



Review

Vaccine hesitancy – Issues and possible solutions

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Abstract

Unvaccinated individuals pose a public health threat to communities. Research has identified many factors associated with parental vaccine refusal and hesitancy toward childhood and adolescent immunizations. However, data on the effectiveness of interventions to address parental refusal are limited. There is limited evidence to guide implementation of effective strategies to deal with the emerging threat of parental vaccine refusal. There is a need for appropriately designed, executed and evaluated intervention studies to address this gap in knowledge. Based on the available evidences in literature and previous works on vaccine hesitancy, there are mechanisms to address this menace. The vaccine hesitancy is a complex phenomenon and there are various areas where interventions may be done to adequately address it. This paper tries to find an answer to the ever growing vaccine hesitancy by critically reviewing the existing literature. To combat vaccine hesitancy, several strategies may be applied such as non financial incentives, presumptive delivery strategy, personalized messages and focused role of public health system and pediatricians.

Key words: Communication, Immunization, Vaccine hesitancy, Vaccines

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Vaccines are the most cost effective and efficient way of reducing the mortality rate especially under-5 years of age. The first vaccine produced by Edward Jenner against smallpox changed the concept of disease treatment method¹. The small pox was the first disease to be eradicated in the year 1979 and success was attributed to the effective immunization against the deadly disease^{2,3}. The stories of eradication of polio are yet another milestone achieved in immunization. Vaccines have always proved to be the safest and most effective approach for treatment of many infectious diseases. But its efficiency is shown to be not increasing as the infectious dis-

eases against which vaccines are produced and marketed are still prevalent. In the past decade there have been outbreaks e.g. Measles outbreak of 2007 in France, of 2011 and 2013 in USA and the greatest outbreak of measles in USA in the year 2014 despite having effective vaccine against measles, mumps and rubella and high coverage. The main reason behind this is most likely to be "Vaccine Hesitancy"⁴.

On November 2011, the Strategic Advisory Group of Expert (SAGE) on Immunization prepared a report concerning the reluctance of vaccine acceptance. The three factors discussed were – complacency, i.e., when people do not feel the

need of vaccination or they do not value it; convenience, i.e., ease of accessibility of vaccines and confidence which includes trust on vaccines or provided. The vaccine hesitant people were defined as the heterogeneous group of people between the continuum of people's vaccine attitude ranging from total acceptance and complete refusal⁵.

Chen et al, in 1994 described the phases of Vaccine Acceptance into following stages –the phase of “Increasing Coverage”, the phase of “Loss of confidence”, the phase of “Redemption of confidence” and finally the phase of “Eradication”⁶. The eradication phase is more visible in the diseases which have short period between the exposure and disease development like Polio, Measles, etc. Diseases like HPV infection which takes years for the cancer to develop, the eradication is difficult to carry out^{4,7}.

The recent times have seen a drastic increase in vaccine hesitancy. Even when the disease starts getting prevalent the confidence on vaccines is not restored. This is because of spread of wrong facts about the vaccines in the social media; as a result there have been recent outbreaks in many parts of Europe and even India⁸. Even in Washington during an outbreak of Pertussis the ‘redemption of confidence’ did not take place in the parents and there was no increase in vaccine uptake. In the time when immunotherapy should be at its peak the world is witnessing decline of its spread and efficiency.

The vaccine hesitancy can be of varying degree from indecision about specific vaccines to vaccination in general⁷. Because of this vaccine hesitancy not only the non-immunised children suffer but they also put the immunised population under a great risk⁷. To combat the progression of preventable diseases it is very necessary to know the factors behind the vaccine hesitancy by the parents and come up with appropriate methods to tackle them. The SAGE Working Group divided the determinants of vaccine hesitancy into three broad categories – Contextual influence, individual and group influence and Vaccine/vaccination specific issues^{5,9}. The factors influencing vaccine hesitancy has also been illustrated in the form of an epidemiological triad, where there are environmental factors, agent factors (i.e., vaccine) and host factors (i.e., related to the parents)⁹.

Combating vaccine hesitancy

Vaccine hesitancy has such a complex and multi-layered nature that no single intervention strategy

can be able to address all the instances of vaccine hesitancy^{10,11}. The most important means of combating vaccine hesitancy and establishing a state of utmost vaccine confidence is communication. According to SAGE report it is the tool, not a determinant, through which a positive influence can be made over vaccines and vaccination. There are many examples where communication played a big role.

But sometimes the use of targeted discussion strategies fails to counter vaccine hesitancy. In a study by Nehan et al where sample of parents were randomly assigned into five groups and were administered four different kinds of interventions in the form of health education material and one with no intervention but none of them increased parental intentions to vaccinate their future child with MMR vaccine. And it was concluded that currently practiced public health communications may not be adequate and effective and in some cases, they may increase misperceptions and thus vaccine hesitancy. But we need to understand that in the above study, it was web based and not the one to one personal communication which was one of its major limitation¹². Generally physicians consider dealing parents with significant vaccine concerns as time consuming and decreased job satisfaction and hence resort to options ranging from not having discussions, accepting the request to a parent's request to defer or delay and sometimes skipping a vaccine, scheduling longer well care visits or let go off such families from their practice¹³.

