



Vaccine

journal homepage: www.elsevier.com/locate/vaccine



Commentary

Vaccine hesitancy: A vade mecum v1.0

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ARTICLE INFO

Article history:

Received 9 October 2015
 Received in revised form
 11 December 2015
 Accepted 21 December 2015
 Available online 15 January 2016

Keywords:

Vaccine hesitancy
 Vaccine acceptance
 Vaccination hesitancy
 Vaccine uptake
 Risk communication
 Health communication

The recent flurry of publications from the WHO SAGE Working Group on the growing challenge of vaccine hesitancy provides some important insights into this often misunderstood phenomenon [1]. An important caveat is that vaccine hesitancy is not a growing menace, it has been a constant and steady threat to immunization programs since Jenner first started inoculating people from cowpox blisters. At present, immunization rates of children in most countries are stable or even increasing [2], but clustering of under-vaccinated individuals may increase the risk of disease outbreaks.

The first insight is that the problem lies mainly with the hesitancy of people to vaccinate, and not with vaccine refusers who represent a very small, albeit often outspoken, minority [3]. Secondly, vaccine hesitancy is a complex and fluid challenge with myriad possible demographic or socio-psychological root causes, which change with context and over time [4,5]. There is no quick and easy fix. Thirdly, educating people alone has little or no impact on vaccine hesitancy [6–8]. Thus, research and development, of equivalent rigor to that done to develop vaccines and vaccination programs, is needed to develop the tools to monitor vaccine hesitancy, to understand the root causes of hesitancy in each context, to tailor solutions accordingly, and to measure impact of interventions [4,9]. Finally, consistent with a large body of research, the

WHO confirms the important position of healthcare professionals (HCPs) as the cornerstone of public acceptance of vaccination.

To these WHO recommendations we add two fundamental considerations that have emerged from our research. First, hesitancy must be viewed in context. Even where vaccination refusal is suspected, hesitancy is often not the primary cause of incomplete immunization [10,11]. The root causes of suboptimal vaccination coverage may be due to challenges to Access, Affordability, Awareness, Acceptance (hesitancy) or Activation (5As taxonomy) [12,13]. Second, the foundation of vaccination acceptance is public trust; trust in vaccines and vaccine producers, in the healthcare profession and the government [14].

The evidence base on effective interventions is still incomplete and further rigorous research and development is needed to fill the gaps [9]. However, there is a need to act now. Here, we draw upon the existing evidence to propose some practical recommendations for HCPs (Table 1) and Public Health professionals to effectively address vaccine hesitancy, with the caveat that all of these recommendations should be further tested for efficacy upon vaccination attitudes, intentions and behaviors.

1. What can immunization partners do here and now?

Accountability should be taken by governments for the immunization rates in every program, but then all partners (national immunization programs, public health departments, academia, HCPs, manufacturers, Civil Society Organizations, global agencies,

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development partners, private sector) should mobilize and collaborate to ensure the sustained success of immunization programs [15]. Partners can start with three shared objectives: (i) communicate proactively on immunization, (ii) prepare for issues that may arise, and (iii) understand the challenge better through existing and future research.

1.1. Remind the public why we vaccinate

Emphasize the positive; how vaccination protects people and keeps them healthy. Reinforce the social norm of vaccination, as people will do what they think everyone else is doing [16]. But do not try to scare people, as fear can backfire [17]. Acknowledge that vaccines may commonly have mild side effects and very rarely may cause serious adverse reactions; this may actually lower perceived risk [18]. Rigorous monitoring of vaccine safety is often poorly communicated to the public. Whilst it should be reassuring, it is often misinterpreted when correlation is confused with causation. Have trustworthy alternative voices join the conversation as well: HCPs, parents, Civil Society Organizations, and community leaders.

1.2. Proactively engage with the news media

Take the story to the press. Give them the information, stories, and answers they need to write about vaccines or possible emerging issues. Provide them with independent science commentary [19]. Vaccination-related issues have been fueled by media sensationalism and by poor journalism that gives 'false balance' in which, for example, anecdotal stories are presented as the counterbalance for strong scientific evidence [20]. Help journalists understand the risks of this approach for public health where the scientific evidence is overwhelmingly in favor of vaccination (or other public health measures).

