

Vaccine Hesitancy Survey Questions Related to SAGE Vaccine Hesitancy Matrix

Examples of survey questions designed to assess determinants of vaccine hesitancy

Vaccine hesitancy is an emerging term in the literature and discourse on vaccine decision-making and determinants of vaccine acceptance.ⁱ To date various surveys have been developed to assess individual attitudes as well as concerns around the risks and benefits immunization^{ii,iii,iv,v,vi,vii} yet few surveys are available to specifically assess or measure the prevalence or degree of vaccine hesitancy in a population^{viii,ix}. Even less surveys have been validated^{x,xi}. In addition the majority of available surveys has been conducted in high income countries and predominately focuses on identifying vaccine hesitancy at the individual level only and not its underlying determinants.

A universally validated compendium of survey questions is needed to identify vaccine hesitant populations and the drivers of their reluctance at the global, national or subnational level, in order to tailor targeted interventions aiming at increasing vaccine acceptance and ultimately immunization rates. A standardized compendium of survey questions would further ensure intra- and intercountry comparison of the determinants leading to vaccine hesitancy.

The SAGE Working Group on Vaccine Hesitancy^{xii} defined the term Vaccine Hesitancy:

“Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccine service. Vaccine hesitancy is complex and context specific varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence.”

In addition the Working Group developed a model of determinants of vaccine hesitancy, based on a systematic review of literatureⁱ and interviews with immunization managers, which categorized drivers into contextual influences, individual and group influences and vaccine or vaccination specific issues^{xiii}. The model of determinants was seen as a useful tool to guide the selection of survey questions sensitive and specific to vaccine hesitancy in order to provide information not only on the overall prevalence of vaccine hesitancy but also its underlying determinants.

The Working Group developed de-novo survey questions tailored to the specific determinant. In addition, survey questions^x from a validated parental assessment instrument of vaccine hesitancy were categorized to fit the specific determinants.

The working group notes that these example survey questions represent a range of questions to draw from which could be considered based on the circumstances and context. The list of example survey questions can be found in the Table A5.3 .1, Table A5.3.1 and Table A5.3.2 below. Questions highlighted in ***italics bold***, are question within the 18 item-containing validated Parent Attitudes about Childhood Vaccines (PACV) survey to assess vaccine hesitant parents in the US^x. Factor analysis was used to confirm survey sub-domains and Cronbach's α to determine the internal consistency reliability of sub-domain scales. Construct validity was assessed by linking parental responses to their child's immunization record^{xi}.

The listed example questions are not intended to all be used within one questionnaire but rather present a set of questions to be considered and chosen from based on the individual needs. The Working Group acknowledges that the survey question selection needs to fit the context they are used in. Construct and content validity to assess the individual determinant of vaccine hesitancy of this survey question compendium needs to be assessed. To further ensure that the objective of the compendium is met, the assessment of vaccine hesitancy and its determinants within various settings covering all levels income, pilot-testing of these survey questions needs to be ensured in low-, middle and high-income countries^{xiv} within all 6 WHO regions^{xv}. Particular attention needs to be given to ensuring validity when translating the compendium to languages other than English. Based on the results of this pilot-testing, questions may need to be added or altered.

Table A5.3 .1: Survey questions to assess contextual influences of vaccine hesitancy

