

Measles Vaccine: Time to Stop the Madness

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This issue of the *Journal of Clinical Pharmacology* contains an excellent review on the measles vaccine.¹ Why should a clinical pharmacologist care about vaccines?

Vaccine development follows principles of clinical pharmacology—dose and response, efficacy and toxicity, duration of protection, pharmacokinetics, and pharmacodynamics. A recent article in the *Journal of Clinical Pharmacology* Biologics supplement outlined the importance of clinical pharmacology in the development of vaccines.² Our own data examined a dose-response effect of hepatitis A vaccine in people considered obese.³ Clinical pharmacology is important in the development of vaccines.

More importantly, as health care professionals, it is incumbent on clinical pharmacologists to help to clarify the safety and efficacy of vaccines and to support and promote the science behind vaccines, which has shown them to be safe and effective.

A 2015 outbreak of measles in the United States, in which 62% of the cases were linked to exposure at a California amusement park, again raised the issue of individuals (parents) who do not vaccinate their children against measles (and mumps and rubella) for fear of the development of autism spectrum disorders (ASD).⁴ In addition, there are those individuals who propose to spread out the vaccine schedule to reduce the perceived, unsubstantiated risks of multiple simultaneous vaccines to the individual child. There is also no data to support this view, and this risks children not getting the vaccines that will protect them from serious diseases.

Are vaccines more dangerous than the diseases they prevent?

Concerning diseases and vaccine, here are the facts about measles. In 2010, there were 327 305 cases of measles worldwide, with 139 300 deaths reported from the disease.⁵ Thus, 1 of 3 persons with measles died from the disease. Although endemic measles has been eliminated in the United States, imported cases will remain an important source of measles, and thus,

mandatory vaccination is important to protect children and adults. Diseases such as *H. influenza* meningitis (which causes death, hearing loss, and permanent neurologic disorders) have been virtually eliminated in first-world countries with the use of a vaccine introduced decades ago. This is also the case for tetanus, pertussis, diphtheria, polio, and other diseases once feared because of the morbidity and mortality they cause. In the last decade, a vaccine against human papillomavirus was approved to reduce the risk of cervical cancer, one of the leading (and silent) causes of cancer in women. There is no question that vaccines prevent deaths and disability from these diseases.

In this age of having the Internet in one's pocket (ie, your smartphone), the warning “don't believe everything you read on the Internet” is even more important. An Internet search using the terms “measles vaccine and autism” revealed more than 120 000 “hits,” with many sites suggesting that the measles vaccine does indeed cause autism or ASD. Certainly, the genesis for this comes from the discredited and retracted study by Wakefield et al in 1998.⁶ Science has clearly proven that the measles vaccines does not cause ASD, despite what information the Internet, politicians, or celebrities provide. Unfortunately, many individuals still do not believe this proven fact because of the high-profile individuals who espouse this incorrect information. This is not in the public good.

Thus, it is time, particularly for celebrities and politicians who are vocal about negative aspects of vaccines, to strongly support the science of vaccination using the doses and the dosing schedules that have been scientifically studied and proven to be effective.

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The high profiles of these individuals and their public statements using unsubstantiated facts negate the good that vaccines have done in eliminating diseases that cause significant morbidity and mortality, as well as placing doubt in the public's mind. Frankly, this is disingenuous.

In addition, the use of vaccines for the protection of the public is the law of the land. A ruling by the US Supreme Court in 1905, *Jacobson v Massachusetts*, ruled that states have the authority to enforce compulsory vaccination.⁷ Although all in America are free to express their views about vaccines, they are not free to violate a law, unless they are willing to suffer the consequences of violation.

The time has come to stop the madness and believe the science and not the anecdotes on the Internet, daytime television, and other sources. Vaccines such as the measles vaccine are effective and have significantly reduced the disease in the United States.² Work is being done globally to attain the same results. As with any pharmaceutical, no vaccine (or drug) is 100% safe, even though our patients may want to believe that we can make pharmaceuticals that are 100% safe. Can even safer vaccines be developed? There is no reason to not continue to develop more effective vaccines with fewer adverse effects. But for the time being, we have vaccines that reduce deaths by the tens of thousands annually

and, in the case of vaccines such as the measles vaccine, have been proven not to cause ASD.

As clinical pharmacologists, we have the responsibility to provide the facts to our patients and to dispel the unsubstantiated rumors of the danger of using agents that have changed the face of many diseases.

References

1. Zaccariah P, Stockwell MS. Measles vaccine: past, present, and future. *J Clin Pharmacol*. 2016;56(2):133–140.
2. Alemayehu D, Utt E, Knirsch C. Vaccines: a review of immune-based interventions to prevent and treat disease. *J Clin Pharmacol*. 2015;55(S3):99–102.
3. Bertino JS Jr, Thoelen S, VanDamme P, et al. A dose response study of hepatitis A vaccine in healthy adults who are ≥ 30 years old and weigh ≥ 77 kg. *J Infect Dis*. 1998;178:1181–1184.
4. Centers for Disease Control. Measles cases and outbreaks. <http://www.cdc.gov/measles/cases-outbreaks.html>. Accessed September 28, 2015.
5. Kutty P, Rota J, Bellini W, et al. Manual for surveillance of vaccine-preventable diseases: Chapter 7: Measles. Centers for Disease Control. <http://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.html#f35>. Accessed September 28, 2015.
6. Wakefield AJ, Murch SH, Anthony A, et al. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *Lancet*. 1998;351:637–641.
7. *Jacobson v Massachusetts*. <http://caselaw.findlaw.com/us-supreme-court/197/11.html>. Accessed September 28, 2015.