1.3. Proactively engage in social media

Effective engagement in social media requires content and reach. Every country should have a trusted hub of resonant, trustworthy information, answers, stories, and videos that is the reference for the public when they have questions about vaccination. The European website Vaccines Today is a good model for such an online reference [21]. Reach comes through effective social media strategies that share content in multiple channels and develop and connect positive voices online.

1.4. Monitor the vaccination conversation and acceptance

The ongoing public conversation on vaccination in mainstream and social media can be monitored with tools such as the open-access Vaccine Sentimeter [22]. Routine monitoring of the current topics, sentiment, questions and issues could help immunization programs to: (i) better understand and address public concerns, (ii) rapidly identify, analyze and respond to emerging controversies, and (iii) measure impact of vaccination campaigns.

1.5. Be prepared for vaccine-related issues

Plan to be able to listen to and understand an emerging public concern, know who will respond and where they will engage with the media and the public, prepare for an ongoing conversation not just distribution of short statements and fact sheets. Governments make risk communication plans for other threats, they should do likewise for vaccination programs [23]. Trust is the bedrock of vaccination acceptance; be transparent and honest, and have the trusted alternative voices ready to speak as well. Belgium managed the H1N1 pandemic by following key risk management

principles including ongoing regular engagement with the media, plain language, empathy and listening to the public [24].

1.6. Invest in research, capacity building, monitoring and evaluation of immunization programs

Research agencies and governments should begin to fund rigorous research into understanding and addressing vaccine hesitancy, and support the development of effective monitoring and evaluation approaches [9]. Regional and national immunization advisory groups should add vaccine hesitancy to their remit [4].

1.7. Empower, equip and galvanize HCPs

HCPs are the cornerstone of public acceptance of vaccination. They need to know this, to be valued for this, and to be equipped to help people make healthy decisions like vaccinating.

2. What can a healthcare provider do here and now?

2.1. Understand the importance of your recommendation and example

People trust HCPs more than any other voice on vaccination. A recommendation from a HCP is consistently cited a primary reason for vaccination [5,25]. Establish rapport (look at the person, not the computer) and positive common ground (*It's great to see Jo in good form*).

2.2. Present vaccination as the default

Take a firm presumptive approach, but avoid being paternalistic or dismissive [26]. Start with a statement that assumes vaccination will occur (*Today we are going to give Jo her shots to keep her fit and healthy*), not a question (*Do you have any questions about today's vaccines?*). If no concerns arise, vaccinate and congratulate (*Well done, together we've helped protect Jo against some pretty nasty diseases*). This reinforces the norm of vaccination, and leaves the person with a positive final recollection. Set an appointment for the next shots right away, and send a reminder close to the date [27].

2.3. Alert the patient to possible local reactions

Science clearly distinguishes between local reactions and very rare serious adverse events following immunization (AEFI), but people often do not see the difference. Prepare the person to identify, manage, and appreciate local reactions or mild fever (*It shows the vaccine is working*), so there are no surprises or unnecessary anxiety. If a parent reports that their child has already experienced an AEFI, they may be more concerned about safety [28].

2.4. Address one concern

If a concern is raised, listen to it. Let the person finish; physicians interrupted within 23 s on average in one study [29]. You do not have to acknowledge the validity of the actual concern, but you should acknowledge the person's right to have a question. Say something positive about the person. Affirmation increases the chance someone will accept correct information (*I can see you are a caring parent who wants to do everything keep Jo healthy and safe.*) [30]. Respond with a simple, resonant and, if possible, tested answer (*There is more formaldehyde in a pear than in all the vaccines a child receives*).

2.5. Beware of debunking myths

Just repeating a myth, even to refute it, can lead people to recall it as being true [31]. If you repeat “Vaccines don’t cause autism”, people may subsequently simply associate Vaccines and autism. Stating firmly that there is “no risk” will actually increase perception of vaccination risk [18]. Acknowledge the presence of a risk with vaccination (*just as there is a risk taking a bath, driving a car, in everything we do in life*), and describe briefly the known risks of vaccination; distinguish clearly between local reactions and severe and very rare events.