CONTEXTUAL INFLUENCES						
Influences arising due to historic, socio-cultural, environmental, health system/institutional, economic or political factors						
a. Communication and media environment	b. Influential leaders, gatekeepers and anti- or pro-vaccination lobbies	c. Historical influences	d. Religion/culture/gender/ socio-economic	e. Politics/policies (Mandates)	f. Geographic barriers	g. Pharmaceutical industry
<i>Media and social media can create a negative or positive vaccine sentiment and can provide a platform for lobbies and key opinion leaders to influence others; social media allows users to freely voice opinions and experiences and it can facilitate the organization of social networks for or against vaccines.</i>	<i>Community leaders and influencers, including religious leaders in some settings, celebrities in others, can all have a significant influence on vaccine acceptance or hesitancy.</i>	<i>Negative historic influences such as the Trovan trial/ Wakefield MMR-autism scare can undermine public trust and influence vaccine acceptance, especially when combined with pressures of influential leader/media. Community experience isn't necessarily limited to vaccination but may affect it.</i>	<i>A few examples of the interplay of religious/cultural influences include: Some religious leaders prohibit vaccines Some cultures do not want men vaccinating children Some cultures value boys over girls and fathers don't allow children to be vaccinated).</i>	<i>Vaccine mandates can provoke vaccine hesitancy not necessarily because of safety or other concerns, but due to resistance to the notion of forced vaccination</i>	<i>A population can have general confidence in a vaccine and health service, and be motivated to receive a vaccine but hesitate as the health center is too far away or access is difficult.</i>	<i>Industry may be distrusted and influence vaccine hesitancy when perceived as driven only by financial motives and not in public health interest; This can extend to distrust in government when perceived that they are also being pushed by industry and not transparent.</i>
Who do you trust the most for information? Who do you trust the least?	Some groups or leaders do not agree to vaccination for different reasons. In general, do you agree or disagree with these groups?	Do you remember any events in the past that would discourage you from getting a vaccine(s) for yourself or your children?	Do you know anyone who does not take a vaccine because of religious or cultural reasons? Do you agree or disagree with these persons? Do you think they are risking their health or the health of their child if they do not take a vaccine?	Do you trust (or distrust) that your government is making decisions in your best interest with respect to what vaccines are provided?	Has distance, timing of clinic, time needed to get to clinic or wait at clinic and/or costs in getting to clinic prevented you from getting your child immunized?	Do you believe the vaccine producers are interested in your health?
Have reports you heard/read in the media/ on social media made you re-consider the choice to have your child vaccinated?	Do leaders (religious, political, teachers, health care workers) in your community support vaccines for infants and children?	Can you name an event in the past that diminished your trust in vaccination?	Does your religion/ philosophy/ culture recommend against (a certain) vaccination? If so, which/all vaccines? What is the reason?	Did you ever disagree with the choice of vaccine or vaccination recommendation provided by your government?	The time/cost/effort of traveling to the doctor/health post/ clinic with young children is not worth for receiving vaccination only?	Do you think governments are "pushed" by lobbyists or industry to recommend certain vaccines?

Do you share information related to vaccination within your social media network? What type of information?	Would it trigger doubts to have your child vaccinated, if a celebrity advocates against (a certain) vaccine?	Has your community ever felt the need to urgently introduce a new vaccine?	What do you consider more important- vaccination of boys or vaccination of girls? Why?	I'm convinced that my government purchases the highest quality vaccines available.	What is the maximum amount of time you would be able or willing to spend to get a vaccine for yourself or your children?	Do you trust pharmaceutical companies to provide safe and effective vaccines?
Do you recall a vaccine that was positively debated in the media? If so, which one and would you still want this vaccine for yourself/ your child?	Has your imam/priest/ rabbi ever advocated against vaccination? Did you follow this advice?	Has your community in the past refused to accept certain vaccines? Which vaccine(s) and why?	Have you ever refused a vaccine as you considered it to include porcine or other animal derived ingredients (non-halal, non-kosher)?	Did you ever have the impression your government/health care provider did not provide you with the best vaccine on the market?	If you have to spend more than one hour getting a vaccine, is it important enough to travel for it?	
Do you believe in reports in the media by parents claiming to have lost a child to a vaccine preventable disease? Does this affect your decision to vaccinate your child?			Would you refuse a vaccine for you/your child if the vaccinator was male/female or from a different ethnic background/religion than yourself?	<i>The only reason I have my child get shots is so they can enter daycare or school.</i>	Has your life-style (nomadic/ located in different places throughout the course of the year) ever prevented you to receive a vaccine for yourself/your child?	
				Does your child's daycare/ school require/ advice to have your children vaccinated? Do you agree?		

