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Human Vaccines: Policy

Parents' vaccination concerns are about more than risk and benefit

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Introduction

Since the advent of mass vaccination programs, vaccines have saved countless lives, and they continue to play a critical role in protecting and preserving health at the population level. While the majority of public health and medical professionals considers vaccination to be a necessary tool for maintaining healthy and safe communities, it seems that this sentiment is not as deeply held among ordinary citizens, as reflected in declining vaccination rates over the past decade or so. In the US, geographic clusters of unvaccinated people have led to an increase in outbreaks of vaccine-preventable disease.^{1,2} In the UK, the measles-mumps-rubella (MMR) vaccination rate has dipped below the point of herd immunity, causing measles to become endemic once again in the UK.³

Research suggests that parents tend to have limited knowledge about vaccines and may be particularly vulnerable to the ever-increasing presence of anti-vaccination groups in public debates over vaccination.⁴ With this in mind, many in the public health and medical communities have argued for the need to disseminate more and better information about vaccines to parents. Certainly, making high-quality information easily accessible to members of the public should always be a priority for scientists, researchers, and physicians. It is unlikely, however, that more information will be sufficient to bridge the gap between lay and expert beliefs about vaccines. Converging evidence from multiple fields suggests that factual information is only one of many factors that influence individual risk perception and decision-making.⁵

In the specific case of vaccination, the experiences, values, beliefs, and social norms that people hold in relation to issues like parenting, medicine, and government coalesce into worldviews that filter incoming information.^{5,6} These filters, or schemas, help people to evaluate risks and make decisions, especially on issues about which they are not personally knowledgeable.⁷ When scientific information does not fit neatly into existing schemas, people tend to discount the science. As such,

science communication must be viewed as a process that entails a negotiation of meaning between science and the personal characteristics that are relevant to people.⁸

Schemas in vaccination decision-making

Schemas related to three particular issues—science, government, health—play an especially important role in shaping risk perception and decision-making regarding vaccination.

Science. One of the basic schemas that shapes public opinion on vaccinations is that regarding science, which includes attitudes toward scientists and the scientific establishment. Indeed, trust in science and scientists acts as a powerful schema for citizens who are constantly confronted with information on scientific topics that they know little about.⁹⁻¹² Scientists' independence and lack of vested interest are critical for maintaining public trust.^{9,12} The issue of trust has proven to be a particular sticking point in the public debate over vaccination safety and efficacy. Some citizens question whether scientists who argue for the safety of vaccinations might have ulterior motives, such as ties to pharmaceutical companies that produce vaccines.^{13,14} These concerns over scientific integrity are particularly interesting in light of the fact that Andrew Wakefield, the foremost proponent of the link between MMR receipt and autism, was found to have been developing his own vaccine at the same time that he was advocating against the use of the MMR 'triple jab.'

While there has always been a contingent of people that does not believe or trust the orthodox scientific view, this contingent of skeptics has likely grown in response to the suggestion by some scientists that parents who refuse to vaccinate their children are simply irrational.¹⁴ Members of the public, parents in particular, may see this as an unexpectedly judgmental position for a scientist to take, further supporting the idea that scientists have fundamentally compromised the integrity of the scientific enterprise by abandoning the traditional values of objectivity and impartiality. This distrust of the scientific enterprise may lead parents to seek out alternative sources of

information about vaccines, including anti-vaccination advocacy groups, and may result in vaccine skepticism.

Government. Due to the government's role in promoting vaccination and/or establishing vaccination requirements in many countries, schemas related to government are also likely to influence public decision-making regarding vaccination. Schemas about government and its role in citizens' lives take on similar forms to schemas about science—that is, citizens' conceptions of government range from positive notions of government as protector and caretaker to negative notions of government as mismanager and even intruder (e.g., government as "Big Brother"). For many who are unsure or skeptical of vaccines, it seems that a negative government schema has largely overshadowed any positive government schema.

In the UK, as the government continued to push for the regular vaccination of children at the height of the MMR-autism controversy, some citizens questioned the intentions behind the MMR immunization program. British citizens reported a distrust of government, based on speculations that the government was engaged in some kind of conspiracy.^{14,16} Previous experience with government mismanagement in the case of the bovine spongiform encephalopathy, or mad cow disease, epidemic no doubt reinforced this notion for many citizens.^{6,17} Many parents consider government involvement in vaccination mandates to be an intrusion into the everyday lives of ordinary citizens and an encroachment on individual civil liberties.^{1,6,18,19} They worry that government officials might be trying to cover up any vaccine-related adverse events in order to maintain the vaccination rates necessary to ensure herd immunity.^{1,14,17}

