



Websites such as GreenMedInfo that promotes misinformation about disease, vaccine safety and public health, and the Children's Health Defense that publishes stories like this one, choose to reject and ignore the volume of scientific evidence available on vaccine safety. Instead, they carefully select and shape their content to fit a predetermined agenda, use arguments based on errors in reasoning, attempt to persuade the reader that the opinions are valid and, in some situations, intentionally mislead the reader.

Over 270 million doses of Gardasil® vaccine have been distributed in more than 90 countries since 2006. The accumulated scientific evidence on safety comes from studies that include millions of people and the administration of more than 10 million vaccine doses and it overwhelmingly supports the safety of Gardasil.

In his narrative, Robert Kennedy Jr. begins with an attack on the ethics and motives of the vaccine manufacturer and the U.S. Government agency, the Food and Drug Administration. However, these entities have little association with the body of evidence that demonstrates the safety of Gardasil. This type of 'ad hominem' attack attempts to undermine the reader's trust in the international consensus of independent scientists that the Gardasil vaccine is safe.

In the place of independent scientists, Kennedy presents himself as an expert in vaccine safety. He goes on to reference the work of other non-scientists, for example lawyer Mary Holland, as if they provide a legitimate source of information. However, beliefs, opinions and speculation, no matter how convincing they sound, are based on feelings not scientific evidence. Evidence from scientifically designed, large Gardasil safety studies shows that the vaccine is safe irrespective of opinions and speculation to the contrary. Kennedy omits the body of scientific evidence that shows vaccinated people are no different to those who are not vaccinated in terms of adverse outcomes.

Kennedy proffers his opinion on minutiae from pre-licensure clinical trials, which serves as a 'red herring' to distract the reader from the evidence, outcomes of large population level studies and administration of millions of Gardasil vaccines doses that did not find evidence of serious adverse outcomes caused by the vaccine.

In addition to omitting the body of evidence, Kennedy strongly relies on the error of reasoning *post hoc, ergo propter hoc*, the Latin term meaning 'after this, therefore because of this', to persuade readers that anything occurring after vaccination must therefore have been caused by vaccination. This misrepresentation disregards the reader's right to receive factual information essential to make an informed decision about Gardasil vaccination, and dismisses the international scientists who have reached a consensus that the Gardasil vaccine is safe. Individuals vaccinated with Gardasil have no more risk of developing autoimmune, haematological or neurological conditions, or infertility than unvaccinated individuals and they are certainly no more likely to die. Furthermore, Gardasil vaccinated individuals have a much lower risk of cervical cancer than those who are unvaccinated.

The international consensus that the Gardasil vaccine is very safe comes from analysis of the accumulated data from scientific studies of Gardasil vaccine involving millions of people and vaccine doses. In contrast, Kennedy carefully chose snippets from published Gardasil study data that appear to support his pre-determined position and ignored the volume of safety data that did not support his position. This process is commonly known as 'cherry picking'.

The opinions Kennedy has expressed are not evidence and rely upon errors in reasoning, unsound arguments and misrepresentation of the evidence to persuade the reader to accept his opinion as fact. The accumulated scientific evidence shows that the Gardasil vaccine is very safe.

References

- » Petousis-Harris H, Goodyear-Smith F, Kameshwar K, Turner N. Fact or fallacy? Immunisation arguments in the New Zealand print media. Australian and New Zealand Journal of Public Health. 2010;34(5):521-6.
- » Vaccine Education Center. Logical fallacies and vaccines [Internet]. Philadelphia: Children's Hospital of Philadelphia; 2018. [cited 2019 July 23]. Available from: <https://media.chop.edu/data/files/pdfs/vaccine-education-center-logical-fallacies.pdf>.
- » World Health Organization. Vaccine in national immunization programme update June 2019 [Internet]. Geneva: World Health Organization. [cited 2019 July 31]. Available from: https://www.who.int/immunization/monitoring_surveillance/VaccineIntroStatus.pptx.
- » World Health Organization. Safety update of HPV vaccines. Weekly Epidemiological Record. 2017;28(92):393-404.