism. This claim is based on a study that linked the measles, mumps and rubella vaccine to autism. This obscure study started a powerful disinformation campaign. Hundreds of studies conducted independently around the world have repeatedly shown that there is no link between vaccines and autism. Yet, for example, a 2016 US National Survey revealed that more than 16 % of parents or primary caregivers of autistic children believe it was vaccines that caused their child's autism.

Myth 6: Vaccines are used to chip people.

The internet can be useful for obtaining information about our health, but it can and has also been a breeding ground for misinformation – especially in the face of the still ongoing Covid-19 pandemic. There are claims that vaccines are or will be used to tag people so they can be tracked or monitored through fifth-generation mobile high-speed internet (5G) networks. This is not only a false claim, but also technically impossible (4,5).

References:

(1) <https://www.who.int/health-topics/vaccines-and-immunization>

(2) Bruijning-Verhagen P., Groome M. Rotavirus Vaccine: Current Use and Future Considerations. *Pediatr Infect Dis J.* 2017 Jul;36(7):676-678

(3) Shaw A. R.: The rotavirus vaccine saga. *Annu Rev Med.* 2006;57:167-80

(4) Suarez-Lledo V., Alvarez-Galvez J.: Prevalence of health misinformation on social media: Systematic Review, *J. Med. Internet Res.* 2021; 23 (1):e17187

(5) Rosas S. L., Simpson H. J., Martinez C., et al.: Improving Immunization Rates During the 2019 Measles Outbreak, *J Prim Care Community Health*, 2022;13:21501319211069271. doi: 10.1177/21501319211069271

(6) Schwartz J. L.: The first rotavirus vaccine and the politics of acceptable risk. *Milbank Q.*, 2012; 90(2): 278–310