Harmfulness of Vaccines: An Evidence-Summary

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Harmfulness of Vaccines

Background

According to the Centers for Disease Control and Prevention (2018) vaccines are one of the most important measures of preventative care used to protect the population from diseases and infections. Understandably, there are many concerns that are associated with vaccines. Some of these concerns include: the harmfulness of the adjuvants added to vaccines, the use of the preservative thimerosal in vaccines, the link between vaccines and sudden infant death syndrome (SIDS), and the link between vaccines and autism (Centers for Disease Control and Prevention [CDC], 2016). These concerns, coupled with a lack of knowledge, have lead numerous individuals to join the anti-vaccination movement. As a result, the vaccine compliance rates have declined. Consequently, diseases that were progressing towards eradication have begun to reemerge.

Objective

In order to increase vaccination compliance parents must be educated that vaccines being harmful is in fact a misnomer and that the benefits far outweigh the risks.

Problem Statement

Due to inaccurate media popularization and portrayal of the risks associated with vaccines, such as autism, there has been a decrease in vaccination compliance.

Research Question

Do parents of vaccine age children (birth to 12 years old) who have access to accurate educational materials that explain the safety and benefits of vaccines have an increased vaccine compliance rate than those who lack accurate education or only receive their education from anti-vaccination support groups?

Population. Parents of vaccine age children (birth to 12 years old).

Intervention. Access to accurate education materials that explain the safety and benefits of vaccines.

Comparison. Those who lack accurate education or only receive their education from anti-vaccination support groups.

Outcome. An increased vaccine compliance rate.

Search for Evidence

This evidence-based summary is a traditional literature review based on descriptive, explanatory, qualitative, and quantitative research. The databases that were utilized to collect the five evidence based journals were PubMed Central and Google Scholar. The search terms used were: vaccines and autism, anti-vaccination movement, and safety of vaccines. The search was limited to English, peer reviewed articles, that were published within the past five years (2014-2019) unless an article from an earlier time attributed substantial evidence to support the claim.

Classification of Research Evidence and Brief Article Synopsis

Article 1

Taylor, Swerdfeger, and Eslick's (2014) journal article is an example of meta-analysis. This article is a level 1 and is ranked the highest on the evidence hierarchy pyramid. This journal article utilized explanatory and quantitative research.

Taylor et al. (2014) conducted a meta-analysis that included five cohort studies that involved 1,256,407 children and five case-control studies that involved 9, 920 children. They concluded that their "meta-analysis provides no evidence of a relationship between vaccination and autism or autism spectrum disorders and as such advocate the continuation of immunisation [*sic*] programs according to national guidelines" (Taylor et al., 2014, p. 3628).

Article 2

Maglione et al.'s (2014) journal article is an example of a systematic review. This article is a level 1 and is ranked the highest on the evidence hierarchy pyramid. This journal article utilized descriptive, explanatory, qualitative and quantitative research.

Maglione et al. (2014) conducted a systematic review of the evidence provided from 67 different studies. They concluded that the "Evidence was found for an association of several serious AEs with vaccines; however, these events were extremely rare: absolute risk is low" (Maglione et al., 2014, p. 334). They also concluded that the "Strength of evidence is high that MMR vaccine is not associated with the onset of autism in children; this conclusion supports findings of all previous reviews on the topic" (Maglione et al., 2014, p. 334).

Article 3

Uno, Uchiyama, Kurosawa, Aleksic, and Ozaki's (2015) journal article is an example of case-control study. This article is a level 4 and is ranked moderately on the evidence hierarchy pyramid. This journal article utilized explanatory and quantitative research.

This case-control study was one of the studies that was included in the Maglione et al.'s systematic review. The purpose of this study was to evaluate the correlation between the MMR vaccine and the amount of thimerosal exposure at 1, 3, 6, 12, 18, 24, and 36 months old and the risk of autism spectrum disorder (ASD) onset. Uno et al. (2015) concluded that "No convincing evidence was found in this study that MMR vaccination and increasing thimerosal dose were associated with an increased risk of ASD onset" (p. 2511).

Article 4

Rao and Andrade's (2011) journal article is an example of a traditional literature review. This article is a level 7 and is ranked the lowest on the evidence hierarchy pyramid. This journal article utilized explanatory and qualitative research.

Rao and Andrade's (2011) article explained how the unethical and falsified case series published by the former British doctor Andrew Wakefield and 12 of his colleagues in 1998 lead to a drastic decline in vaccine compliance rates (pp. 95-96). They stated that "parents across the world did not vaccinate their children out of fear of the risk of autism, thereby exposing their children to the risks of disease" (Rao & Andrade, 2011, pp. 95-96). Even though this case series had been retracted and disproved by the scientific community, it has provided the basis for popularizing the anti-vaccination movement.

Article 5

Hussain, Ali, Ahmed, and Hussain's (2018) journal article is an example of a traditional literature review. This article is a level 7 and is ranked the lowest on the evidence hierarchy pyramid. This journal article utilized explanatory, qualitative and quantitative research.

According to Hussain et al. (2018) "The premise of the anti-vaccination movement can also be contributed to the demonization of vaccinations by news and entertainment outlets" (e2919). As a result of the anti-vaccination movement there has been a decline in the vaccine compliance rate. According to Hussain et al. (2018) "In the UK, for example, the MMR vaccination rate dropped from 92% in 1996 to 84% in 2002. In 2003, the rate was as low as 61% in some parts of London" (e2919). In short, the anti-vaccination movement poses a true danger to the health of individuals and the collective herd immunity.

Conclusion

The cure for ignorance is education. There are numerous public articles that provide sound evidence that supports the safety and efficacy of vaccinations. The evidence I have provided disproves the belief that vaccinations and/or thimerosal cause autism. As well as, shows proof that information to the contrary has been discredited, retracted, and disproved by the scientific community. Concerned parents and anti-vaccination proponents should be directed to review the scientific literature for themselves so they can make an informed discussion. While collecting my evidence not once did I come across a research article that supported the anti-vaccination movement. This had lead me to believe that this movement is rooted in personal opinion rather than sound logic. While parents are the primary advocate for their children, it would suggest that they are allowing the personal opinions of others to skew the reality of the facts. For most people perception is reality, however, that does not mean that their reality is factual. Remain wary of allowing personal opinion to be interpreted as factual information. Only when factual evidence is collected and myths and misleading information are debunked can one truly make an informed decision.

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