How to deal with vaccine hesitancy?

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\textbf{A B S T R A C T}

Based on the concerns about vaccine hesitancy and its impact on vaccine uptake rates and the performance of national immunization programmes, the Strategic Advisory Group of Experts (SAGE) on Immunization Working Group on Vaccine Hesitancy \cite{1}, carried out a review, and proposed a set of recommendations directed to the public health community, to WHO and its partners, and to the World Health Organization (WHO) member states. The final recommendations issued by SAGE in October 2014 fall into three categories: (1) those focused on the need to increase the understanding of vaccine hesitancy, its determinants and the rapidly changing challenges it entails; (2) those focused on dealing with the structures and organizational capacity to decrease hesitancy and increase acceptance of vaccines at the global, national and local levels; (3) and those focused on the sharing of lessons learnt and effective practices from various countries and settings as well as the development, validation and implementation of new tools to address hesitancy.

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\section{1. Introduction}

The evidence demonstrating the benefits of immunization is overwhelming. Vaccination is one of the most successful and cost-effective interventions known to improve health outcomes. Vaccines have saved countless lives and improved health and well-being around the world. However, vaccines can only improve health and prevent deaths if they are used. To prevent the morbidity and mortality associated with vaccine-preventable diseases at the population level and to optimize control of vaccine-preventable diseases in communities, immunization programmes must be able to achieve and sustain high vaccine uptake rates.

High vaccination coverage is dependent on many factors. The basic requirements are an understanding of the need and value of vaccination in the population, and availability of vaccines as well as accessible immunization services. One factor that has become increasingly important to vaccination coverage is vaccine hesitancy that results in delay or refusal of vaccinations, ranging from delay in acceptance of one or more offered vaccines to complete refusal of all vaccinations in the immunization programme.

As an example of vaccine hesitancy, during the A(H1N1) 2009 influenza pandemic, many countries in the Americas successfully deployed influenza pandemic vaccine to the general public, but many had difficulties in convincing pregnant women to accept the vaccine \cite{2}. Despite strong evidence of increased morbidity and mortality caused by influenza, many pregnant women hesitated to obtain pandemic influenza vaccination despite the recommendations provided by their health-care provider and their country’s immunization programme leaders. Even improved access to vaccination services did not reliably overcome this hesitancy. Reluctance to accept the measles vaccine in parts of Europe, the human papillomavirus (HPV) vaccine in Japan and India, and the polio vaccine in parts of Nigeria and Pakistan, are some other recent examples of vaccine hesitancy from different parts of the world \cite{3–5}.

Based on the concerns about this hesitancy and its impact on vaccine uptake rates and the performance of national immunization programmes, the SAGE Working Group on Vaccine Hesitancy carried out a thorough review and proposed recommendations on how to address vaccine hesitancy and its determinants \cite{1}. The final recommendations were issued by SAGE in October 2014, and include recommendations directed to the public health...
community, to WHO and its partners, and to the WHO member states [6].

The final recommendations issued by SAGE can be grouped into three categories. The first category relates to the strong need to increase understanding of vaccine hesitancy, its determinants and the rapidly changing nature of the challenges that this hesitancy entails. The second focuses on the structures and organizational capacity needed to decrease hesitancy and increase acceptance of vaccines at global, national and local levels. The third relates to the sharing of lessons learnt and best practices based on experiences from various countries and settings as well as the development, validation, and implementation of new tools to address hesitancy. Lastly, SAGE also proposed a list of research subject categories for this rapidly emerging field.

2. Understanding of vaccine hesitancy should be increased and disseminated

Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccination services. It is a complex, context-specific, and rapidly changing global problem that varies across time, place and vaccines [7].

Due to the complex nature of vaccine hesitancy, there is no single intervention strategy that can address all instances of vaccine hesitancy [8,9]. Dealing with vaccine hesitancy within a country and/or a population subgroup requires at first an understanding of the magnitude and setting of the problem and a diagnosis of its root causes. This is followed by the identification and tailoring of evidence-based strategies to address the root causes, and a subsequent evaluation to determine the impact of the interventions and monitoring whether vaccine acceptance has improved. Finally an ongoing surveillance should be maintained to watch for possible recurrence of the problem [10,11]. To help understanding the nature and roots of the hesitancy, the Working Group developed a matrix which describes the many determinants of vaccine hesitancy [7]. This information should be widely disseminated to help the public health community, organizations and countries to deal with the hesitancy challenge.

From a practical standpoint, it is important to understand that vaccine hesitancy can be linked to several co-existing factors. For instance, when vaccine uptake is sub-optimal, concerns about vaccine safety may be one discouraging factor in a setting where there is also a problem of access to the available services; in such a situation the first priority of the immunization programme would be to improve access to vaccination services [7].

3. Capacity to address hesitancy should be built up at global, regional and country level

SAGE felt that WHO should develop core capabilities at its headquarters and the regional level for gaining behavioural insights that could be applied to hesitancy [10,11]. This would require the integrated skills and knowledge of sociologists, behavioural psychologists, anthropologists, experts in social marketing and communication as well as specific disease experts. Addressing the necessary behaviour change to overcome vaccine hesitancy is similar to the behaviour change needed to address other complex communicable and noncommunicable disease problems such as poor population compliance with the diagnosis and management of chronic diseases such as hypertension, diabetes, and sexually transmitted infections. Cross-linkages between specific WHO programmes should be strengthened as hesitancy is a cross-cutting concept which concerns various immunization-related fields.

WHO should also engage partners, including civil society organizations, at the global, regional and country levels, to mobilize in support of immunization and to combat vaccine hesitancy. The landscape of organizations active in the field of vaccine hesitancy, delineated by the Working Group, needs to be maintained and updated as a resource to facilitate collaboration in global networks of researchers and stakeholders working on vaccine hesitancy [12].