2.6. Use facts sparingly

Information and education alone do not change beliefs or behavior. Facts can polarize people, solidify their beliefs, and may actually backfire [32,33]. We all have a strong cognitive bias that leads us to favor information that confirms our beliefs and reject facts that contradict them (confirmation bias) [34]. It is easier to rationalize than to be rational. As Socrates said, logos (logic, facts) is necessary, but to convince people it must be delivered with pathos and ethos (credibility, authority).

2.7. Wield the double-edged sword of fear with care

Fear appeals may work [35] or they may backfire [17], but fear is certainly not sustainable. It is an unpleasant emotional state that evokes physiological arousal directed at reducing or displacing the fear. To have a positive effect, both the perceived threat and perceived self-efficacy must be high [36], and this is hard to achieve. Wield fear with great care. Or better still, focus on vulnerability and likelihood of infection [37].

2.8. Maintain your authority

State that through your research and clinical experience you are certain that vaccination is the right thing for the person. Remind the person that they trust you on all other matters regarding their child’s health. They should also trust you on this, because you are an expert and someone who wants the best for their child.

2.9. Have your own vaccination story

We understand our world through metaphors and narrative. Have your personal story. Something from your experience which illustrates why you vaccinate and why you recommend vaccination, that people can relate to. It might just be “*I am a parent as well, and my kids and I are fully vaccinated*”, or “*As a young man I had two tropical infections and was very sick for a long time. Now I do whatever I can to protect myself and my kids from becoming that sick.*”

Eula Biss understands the power of metaphor when she notes that vaccines produce natural immunity because they “*invite the immune system to produce its own protection.*” The antibodies that protect us are “*manufactured in the human body, not in factories.*” [38]. Try to then mix a bit of scientific data and your personal experience into “*storytelling with science*” [39].

2.10. If multiple concerns emerge, seek the underlying fears or beliefs

If a number of concerns are raised they may reflect a deeper issue. Stop and try to understand the underlying beliefs or fears. Try to understand why these issues got traction. Can you nest vaccination within their beliefs [40]? Can you frame the consequences of not vaccinating within their projected future, and make those consequences tangible, relevant, unsettling (*Jo may avoid infection*

Table 1

Talking vaccination: some rules of thumb.

Remember importance of your recommendation and example
Present vaccination as the default
Alert to local reactions
Address one concern
<i>But</i>
Listen first
Beware of debunking myths
Use facts sparingly
Be careful with fear
Maintain your authority
Have your own vaccination story
If multiple concerns, elicit underlying beliefs
Minimize pain of vaccine
Remain presumptive to the end

now, because everyone around her is vaccinated, but what if she were to catch measles or rubella as a young woman working in an NGO in Africa?)

Parents may be seeking an explanation for an idiopathic condition. Most diseases wrongly associated with vaccination (autism, multiple sclerosis, encephalopathies) are: idiopathic, hard to explain, have dreaded outcomes, are apparently increasing in incidence, and manifest contemporaneously with vaccination [41]. Acknowledge the difficulty of coping with a child with such a condition.

Trust is the bedrock of vaccination acceptance [14]. Crises of public confidence in vaccination often arise after other health crises that were mishandled by authorities (e.g., bovine spongiform encephalopathy in the UK) [41]. Remember that they probably still trust you, build on that [14].

Concerns around ingredients in vaccines may be rooted in a ‘natural’ worldview wherein ‘toxins’ everywhere threaten our health [38]. They may also be masking omission bias (*fear of causing harm by acting is greater than that by not acting*). Remind people that there is a real risk to doing nothing, especially if others in the community are also not vaccinating.

Someone who believes a conspiracy theory is probably using it to reduce the complexity of reality and contain uncertainty, and is more likely to believe additional conspiracy narratives [42]. Their belief may be underpinned by feelings of powerlessness, disillusionment and mistrust in authorities [43]. Concentrate on securing their trust, which may take more than one consultation.

2.11. It can’t hurt to minimize pain

You may be overestimating parental concerns related to multiple injections and pain in infants [44], but you can still do things to keep it to a minimum [45].

2.12. Remain presumptive to the end

A mind is a hard thing to change. Stay the course, continue to recommend at end of this discussion regardless of the outcome. Treat this encounter as part of an ongoing conversation with the person.

This practical guide is just a first version, to be developed and refined by further rigorous research on understanding and sustaining public trust in vaccination programs (Table 1).

Conflict of interest statement

AT and MW are employed by Sanofi Pasteur.

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