Table A5.3.1: Survey questions to assess individual and group influences of vaccine hesitancy

INDIVIDUAL and GROUP INFLUENCES					
Influences arising from personal perception of the vaccine or influences of the social/peer environment					
a. Experience with past vaccination	b. Beliefs, attitudes about health and prevention	c. Knowledge/awareness	d. Health system and providers-trust and personal experience.	e. Risk/benefit (perceived, heuristic)	f. Immunisation as a social norm vs. not needed/harmful
<i>Past negative or positive experience with a particular vaccination can influence hesitancy or willingness to vaccinate. Knowledge of someone who suffered from a VPD due to non-vaccination may enhance vaccine acceptance. Personal experience or knowledge of someone who experienced an AEFI (adverse event following immunization) can also influence hesitancy.</i>	<i>Vaccine hesitancy can result from 1) beliefs that vaccine preventable diseases (VPD) are needed to build immunity (and that vaccines destroy important natural immunity) or 2) beliefs that other behaviors (breastfeeding, traditional/alternative medicine or naturopathy) are as or more important than vaccination to maintain health and prevent VPDs.</i>	<i>Decisions to vaccinate or not are influenced by a number of the factors addressed here, including level of knowledge and awareness. Vaccine acceptance or hesitancy can be affected by whether an individual or group has accurate knowledge, a lack of awareness due to no information, or misperceptions due to misinformation. Accurate knowledge alone is not enough to ensure vaccine acceptance, and misperceptions may cause hesitancy, but still result in vaccine acceptance.</i>	<i>Trust or distrust in government or authorities in general, can affect trust in vaccines and vaccination programmes delivered or mandated by the government. Past experiences that influence hesitancy can include system procedures that were too long or complex, or personal interactions were difficult.</i>	<i>Perceptions of risk as well as perceptions of lack of risk can affect vaccine acceptance. Complacency sets in when the perception of disease risk is low and little felt need for vaccination. E.g. Patient's or caregiver's perceptions of their own or their children's risk of the natural disease or caregivers' perceptions of how serious or life threatening the VPD is.</i>	<i>Vaccine acceptance or hesitancy is influenced by peer group and social norms</i>
Have you ever not accepted a vaccination for your child? What was the reason?	Can you tell me what a vaccine is? What does it do to the body?	Do you feel that you know which vaccines you should get for yourself? Your children?	Information on side-effects following immunization is discussed openly by the authorities.	<i>How concerned are you that any one of the childhood shots might not be safe?</i>	I agree that it is important for everyone to get the recommended vaccines for themselves and their children.
Most children tolerate vaccination very well.	<i>It is my role as a parent to question shots.</i>	Do the vaccinators in door-to-door or mass immunization campaigns provide you with sufficient information to address your concerns around vaccination?	Have you ever felt healthcare professional, government, local authorities are pushing you into a vaccination decision you did not fully support? Why?	Do you think vaccines are still needed even when the disease is no longer prevalent?	Do you think that most parents like you have their children vaccinated with all the recommended vaccines?
Have you or someone you know ever had a bad reaction to a vaccine which made you reconsider getting vaccines?	Do you think it is possible to have received too many vaccines at one time?	Did you ever inform yourself on a certain vaccine and then decide against it/delay receiving it? If so, why, which vaccine and what resources did you use?	Does having the same provider give all the infant vaccines make you more likely to accept vaccines than having a different provider each time vaccines are due?	<i>I believe that many of the illnesses shots prevent are severe.</i>	Do you think it's important to get a vaccine to protect those that cannot get vaccinated?

