

Vaccine Hesitancy and Refusal

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Over the past few years, an increasing number of European pediatricians, particularly primary care pediatricians, are facing the growing threat of vaccine hesitancy and refusal, a sort of a “cultural epidemic,” which seems to progressively affect the families of children under their care. In several communities, a growing number of individuals are delaying or refusing available recommended and/or mandatory vaccinations for themselves and their children. Furthermore, vaccination is increasingly perceived as unsafe and unnecessary by a rising number of parents, although it has been widely proven and recognized to be one of the greatest, safest, and most successful public health measures ever adopted.

Pediatricians have a potential major influence on parental vaccine decisions. However, their task is complicated by the complexity of the vaccine hesitancy phenomenon and its multifactorial nature.^{1,2} Programs based on physician-targeted communication interventions, designed to reduce vaccine hesitancy in mothers of infants seen by trained physicians and to increase physician confidence in communicating about vaccines, are reported to have failed to reduce maternal vaccine hesitancy or to improve physician self-efficacy.³

Our aim is to describe vaccine hesitancy and refusal in an effort to further raise the awareness of pediatricians on this potential threat for their communities, and, in particular, for children under their care.

Definition and Effects of Vaccine Hesitancy and Refusal Phenomenon

Vaccine hesitancy and refusal has developed most likely because of multiple social, cultural, political, and personal converging factors.¹ There is blurring between hesitancy and refusal; inconsistencies also exist in the definition when the problem is mapped in different countries.⁴

The World Health Organization defines vaccine hesitancy and refusal as a delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy was described to be complex and context specific, varying across time, place, and vaccines, and including factors such as complacency, convenience, and confidence.⁵

According to the World Health Organization, during the recent decade, approximately 1 in 5 children each year globally did not receive routine lifesaving immunizations, and 1.5 million children died of diseases that could have been prevented by vaccines. This represents 17% of all deaths of

children less than 5 years of age. However, despite such striking data, several European nations, as well as the US, are faced with a widespread reluctance in accepting the recommended national vaccination programs. Such immunization hesitancy is largely driven by the opinions disseminated by dynamic antivaccine movements, primarily using self-referential blogs and forums, and often reporting uncontrolled or misinterpreted scientific data, which have contributed to lowering the rates of vaccination coverage in various communities. In 2008, a survey reported that 20% of parents from 5 European Union countries expressed doubts about vaccinating their children.⁶ The lowering of immunization rates observed in various European countries and the US are likely to have contributed to the several outbreaks of vaccine-preventable diseases that have been observed over the recent years. For instance, during the past 5 years, several countries of the European Union, including Belgium, Bulgaria, France, Italy, Romania, Spain, and recently, Germany, have reported an increase of measles and rubella outbreaks. Furthermore, according to the Department of Health of the European Commission, only one-half of the European Union countries have reached the target of 95% coverage for 2 doses of the measles vaccine, and more than 4000 cases of measles have been reported between July 2014 and July 2015. A similar situation is observed in the US, where lower vaccination rates have been identified as contributing factors to various outbreaks of vaccine-preventable diseases, as in the case of measles in California in 2014 and 2015, where the vast majority of the infected people were unvaccinated, or their vaccination status was unknown.

Measuring vaccine hesitancy is crucial for the appropriate planning of strategies for increasing vaccine coverage and for monitoring. It is also important to monitor the degree and type of hesitancy because these may change temporally. In addition, vaccine hesitancy may be specific to one or some, but not all vaccines. Determination of vaccination coverage is not a reliable tool for the measurement of vaccine hesitancy because it may derive from an access issue.⁷ In addition, high

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vaccination coverage rates do not necessarily imply correctly timed vaccinations. The phenomenon of vaccine hesitancy and refusal can be measured using instruments such as the Vaccination Confidence Scale.⁸ Experts in the field recognize a continuum between vaccine acceptance and vaccine refusal.⁷ Hesitancy and refusal are closely related to vaccination skepticism.