Given its vast experience in the field of polio with expertise in civil society organization, communications and behavioural change, UNICEF is encouraged to continue the work with member states and strengthen competencies in the field of vaccine hesitancy. Experiences from low income countries receive most attention, but the lessons learnt that apply to vaccine hesitancy more broadly need to be shared with high and middle income countries. A notable example is the experience gained in a tackling hesitancy in relation to polio vaccination [11,12].

Creation of an organizational structure, by both WHO and UNICEF, to address and coordinate vaccine hesitancy and demand issues at their headquarters level, would facilitate a coordinated cross-cutting approach to counteracting vaccine hesitancy globally, by building regional capacity to support countries in dealing with vaccine hesitancy. Regional and country immunization advisory committees should give consideration to vaccine hesitancy issues and assist with dissemination of the products developed by the Working Group [12].

WHO member states are encouraged to incorporate a plan to measure [13] and address vaccine hesitancy into their country’s immunization programme as part of good programme practices. Health-care workers should be educated and trained to deal with vaccine hesitancy in patients and parents. Negative attitudes of health-care workers towards vaccination strongly influence their patients and potential vaccine recipients, and vaccine hesitant behaviours among health-care workers need to be addressed. It is also important to ensure education on vaccines and immunization in general, and concerning vaccine-hesitant individuals in particular, by inclusion of appropriate training in the curricula of nursing, medical and other health-care students. The Working Group also noted that ensuring education of younger individuals about vaccines provides good opportunities to shape their beliefs and behaviour in the future [11].

4. Sharing best practices and implementing new tools to deal with vaccine hesitancy

Vaccine hesitancy is an emerging phenomenon, and many tools to deal effectively with it are still in the development phase. Only a few programmes and measures have been shown to be effective in decreasing vaccine hesitancy in specific populations where hesitancy has been found [8–11]. Identifying the determinants in the hesitant subgroup and then tailoring the intervention to fit the subgroup, setting and local resources is essential, as outcomes are affected by many local factors related to the given contexts, vaccines and populations. From acknowledging this basic principle, it becomes evident that regular updating and dissemination of best practices and lessons learnt should be facilitated. This includes regular synthesis, review and sharing of best practices for vaccine hesitancy monitoring, intervention, and prevention, as well as promoting training and making research findings available globally and regionally.

SAGE encouraged the public health community to work together to develop, validate and promote the use of tools to address vaccine hesitancy, including tools for monitoring, diagnosis, intervention, evaluation of impact, cost, and community acceptability. This should be done in different settings and subpopulations in high, middle, and low income countries, by creating or using opportunities for community input into vaccine hesitancy strategies to ensure that they are acceptable to the local population [12].
One potentially useful tool to address vaccine hesitancy is the Tailoring Immunization Programmes (TIP) model, developed by WHO/EURO [10], which should be validated in different population groups and regions, and subsequently adapted to be used globally. Necessary support for training the trainers should be provided. Countries should be supported in using TIP, and sharing their experiences of its effectiveness with monitoring and evaluation of outcomes, especially in low and middle income countries.

The review of intervention strategies [9] highlighted a number of effective measures for improving vaccine uptake, including measures to counteract hesitancy. Although more work is needed, immunization programmes should move ahead with incorporating the measures that fit their setting and resources in order to maintain or increase vaccination rates.

Integration of health prevention and intervention services with other health and non-health related initiatives has met with considerable success and needs to be applied more widely [6]. Vaccination at both the individual and community levels should be included in such integrated services, which would help in overcoming hesitancy due to complacency and convenience factors.

5. Encourage and support research on vaccine hesitancy

As an emerging, complex, and evolving public health problem, further research is needed on vaccine hesitancy, including its prevalence, determinants, effective intervention strategies, prevention, recrudescence and early intervention, especially in low and middle income countries, but also in high income countries. Furthermore, research needs to be expanded to study factors at the individual level, but also at the community, contextual, and organizational levels.

One of the main difficulties identified by the Working Group was the lack of validated and standardized tools to assess and monitor vaccine hesitancy rates and underlying hesitancy determinants across settings and between population groups, and for monitoring trends over time [13]. A list of general hesitancy survey questions was developed by the Working Group but these need to be validated in different countries, as well as tested in different health-care systems, socio-cultural contexts, and vaccine programmes, at the national, sub-national and local subgroup level. However, responses to these survey questions would need to be interpreted with caution.

Another difficulty identified was the lack of data on vaccine hesitancy levels in the populations where the interventions were tested. Special attention needs to be paid to differences and similarities between routine immunization programmes and mass vaccination campaigns in different settings and contexts [6].

A third challenge identified concerns the evaluation of interventions. Thus far most studies have not defined vaccine hesitancy in the study population and have only measured change in vaccine uptake, without assessing whether the intervention had any impact on hesitancy [9]. To avoid such a paucity of information, moving forward whenever strategies to address vaccine hesitancy are implemented, the population should be fully described, and a rigorous evaluation should be conducted of the impact of the intervention and its components on vaccine hesitancy as well as on vaccine acceptance.

It can be expected, as vaccine hesitancy evolves and new insights and information become available, that further research questions will continue to arise. The research portfolio therefore needs to be expanded to encompass the multiple facets of this phenomenon at individual, community, and contextual levels in a multi-disciplinary effort to reduce vaccine hesitancy and ensure that satisfactory levels of vaccine uptake are achieved and sustained in the future.

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Some of the authors are World Health Organization staff members. The opinions expressed in this article are those of the authors and do not necessarily represent the decisions, official policy or opinions of the World Health Organization.

Appendix. SAGE Working Group on Vaccine Hesitancy

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References