Do you know of a child with a serious disease/ disability because they were not vaccinated?	Do you think vaccines overload the immune system?	Do you feel you get enough information about vaccines and their safety?	<i>I am able to openly discuss my concerns about shots with my child's doctor.</i>	How concerned are you that your child might have a serious side effect from a shot? ^x	Do the mothers/fathers in your community/ circle of friends have their child vaccinated? Do you have your child vaccinated? Why?
<i>Do you know of anyone who has had a bad reaction to a shot?</i>	<i>It is better for my child to develop immunity by getting sick than to get a shot.</i>	Would you prefer to receive more information on vaccination at your health center? Do you think this would change your choice in favor of a vaccine?	<i>I trust the information I receive about shots.</i>	<i>How concerned are you that a shot might not prevent the disease?</i>	Do you believe that if you vaccinate your child, others are protected as well?
Have you heard of anyone who was disabled after receiving a vaccine? Did this make you reconsider your choice to get yourself/ your child vaccinated?	Do you believe that there are other (better) ways to prevent diseases which can be prevented by a vaccine?	My health professional/HCW's provides me with all the information I need to my questions on immunization.	Do you feel that your health care provider cares about what is best for your child?	Measles/polio/diphtheria is not common where I live. That's why I decided against the vaccine.	Are you worried that some mothers in your community are delaying or refusing vaccines, putting your infant at risk for these diseases e.g. pertussis ?
Do experiences with pain with past immunization prevent you or your child from being immunized?	Do you believe that it is better for the child to start to receive them only when over one year of age? Do you believe that shots are given to babies when they too young?	Do you consider that some vaccines are more important than other? Which vaccine(s) and why?		Do you believe that vaccines are still needed when diseases are rare?	

Table A5.3.2: Survey questions to assess vaccine/vaccination specific issues of vaccine hesitancy

VACCINE/ VACCINATION -specific issues							
Directly related to vaccine or vaccination							
a. Risk/ Benefit (scientific evidence)	b. Introduction of a new vaccine or new formulation	c. Mode of administration	d. Design of vaccination program/Mode of delivery	e. Reliability and/or source of vaccine supply	f. Vaccination schedule	g. Costs	h. Role of healthcare professionals
<i>Scientific evidence of risk/benefit and history of safety issues can prompt individuals to hesitate, even when safety issues have been clarified and/or addressed e.g. suspension of rotavirus vaccine due to intussusception; Guillain-Barre syndrome following swine flu vaccine (1976) or narcolepsy (2011) following (A)H1N1 vaccination; milder, local adverse events can also provoke hesitancy.</i>	<i>Individuals may hesitate to accept a new vaccine when they feel it has not been used/tested for long enough or feel that the new vaccine is not needed, or do not see the direct impact of the vaccine (e.g. HPV vaccine preventing cervical cancer). Individuals may be more willing (i.e. not complacent) to accept a new vaccine if perception of the VPD risk is high.</i>	<i>Mode of administration can influence vaccine hesitancy for different reasons. E.g. oral or nasal administrations are more convenient and may be accepted by those who find injections fearful or they do not have confidence in the health workers skills or devices used.</i>	<i>Delivery mode can affect vaccine hesitancy in multiple ways. Some parents may not have confidence in a vaccinator coming house-to-house; or a campaign approach driven by the government. Alternatively if a health center is too far or the hours are inconvenient</i>	<i>Individuals may hesitate if they do not have confidence in the system's ability to provide vaccine(s) or might not have confidence in the source of the supply (e.g. if produced in a country/culture the individual is suspicious of); HCWs may also be hesitant to administer a vaccine (especially a new one) if they do not have confidence that the supply will continue as it affects their clients trust in them. Caregivers may not have confidence that a needed vaccine and/or health staff will be at the health facility if they go there.</i>	<i>Although there may be an appreciation for the importance of preventing individual vaccine preventable diseases, there may be reluctance to comply with the recommended schedule (e.g. multiple vaccines or age of vaccination). Vaccination schedules have some flexibility that may allow for slight adjustment to meet individual needs and preferences. While this may alleviate hesitancy issues, accommodating individual demands are not feasible at a population level.</i>	<i>An individual may have confidence in a vaccine's safety and the system that delivers it, be motivated to vaccinate, but not be able to afford the vaccine or the costs associated with getting themselves and their child(ren) to the immunization point. Alternatively, the value of the vaccine might be diminished if provided for free.</i>	<i>Health care professionals are important role models for their patients; if they hesitate for any reason (e.g. due to lack of confidence in a vaccine's safety or need) it can influence their clients' willingness to vaccinate</i>
Do you believe vaccines are safe for yourself? Your child/children? For those in your community?	What is the first thing you want to know when a new vaccine is introduced or announced? Would you rather wait and see what other	Is there any mode of vaccination you would not want?	Is the vaccination process welcoming? Are there any things that could be done to make it easier for you to get vaccines (on time) for yourself or	Do you feel confident that the health center or doctor's office will have the vaccine you need, when you need them?	Are there any vaccines that are difficult for you to get because of the schedule?	Would the cost of a vaccine prevent you from getting it, even if you felt you or your child needed it?	Did healthcare professionals ever treat you without respect (e.g. in regard to your appearance, education or cultural background) that you will hesitate to