The single most important factor to increase the confidence of parents considering all the aspects of vaccine hesitancy is interpersonal contact with a knowledgeable, conversant and concerned pediatrician. Following anecdotes from India, it has been observed that the pediatrician who is caring, devotes time with the patient and connects well to the people have been trusted in all matters of children including vaccination¹⁴. The clear articulation of the message that vaccines are safe and effective and reasons of immunizing your child and risks of serious diseases by pediatrician can help in developing confidence amongst parents while correcting their misconceptions⁸.

It is important for the health care providers to strictly follow the recent immunization schedule and make sure they follow all the methods of safe vaccination. This is to avoid any complication of vaccines as this is one of the major causes of eruption of vaccine hesitancy. One of the reasons, paediatrician fear to be the cause of vaccine hesitancy is frequent changes in the schedule and variation in

schedules between government and established academia like American Academy of Pediatrics (AAP), Indian Academy of Pediatrics (IAP) or Centre for Disease control (CDC). But pediatricians have to remain updated on the current recommended schedule and upkeep it as the only evidence based schedule that has been approved by the experts after being tested for safety and efficacy.

For the vaccine hesitant parents, it is imperative to personalize the messages about safety and necessity of vaccines rather than talking about numbers and presentation of basic medical information. Kempe et al in his study reported that sceptical parents relied more on physicians' own experiences and choices and physicians relating that they are confident about vaccine safety and that why all their children and grandchildren are immunized¹³.

Another method of counteracting vaccine hesitancy is presumptive delivery strategy. In a study done by Opel et al, it was demonstrated that the doctors who began their practice before the introduction of recent vaccines are able to convince the parents about the importance of vaccines and vaccination from their personal experience than the recent graduates^{8,14}. Therefore, educational interventions should be made in order to train the doctors to counteract vaccine hesitancy. Promoting health education may not necessarily result in decreasing vaccine hesitancy. In a study done in Switzerland, it was concluded that approximately 5% of the non-pediatric physician delay or deny MMR and DPT vaccines for their own child as they are concerned about the immune overload⁹. So, finally if physicians themselves are hesitant, then they are unable to convince their patients about vaccination with conviction. Hence communication training of providers is of paramount importance in handling vaccine hesitancy.

Despite all sincere efforts, some families may not be convinced to get their child vaccinated. This leads to dismissal of families by physicians but this is against the ethics and public health principles. It has also been observed non-vaccinating families might cluster and becomes focal point of outbreaks. In India this was seen amongst some communities for polio immunization where either there was refusal or vaccinators were not treated well leading to missed children and there were outbreaks in those pockets only. So, repeated attempts to vaccinate them should be made by employing all ethical means to avert any such incidences. Individual dismissals must be considered in consonance with applicable state laws but pro-

hibiting abandonment of patients particularly patients requiring emergency care. When the parents are given the choice between getting their child vaccinated and dismissal by the pediatrician, it is anecdotal evidence that the parents chose vaccination even when other methods of persuasion have failed⁷.

The role of public health system shouldn't be undermined and must be utilized to influence vaccine acceptance. Public health may help in developing and implementation of immunization recommendations, vaccine policy such as mandatory before school entry and last but very essential vaccine safety monitoring in order to prove its role in addressing vaccine hesitancy.

Societal norms, religious beliefs and parental responsibility are the cornerstone in vaccine hesitancy so engaging religious and local influencers to promote vaccination in the community will prove its worth. Improving convenience and access to vaccination may be worked out to customize the needs of the community. Mass media and social mobilization aiming to increase knowledge and awareness about vaccination should be targeted. There have been success stories of employing reminder and follow up through mobile apps and messages. Non-financial incentives may also be tried and further research is needed to establish its role in countering vaccine hesitancy¹⁵. It is important to identify the determinants in the hesitant parents and then customizing the intervention to suit the subgroup, setting and local resources, as outcomes are affected by various factors related to the contexts, vaccines and community.

The field of vaccine hesitancy is so much untouched that the ways to combat it had not been properly established¹⁶. The cause of vaccine hesitancy varies from country to country and even community to community, therefore the national programs have to be made stronger to identify the local relevant factors and adapt different strategies to address them¹⁰. To tackle vaccine hesitancy a particular area has to be studied for the coverage of vaccination and prevalence of vaccine hesitancy and its root cause. After finding out the factors which are most influencing should be tackled. Then again the same area should be studied to see how efficient the techniques of combating were. This tackling should be done in the community level and also in an individual level. After several studies a methodology should be proposed which would make dealing with vaccine hesitancy easier.

Conclusion

Vaccine hesitancy has existed since the time vaccine was invented. But even now it is prevalent and it keeps on growing. There are many factors which are behind its growth. In a particular area or even in a particular individual there could be more than one factor influencing it. These factors have to be dealt with and vaccine hesitancy which is a disease like condition has to be cured.

The pediatrician is the most important person whose involvement is essential to curb this hesitancy towards vaccine. The pediatrician could communicate with the hesitant parents and deal with their issues individually. It's important for the parents to know the possible dangers of not getting their child vaccinated and the seriousness of the disease that could be avoided through vaccination. They should be ensured about the safety of each and every vaccine and the benefits of the immunization. As the education level in the population is increasing the parents are getting more eager to know about the details of the vaccines. And as a pediatrician it is their duty to provide that knowledge to them.

There are so many diseases which could be eradicated by herd immunization. But with the increasing number of vaccine hesitant people not only does it seem like a distant dream but also put the population in the risk of many fatal outbreaks. Therefore, vaccine hesitancy requires an immediate call for action.

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