

Vaccine Hesitancy

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Learning Objectives: On completion of this article, you should be able to (1) list factors that contribute to modern vaccine hesitancy; (2) identify interventions to improve vaccine uptake that have a strong scientific evidence base; and (3) name 3 online available resources clinicians can depend upon to support their vaccination efforts.

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Dr Jacobson serves on a safety review committee for Merck & Co for a study of human papillomavirus vaccine safety and on a data monitoring committee for studies of pneumococcal vaccine immunogenicity and safety.

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Abstract

Vaccine refusal received a lot of press with the 2015 Disneyland measles outbreak, but vaccine refusal is only a fraction of a much larger problem of vaccine delay and hesitancy. Opposition to vaccination dates back to the 1800s, Edward Jenner, and the first vaccine ever. It has never gone away despite the public's growing scientific sophistication. A variety of factors contribute to modern vaccine hesitancy, including the layperson's heuristic thinking when it comes to balancing risks and benefits as well as a number of other features of vaccination, including falling victim to its own success. Vaccine hesitancy is pervasive, affecting a quarter to a third of US parents. Clinicians report that they routinely receive requests to delay vaccines and that they routinely acquiesce. Vaccine rates vary by state and locale and by specific vaccine, and vaccine hesitancy results in personal risk and in the failure to achieve or sustain herd immunity to protect others who have contraindications to the vaccine or fail to generate immunity to the vaccine. Clinicians should adopt a variety of practices to combat vaccine hesitancy, including a variety of population health management approaches that go beyond the usual call to educate patients, clinicians, and the public. Strategies include using every visit to vaccinate, the creation of standing orders or nursing protocols to provide vaccination without clinical encounters, and adopting the practice of stating clear recommendations. Up-to-date, trusted resources exist to support clinicians' efforts in adopting these approaches to reduce vaccine hesitancy and its impact.

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The recent outbreak of measles originating in “the happiest place on earth”—Disneyland—resulted in notoriety for Orange County, California, which has been described as the epicenter of vaccine refusal.¹ In the first 4 months of 2015, more than 80% of measles cases reported in the United States occurred in individuals not vaccinated. Of those, 43% cited philosophical or religious objections to vaccination.¹ Although all states require measles-mumps-rubella vaccination for daycare and school attendance, most states permit personal belief exemptions. In 2014, California’s kindergarten exemption rate was 2.5%; however, 8 California counties reported kindergarten children with personal belief exemptions of 8% or higher, with Nevada County having the highest rate of 22%.

Vaccine refusal is the visible surface of a massive iceberg of vaccine delay and hesitancy. Vaccine hesitancy refers to concerns about vaccine safety and necessity. Most vaccine-hesitant parents proceed with most vaccinations but often delay some or all vaccines and, as a result, leave their children at risk for vaccine-preventable diseases. We offer a historical perspective on this phenomenon, describe the impact of vaccine hesitancy, and provide guidance for practicing clinicians.

HISTORICAL NOTES

Antipathies toward vaccination date back to the first vaccine. In the 1800s, Edward Jenner’s efforts to promulgate vaccination with cowpox against smallpox resulted in substantial protest. Clergy protested the unnaturalness of using animal infection in humans. Parents protested the invasiveness of the procedure. Others questioned the scientific basis for contagion and vaccine efficacy. Newspaper cartoonists illustrated the public’s anxiety by depicting cow’s heads growing from the skin of vaccine recipients. Although Britain successfully mandated universal smallpox vaccination in 1855, an antivaccine movement resulted in the law’s reversal in 1895. The father of modern medicine, William Osler, failed to convince a nervous British War Department to vaccinate soldiers against yellow fever, a scourge of World War I. More recently, unfounded claims of neurologic injury from the diphtheria and tetanus toxoids and whole-cell

pertussis vaccine caused widespread rejection of that vaccination in many countries. A resurgence of infant morbidity and mortality from whooping cough ensued.

WHAT FACTORS CONTRIBUTE TO MODERN VACCINE HESITANCY?

Heuristic Thinking

Heuristics are shortcuts we use to estimate risk—something we all do when faced with decisions we want to make quickly. Laypeople qualitatively attach a higher magnitude of risk to threats that they readily recollect using a mental process known as the availability heuristic.² More than a dozen vaccines have joined the routine schedule in the past 30 years. The diseases that these vaccines prevent are rare enough that people may not fathom their seriousness. Examples include *Haemophilus influenzae* type b and invasive pneumococcal disease. Alternatively, some diseases are common enough to generate complacency; patients often assert that influenza poses no substantial danger. The 2009 influenza pandemic is illustrative; a substantial portion of adults did not get the pandemic H1N1 vaccine once available because they no longer believed that the disease posed a serious threat.³

Aggravating this guesswork is the fact vaccination is an act of commission rather than omission.⁴ Vaccination requires performance of an active intervention on a usually healthy individual. For most people, acts of commission, such as routine vaccination, carry heavier moral weight and create more decisional conflict than acts of omission.

Success of Vaccination

Ironically, as vaccines reduce disease occurrence, the lack of disease makes vaccination seem unnecessary and fosters complacency.⁵ Indeed, common claims made by those leading the anti-vaccine movement are that vaccines are unnecessary and the diseases’ disappearances occurred before routine vaccination and because of modern hygiene.

Unnaturalness of Vaccination

Many people protest that vaccination is unnatural. Some antivaccinationists extend this argument, stating that it is more natural and, thus, healthier to develop immunity from the

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