	people do?		your children?				return to the healthcare facility?
Me or my child never experienced severe adverse reactions following immunization. experience an AEFI and	I consider rotavirus vaccine/ HPV vaccine/ meningococcal vaccine/ pentavalent vaccine to be safe.	Do you fear the pain/ to you/your child or fear the needles when receiving a vaccine make you hesitate be to immunized?	Would you rather receive a vaccine as conveniently as possible or with as much medical consultation as possible? Why?	Did you ever not return to a health center/ your doctor after not receiving the vaccine during an initial visit? What were the reasons why you did not receive the vaccine initially?	How sure are you that following the recommended shot schedule is a good idea for your child?	Which medication do you consider more effective- the free-of-charge drugs provided at your health care center/doctor/ by your government or the ones you need to pay for yourself? Why?	Did you choose your doctors based on their willingness to alter or delay the vaccination schedule according to your requests?
Do you consider some vaccine products preventing a disease (influenza-LAIV or standard/ measles (M only or MMR) safer than others?	Do you feel your child to be at risk of diarrhea/ cervical cancer? Do you think a vaccine is needed to prevent these diseases?	Has pain following immunization ever made you reconsider to have yourself/ your child vaccinated?	What would you prefer for yourself/your child: Receive a vaccine at your health center/ from your doctor or from door-to-door vaccinators/ during mass vaccination campaigns/ school-based programs? Why?	Have you ever been sent home from the health center/ doctor's office due to lack of vaccine? If so, did you go again to try and receive it?	If you had another infant today, would you want him/her to get all the recommended shots?	Do you consider all important vaccines provided/ covered by your health insurance/ health care plan/ health care provider? Would you pay for additional vaccines yourself?	Has your healthcare provider ever advised you that a certain vaccine was not necessary or had too many side effects? Which one?
Before administering the vaccine, my health care worker (HCW) always provided me with enough information on the side-effects that might follow.	New vaccines are not trialed to the same rigorous standard as any normally prescribed drug?	Would you be willing to accept more vaccines for yourself/ your child if there was no pain involved?	Would you let your child get vaccinated within a school-based immunization program? If yes, what are the advantages?	At your health center, did you ever not receive a vaccine as the HCW indicated there were too few people to start vaccinating?	Children get more shots than are good for them.	I wouldn't mind taking time off from work to make sure my child gets vaccinated?	Was your doctor ever reluctant to administer a vaccine you wanted for yourself/ your child? Which vaccine and why?
	Have you ever delayed vaccinating your child with a newly introduced/ recommended vaccine? Why?	Do you trust your HCW to safely administer the vaccine to you/ your child?	Did you ever refrain from having yourself/ your child vaccinated during a mass immunization campaign? Why?	Did you ever decide against a vaccine as it was produced by a manufacturer you did not trust? Do you believe vaccines made in Europe or America are safer than those made in middle income countries?	It is better for children to get fewer vaccines at the same time.	Would you be willing to pay for a vaccine privately? If so, for which ones?	Do you trust the door-to-door vaccinators?

References for Example Survey Questions on Vaccine Hesitancy

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- ^{xiv} World Bank, country level of income: <http://data.worldbank.org/about/country-and-lending-groups> , accessed January 2016
- ^{xv} WHO regions: <http://www.who.int/about/regions/en/>, accessed January 2016