The specific juxtaposition of government representatives against anti-vaccination advocates further elicits a negative government schema. During the MMR-autism controversy, the chief medial officer in England refused to allow parents to administer the single vaccines for measles, mumps, and rubella to their children on the basis that they would be much less likely to complete the series of vaccinations if

the vaccines were given individually. The fact that Andrew Wakefield publicly supported the single vaccine solution at the same time that the chief medical officer stood against it provided further support for the notion that the British government was acting against citizens' best interests.¹⁷

Health. A third schema in vaccination decision-making is that of control over health. The degree to which people feel that they have control over health outcomes bears a strong relationship to their evaluations of various health risks. In North America and Western Europe, immunization programs have been so successful at reducing the rate of vaccine-preventable disease (VPD) that many citizens do not have any personal experience with VPD and have a hard time remembering ever hearing of any cases of VPD.^{15,20} The fact that cases of VPD are not visible enough for parents to consider these diseases to be a significant health risk seems to play a major role in their vaccination decisions. Several studies have found that parents who are skeptical of vaccinations are much less likely to consider vaccine-preventable diseases as serious health risks.^{13,21,22} Often these parents believe that vaccines actually pose a greater risk to their child's health than the diseases the vaccines are designed to prevent.²³

The low visibility of cases of VPD, coupled with highly visible media coverage of autism, seems to activate a schema of personal responsibility for health outcomes. Highly-publicized anti-vaccination campaigns, organized by groups like J.A.B.S. (Justice, Awareness, and Basic Support) in the UK and Generation Rescue in the US, make cases of autism particularly memorable by highlighting emotional stories about parents who have 'vaccine-damaged' children.¹⁴ Working from this schema of control over health outcomes, parents recognize that the course of autism is not easily managed or controlled. These parents do believe, however, that they have control over their children's exposure and response to VPDs. They believe that they can avoid increased risk for autism by refusing vaccinations for their children and they will simply deal with any cases of VPD that may result.¹⁵ In fact, many parents believe that homeopathic or alternative treatments and natural or holistic approaches to medicine will adequately protect their child's health.^{1,4,6,19,24}

Conclusions

While it may be tempting to portray parents who refuse vaccines as uncaring or irrational, this is certainly not true. Parents who refuse vaccines for their children are often well-educated and have conducted significant background research on the issue.¹⁹ They care very deeply about the well-being of their child and are willing to make difficult decisions on their child's behalf.¹ In the sense that these parents consider protecting their children to be their foremost responsibility, they can be viewed as behaving quite rationally.¹⁷ These parents very clearly weigh risks and benefits associated with vaccination; their analyses, however, are informed by values, experiences, and attitudes related to health and parenting that are not traditionally considered to be part of 'rational' decision-making.^{5,6,17}

It is critical that we understand how best to communicate with parents who are unsure about or skeptical of vaccination. Given the various factors that influence decision-making, scientific facts alone are unlikely to persuade these parents.²⁵ Research on cultural cognition suggests that when people have to make risk-related decisions, they trust the opinion of experts who share their cultural worldviews.²⁶ Thus, it is critical that parents receive accurate information about vaccines from the sources that they trust. Some parents may place considerable trust in online communities of vaccine skeptics, and it may be difficult for a physician or public health official to influence these parents. It is possible, however, that capitalizing on social networks in the local community may be an effective way to disseminate information and promote discussion about vaccines.²⁷ These social networks may include community-based organizations and groups, including religious and political groups and organizations for women, parents, and children. Because many vaccine-skeptical parents engage in alternative medicine practices, involving alternative medicine providers in public health alliances will no doubt enhance the persuasiveness and effectiveness of the communications efforts of such alliances.¹³

For parents who are conflicted or unsure about vaccines, the most influential messenger is likely to be the family physician. Parents routinely cite their physician as an important source of information about health and vaccines.¹³ Physicians can develop trusting, open

relationships with parents by providing a non-judgmental forum for parents to express their concerns and by taking into account parents' specific circumstances and backgrounds.^{1,24,28} Parents must feel that they are partners with their physician in protecting their child's health.¹⁹ While some physicians may ask parents who refuse vaccinations to seek medical care elsewhere,²⁹ this pressure may alienate some parents and make them even more resistant.^{6,24} By maintaining open lines of communication, physicians not only allow parents to continue receiving medical care for their child, they also allow for continued discussions that may lead parents to accept vaccines in a later visit.^{24,28,29}

Ultimately, it is clear that the traditional approach to risk communication—supplying citizens with scientific information about relative risks—is not effective when it comes to persuading parents who are skeptical or unsure about the benefits of vaccination. Efforts to communicate and disseminate information about vaccines must involve many diverse parties, including public health officials, scientists, parents, physicians, pharmaceutical representatives, advocacy groups, legal professionals, and members of the media (including those involved in online communities).³⁰ Rather than handing down scientific facts to the public, these communications efforts must center on deliberative discussions as a way to build trust and, hopefully, reach consensus. Communications that focus on information that is at once scientifically sound, personally compelling, and easy to understand have the greatest chance of effectively addressing parents' concerns.¹

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