Political and Social Aspects

Different circumstances in Europe have influenced vaccine coverage and rendered Europe prone to vaccine failure and hesitancy. Political conflicts and instability, as well as immigration, have been linked to vaccine hesitancy. For example, concerns have been raised about the suspected use of porcine components in vaccines.⁹ Several Central and Eastern European countries have experienced decreasing vaccine uptake and delayed vaccinations following the fall of Soviet Union, and some of these countries experienced outbreaks of vaccine-preventable diseases, such as diphtheria and measles.¹⁰

Ethics

It is not necessary to delve too far into the past to sense a disinclination to vaccinate, given the widely held false perception that vaccine-preventable diseases are no longer a threat. A reliance (and belief) in herd protection bolsters the perceived rights of parents and other individuals not to vaccinate and for them to rely on others being vaccinated. This is not to argue that it would be “good” for a few cases of subacute sclerosing panencephalitis following measles or congenital rubella to appear, to remind individuals of the dangers. Instead, it would be “bad” because it would signal a belief that the rights of unborn infants and unvaccinated children are less than the rights of others.

Mandatory vaccination has been used in several countries to overcome vaccine hesitancy and refusal. However, it is unclear whether this regulatory measure significantly and durably increases vaccine coverage. The ethics of mandatory vaccination have been questioned, and strategies that raise the financial liabilities of unvaccinated families have been suggested instead.

Consequences

It is now nearly 20 years since the infamous article by Wakefield et al,¹¹ fraudulently purporting to have shown a link between measles/mumps/rubella vaccine and autism. There are likely to be cohorts, now reaching young adulthood, who are neither vaccinated against these 3 viruses nor exposed naturally. Ironically, their chances of exposure to measles are not negligible because of the high transmissi-

bility of this virus and recurrent measles epidemics.¹² The chance of female members of these cohorts are exposed to the relatively mild rubella virus during pregnancy also is not negligible, although it would be the next generation, those affected by congenital rubella, who would bear the consequences of a past decision not to vaccinate by their grandparents.

The consequences of delayed vaccination should not be overlooked. For example, timely administration of infant pertussis vaccine reduces subsequent pertussis cases, hospitalizations, deaths, and medical costs in infants <1 year of age in the US.¹³ The consequences of vaccine hesitancy or refusal, and possible interventions identified to contrast vaccine hesitancy and refusal¹⁴ are shown in **Tables I** and **II** (available at www.jpeds.com).

Conclusions

In terms of numbers of lives saved, vaccination stands among the most effective measures ever accomplished by medical intervention.¹⁵ However, the results achieved by this public health intervention are seriously endangered by the growing phenomena of vaccine hesitancy and refusal. The multifactorial and complex causes of vaccine hesitancy, including the uncompromised demand for the unremitting usage of vaccines, their coincidental temporal relationships to adverse health outcomes, unfamiliarity with vaccine-preventable diseases, and lack of trust in corporations and public health agencies, require a broad range of approaches on the individual, provider, health system, and national levels, which is difficult to properly coordinate and promote. Furthermore, research is certainly needed to identify proper physician communication strategies effective at reducing parental vaccine hesitancy particularly in primary care settings.² However, providing continuous information about the importance of vaccinations and the risk of denying their benefits, with special attention to culture-related disbeliefs, seems to represent a fundamental action, useful in responding to the severe public health threat, represented by scientifically unsubstantiated vaccine-hesitant behaviors, amplified by cycles of self-referencing statements, often unreachable by campaigns of explanation, and difficult to be contained by health initiatives. Vaccine hesitancy and refusal should be continuously monitored and studied from medical, psychological, social, political, and ethical aspects, and addressed accordingly to decrease the pervasive effects. ■

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Table I. Consequences of vaccine hesitancy and refusal

| Hesitancy and refusal | Vaccination | Risk | Consequences |
|--|--|----------|--|
| Nil | On-time | Low | Good individual and herd protection |
| Nil (unavoidable) | Delayed | Low | Good individual and herd protection |
| Mild hesitancy | Delayed | Low | Good individual protection |
| Moderate hesitancy | Delayed | Moderate | Need for advice and re-education |
| Refusal | Nil | Moderate | Need for active intervention |
| Refusal with media and social media activity | Nil – but also negative impact on others | High | Active and urgent rebuttal; public health intervention |

Table II. Possible interventions identified to combat vaccine hesitancy and refusal

- Interactive social media tools
- Social marketing
- Use of digital surveillance and mobile apps by public health officials
- Targeting childbearing women and new mothers
- Culturally tailored information for diverse ethnic populations
- A multidisciplinary approach
- Dispelling false contraindications