
Vaccines: Choosing What Goes Into Your Veins

It begins as minor flu symptoms: chills, fever, fatigue, runny nose. Nothing to worry about, just minor symptoms that should go away within the next week or so. The week passes and things seem to never get any better. Complications develop. The symptoms become more severe and extreme. It turns out that this individual did not have the flu. He had something far worse, something more treacherous and more contagious. A disease that could have been prevented by a simple vaccine.

Approximately 1.5 million children a year (below the age of 5) die from vaccine preventable diseases. Many children do not receive their necessary vaccinations due to lack of availability, religious beliefs, and safety concerns. The ultimate decision is made by the parents. Some guardians believe that vaccines prevent human to human transmitted diseases, but others are certain that it is the vaccines themselves who are a risk to their children's health. I was first introduced to this controversy when a British researcher, Wakefield, suggested that vaccinations were linked to autism. He released a case study series, in which he claimed that children exhibited autism symptoms after the MMR vaccination. Even though later on the data was proved to be falsified, I believe that this is what started the vaccine war. This issue is definitely worth investigating because the ultimate goal of a parent is to protect their children. Which is why it is so interesting how a common objective has different views toward immunization. In my experience, my vaccinations have always been up to date. However, in this research I hope to gain insight on both perspectives towards this topic.

Mei-Hwei Chang holds a M.D. (Medical Doctorate). She has multiple fields of specialty such as pediatric hepatology, pediatric gastroenterology, hepatitis, and hepatoma. She got her Medical Doctorate from National Taiwan University in 1974. She has won plenty of awards and some of her research interests include long term follow-up of hepatitis in children, prevention of liver cancer, and liver cell transplantation. She wrote a full report called, "Long-term Effects of Hepatitis B Immunization of Infants in Preventing Liver Cancer" which was published in the book Gastroenterology Volume 151, Issue

She began this report because she noticed that hepatocellular carcinoma (HCC) increases with age, and antibody responses decreases with age after infants are vaccinated against the hepatitis B virus. This study was done to determine whether vaccinations of infants against the hepatitis B virus prevent them developing hepatocellular carcinoma as adults. This study was done by collecting data from the Taiwan HCC registry system. The data contained a total of 1,500 patients diagnosed with HCC. Their ages ranged from 6 to 26 years old and the data was from 1938 through 2011. Then, they did a regression analysis on the patients vaccinated and unvaccinated in HCC. Through the analysis of the patients, Chang came with the conclusion that immunization of infants against the hepatitis B virus reduces the risk of developing hepatocellular carcinoma later on in their lives.

Philip J. Smith is a professor of internal medicine. He is currently in the Division of Infectious Diseases, the Department of Epidemiology, and the University of Nebraska Medical Center. He got his Bachelor of Science in the university of Wisconsin and his Doctor of Medicine at the university of Chicago. He is a professional affiliated with American Geriatrics Society and

Central Society for Clinical Research. He wrote an article called, "Children Who Have Received No Vaccines: Who Are They and Where Do They Live?" which was featured in *Pediatrics* Volume 114, Issue

The objective of this study was to differ the characteristics of vaccinated children versus unvaccinated children. The survey data collected contained children (35 month olds-19 years old) who were born between the years 1995 and 2001. The patient's vaccination histories were gathered from medical providers and the data was analyzed. The researcher learned that the majority of parents whose children are unvaccinated, expressed many concerns regarding the safety of their child. The study also reported that unvaccinated individuals were 22 times more likely to contract measles and 6 times more likely to get pertussis than vaccinated people. The research also mentioned that when there was a measles outbreak among the Amish, the rate was 1.7% for vaccinated people and 73.8% among unvaccinated individuals. It also declared that when there was a polio outbreak, 14 Amish people were paralyzed in the United States and it occurred to the unvaccinated individuals.

Koh Cheng Thoon obtained his postgraduate General Pediatrics qualifications from the Royal College of Paediatrics and Child Health. He trained in Paediatric Infectious Diseases and was appointed Head of Infectious Disease Service. He sits on multiple Department and Hospital level committees, including the National Antimicrobial Taskforce. His main research includes vaccine preventable diseases, HIV and Dengue. He wrote a case report called, "Childhood Stroke after Influenza Vaccination" which appears in *Proceedings of Singapore Healthcare* Volume 21, Number

This case study reports a 10-year-old child who developed cerebellar stroke one day after receiving the seasonal trivalent influenza vaccine. Her symptoms included vertiginous giddiness, blurred vision, headache and vomiting. These studies were done to understand if the influenza vaccine was linked to this stroke. The ten year old girl was examined from head to toe. Her Glasgow Coma Score was 15/15, her pupils reacted normal towards light, and her cardiovascular exam was normal. She got an MRI and it revealed two areas of restricted diffusion in the brain. They recommended for her to take aspirin and go to physical and occupational therapy. Her medical condition improved tremendously and she was discharged from the hospital. She came back six months later to have check up tests and she was completely fine. The doctors believe that the stroke was completely coincidental, and they still recommend the influenza vaccination for all children.

