Option 4.

For this discussion post I decided to investigate about the vaccines/autism debate. In recent years I started hearing about a whole movement against vaccination of children. The claim is that vaccines cause autism therefor some parents chose to not vaccine the children against any disease. There is a whole dilemma about this because we know that some vaccines have actually been successful in eradicating diseases like smallpox and polio. Some other diseases like measles, diphtheria, and the flu, among others have been successfully prevented or its devastating effects have been diminished by the application of vaccines.

Vaccines have evolved a lot over the centuries, however, there are concerns about adverse events that these could cause, especially on more vulnerable populations. Some people claim that autism (ASD) might be linked to the vaccines children receive, however, the CDC website claims that “studies have shown that there is no link between receiving vaccines and developing ASD.”

Institute of Medicine (2012) explained how in 1900, 10% of babies born in the US died before the first birthday due to infectious diseases. They also conclude through their research of evidence and causality, after reviewing adverse events of vaccines including varicella, influenza, hepatitis, and human papilloma virus, among others, that no vaccine is 100 % save but very few adverse events are actually shown to be caused by vaccines. In addition, the evidence shows that vaccines do not cause several conditions. For example, the claim that: “… the MMR vaccine is not associated with autism or childhood diabetes. Also, the DTaP vaccine is not associated with diabetes and the influenza vaccine given as a shot does not exacerbate asthma.”

Moreover, The Journal of Pediatrics published additional research (DeStefano, Price, Weintraub, 2013) which shows that vaccines do not cause ASD. The study looked at antigens levels during the first two years of life. “The results showed that the total amount of antigen from vaccines received was the same between children with ASD and those that did not have ASD.”

In addition to the above, there are several other studies that are find absolutely no relationship between vaccines and autism. Plotkin, Gerber and Offit (2010) show a good summary of the most common hypothesis presented by the anti-vaccine supporters and the several studies that have been done over the years that have concluded vaccines are safe. Their conclusion is outstanding and worth sharing: “Twenty epidemiologic studies have shown that neither thimerosal nor MMR vaccine causes autism. These studies have been performed in several countries by many different investigators who have employed a multitude of epidemiologic and statistical methods. The large size of the studied populations has afforded a level of statistical power sufficient to detect even rare associations. These studies, in concert with the biological implausibility that vaccines overwhelm a child’s immune system, have effectively dismissed the notion that vaccines cause autism. Further studies on the cause or causes of autism should focus on more-promising leads.”

With the overwhelming increase in social media use, untruthful and misleading information is easily spread. Anti-vaccine groups have grown as more people join them every day thinking they can benefit from not vaccinating their children and that they can prevent autism this way. Unfortunately, even if they were truly able to prevent autism in their children, they could expose them to other infectious diseases that could be lethal. At the same time, they put the wellness of the general public at risk.

With the statistics methods I have learned in this class, I could understand the research I review and I could even perform my own research if I can obtain good data sets about this topic.

Center for Disease Control and Prevention. *Autism and Vaccines.* <https://www.cdc.gov/vaccinesafety/concerns/autism.html>

Institute of Medicine. 2012. *Adverse Effects of Vaccines: Evidence and Causality.* The National Academy Press. <https://www.nap.edu/catalog/13164/adverse-effects-of-vaccines-evidence-and-causality>

DeStefano F., Price C., Weintraub E. 2013. *Increasing Exposure to Antibody-Stimulating Proteins and Polysaccharides in Vaccines Is Not Associated with Risk of Autism.* The Journal Pediatrics*, Vol. 163, No. 2. [p. 561-567]*.<https://www.jpeds.com/article/S0022-3476(13)00144-3/pdf?ext=.pdf>

Plotkin S., Gerber J., Offit P. 2010. *Vaccines and Autism: A Tale of Shifting Hypotheses.* Clinical Infectious Diseases, Volume 48, Issue 4, 15 February 2009, [P. 456–461]. <https://academic.oup.com/cid/article/48/4/456/284219>