W. Matthew Linam has a Doctor of Medicine and a Master of Science degree. He graduated medical school from the University of Tennessee College of Medicine in 2001. During his Pediatric Infectious Disease fellowship, he also obtained a Master of Science in Environmental Health, Clinical, and Translational Research. He completed the Quality Scholars Program in Transforming Health Care and is currently an Assistant Professor in Pediatric Infectious Diseases. He also serves as Medical Director of Infection Prevention and Hospital Epidemiology and has written a plethora of articles regarding vaccinations such as, "Parental Perceptions about Required Influenza Immunization of Pediatric Healthcare Personnel." This article appears in the academic journal *Infection Control and Hospital Epidemiology* Vol. 35, No. 10 which was published by Cambridge University Press.

In this particular article, Linam noticed that there was no data regarding parental perception of the importance of the influenza vaccination. This study was done to investigate parent

perceptions regarding the importance, safety, and efficacy of influenza vaccination. He did this through a cross-sectional survey which was performed on guardians of children who were currently hospitalized. This was done in a span of three weeks, and the questionnaire evaluated the perception of vaccine importance for themselves and for their children, and also parent demographic information. They did these surveys in three different times of the year: before, during, and after influenza season. Through extensive research they learned that 76% of the parents believe that annual influenza vaccinations should be required.

Allison M. Kennedy, is an epidemiologist. She has a Master of Public Health degree which she obtained in Washington University School of Medicine in St. Louis and her research is affiliated with Centers for Disease Control and Prevention. She has written multiple articles about vaccines in the United States and has produced many focus groups with different groups of people. This particular research article, "Measles Outbreak Associated with a Church Congregation: A Study of Immunization Attitudes of Congregation Members" was published in SAGE journals and she focused just on church goers views towards immunizations.

Measles outbreaks are not as common nowadays due to vaccination coverage, however recent outbreaks are associated with individuals who do not vaccinate due to cultural/ religious reasons. Because of this information, Allison M. Kennedy conducted a focus group with church leaders and church members directly involved with these outbreaks. Through these focus groups she learned that it was due to a combination of safety concerns, personal experience and personal beliefs that they decline vaccinations.

Trove K. Ryman has a Master of Public Health degree and is associated with United States Centers for Disease Control and Prevention. He is also linked to Global Immunization Division. He has published many case studies in regards to health services and vaccinations. The journal article, "Community and Health Worker Perceptions and Preferences Regarding Integration of Other Health Services With Routine Vaccinations: Four Case Studies" was published in The Journal of Infectious Diseases Vol. 205 which was published by the Oxford University Press. In this article, the author is documenting how health workers in third world countries are reacting to the integration of routine vaccination and other material and child health services. He did this through qualitative health worker interviews and community focus groups that were conducted in four different locations in Africa. The results showed that it was generally well accepted by both community members and health workers. The only problem was due to inadequate staff to implement the health system.

To conduct this great amount of research, I used LSU Database Academic Search Complete and also used a combination of peer reviewed access journals from SAGE, JSTOR, and Web of Science. This assignment was challenging because it was very hard to find research against vaccinations on a database. This is because the research that all of these authors have done contain proof that vaccinations benefit an individual. The only data found against vaccinations (Wakefield) was proved to be falsified, therefore I could not use it in this assignment. I do not want to appear one-sided on this summary essay but it is very hard due to so many facts that are in favor of vaccines. The closest counterargument that I could include is in the parents against vaccinations point of view. This was a challenging topic to find research on because, doctors cannot perform controlled experiments on people to decipher everything to do with vaccinated versus unvaccinated people. Even though this would probably be the best way to obtain results, it would be highly unethical and wrong. One thing that surprised me the most is the contrast between the article about Africa and the article of parents not vaccinating their kids

because they are worried about their health. I find it very ironic that the people who have access to vaccinations hesitate to utilize them, yet the people who live in third world countries would do anything for them without a question.

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