

VACCINE HESITANCY SOURCEBOOK



American Academy
of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

New Jersey Chapter



New Jersey Immunization Network



Vaccine Hesitancy Sourcebook

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The New Jersey Immunization Network (NJIN) is a statewide coalition co-led by the New Jersey Chapter, American Academy of Pediatrics (NJAAP) and the New Jersey Academy of Family Physicians (NJAFP). The mission of the Network is to protect the health of all individuals through timely, age-appropriate immunization against vaccine-preventable diseases by educating the public, healthcare professionals and policy makers about vaccine safety and benefits. Visit our website at www.immunizenj.org.

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Adults 65 and Older **Need a Flu Shot**

FIGHT FLU



Information for adults 65 years and older

Influenza (the flu) can be a serious illness, especially for older adults.

FACT: *People 65 years and older are at high risk of serious flu complications.*

People's immune systems become weaker with age placing people 65 years and older at high risk of serious flu complications compared with young, healthy adults. During most seasons, people 65 years and older bear the greatest burden of severe flu disease. Between about 70 percent and 85 percent of seasonal flu-related deaths in the United States occur among people 65 years and older. And people 65 and older account for between about 50 percent and 70 percent of the flu-related hospitalizations.

An annual flu vaccine is the best way to reduce your risk of flu and its potentially serious consequences.

FACT: *While flu vaccine can vary in how well it works, vaccination is the best way to prevent flu and its potentially serious complications.*

Flu vaccination has been shown to reduce the risk of flu illness and more serious flu outcomes that can result in hospitalization or even death in older people. While some people who get vaccinated may still get sick, flu vaccination has been shown in several studies to reduce severity of illness in those people.

People **65 years and older** can get any flu shot approved for use in that age group with no preference for any one vaccine over others. There are regular-dose flu shots that are approved for use in people 65 and older and there are also two vaccines designed specifically for people 65 and older.

1. **A high dose flu vaccine** (Fluzone® High-Dose) contains 4 times the amount of antigen as a regular flu shot. The additional antigen creates a stronger immune response (more antibody) in the person getting vaccinated.
2. **An adjuvanted vaccine** (FLUAD™) is a standard dose flu vaccine with an adjuvant added. An adjuvant is an ingredient added to a vaccine to help create a stronger immune response to vaccination.



For more information, visit:
www.cdc.gov/flu
or call **1-800-CDC-INFO**



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention

Introduction

Lisa Lacarrubba, MD, NJIN Co-Chair

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New Jersey Immunization Network

Immunizing the public against vaccine preventable diseases has and continues to be a priority of public health services around the world. In NJ, the New Jersey Immunization Network, a collaborative of many interested individuals and organizations has been working hard at improving immunization rates in the state. The American Academy of Pediatrics and the Academy of Family Physicians have been at the forefront of advocacy for timely immunization of children and adults and their member physicians are the frontline force who make it happen. We would like to bring to the notice of everyone that cares about immunization rates that the year 2020 is more critical to our mission than ever before. In the year 2000, the United States reached a milestone of having no cases of Measles. Since then with the increase in vaccine hesitancy and misinformation in the community, we have experienced a number of outbreaks. Compounding the challenge, immunizations rates in children has dropped below the critical 70% this year due to the Covid-19 outbreak and its impact on primary care wellness visits.

As the success of childhood immunization programs has been realized worldwide, focus has grown to also include immunizations for adults. From meningococcus B to pneumococcus to herpes zoster, humanity has the opportunity to reduce diseases that impact children, teenagers, younger adults and older adults alike. The prototype is the influenza vaccine, which benefits everyone over the age of 6-months. Although we have a Healthy People 2020 target rate of 70% of adults over 18 to be immunized for influenza, the current rate is closer to 45%. This depicts a tremendous missed opportunity to impact health outcomes.

We would like to take this opportunity to provide readers with a review of information related to vaccines and practice related guidance to increase awareness amongst all public health advocates, including providers, of the importance of communication with caregivers and the tools to effectively advocate for immunizations and address the growing concerns of vaccine hesitancy. As we navigate the remainder of 2020, our collective hope is that we will emerge ready to implement a program of that can address the needs of the community in overcoming the significant decrease in immunization rates in our state. It is also important that we have in place system that can advocate for and provide infrastructure for a potential Corona Virus vaccine, when it becomes available. We hope you find the Vaccine Hesitancy SourceBook helpful in your efforts to advance immunization rates with your patient population.

Be well.

Disinformation Can Spread Like Wildfire and Take Root in the Minds of Caregivers

Amy Pisani, MS, Executive Director, Vaccinate Your Family
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As a parent you have so many decisions to make in order to keep your baby safe. The responsibility begins before you are handed your precious newborn and never truly ends. If you've ever had to shop for a car seat, you know there are dozens, if not hundreds, of options. All claim to be the safest for your baby and you, as a soon-to-be parent, are expected to research each seat. The stakes are high: If you make the wrong choice, it could be the difference between life and death for your infant in a car crash. You then have to make choices about cribs, baby carriers, strollers, and highchairs. Once you settle into nursing or bottle-feeding, it's time to start thinking about solid foods. Will you start solids at four, five or six months? Will you rely on pre-packaged foods, make your own, or try "baby led weaning?" Parenting today is an endless set of choices made more challenging than ever thanks to seemingly competing information on the internet and social media.

But suddenly there is one topic you are told you don't need to research: vaccines. Experts have carefully examined the safety and efficacy of each vaccine, both separately and when given together. They then develop an optimal schedule that ensures your child is protected as soon as possible from deadly vaccine-preventable diseases. For some parents, it comes as a relief. Finally! Experts who can take a decision off my plate, just like ensuring my baby sleeps on his or her back and sits rear-facing in the car.

But for others, it makes less sense. If you are expected to research every aspect of your baby's life, why are you not also expected to do your own research on vaccines?

Many parents end up asking at least a few questions about the need for vaccines or about their safety or efficacy. Given the pressure we put on parents to customize their children's early experiences, it shouldn't be surprising. The problem arises when parents and others turn to the internet and social media. It can be difficult to determine which sites and organizations constitute legitimate sources of science-based information. As a result, disinformation can spread like wildfire and begin to take root in the minds of parents who just want to do the best for their children.

The arrival of SARS-CoV-2, the virus that causes COVID-19, has served as a stark reminder of what an infectious disease can do without a vaccine to stop it. Unfortunately, disinformation about the virus, its origins, its "cures," and its potential vaccine has proven to be nearly as contagious as the disease itself. While many of us in the public health world had hoped this would help people understand the importance of immunization, it is now less clear whether concerns about COVID-19 will extend to other vaccine-preventable diseases.

It is also, however, an opportunity to educate. The development of a vaccine, or, hopefully, vaccines, against COVID-19 presents us with the chance to explain to the public how we know immunizations are safe and effective. In the past few years, it has been difficult to impress upon parents and the public the immense value of vaccines. The entire country is now intensely focused on the processes by which the U.S. develops, approves and then monitors the safety and effectiveness of a vaccine. We must seize this moment.

By addressing vaccine hesitancy and putting to rest both old and new rumors, we can not only save lives from COVID-19 but also prevent another family from losing a loved one to influenza, pneumococcal disease or meningococcal disease. We can halt the return of feared diseases such as measles, pertussis and diphtheria. We all have a role to play in dispelling disinformation but we need to get to work now.



To access a wide array of additional resources and information on addressing vaccine hesitancy visit: www.immunizenj.org.



Shots Heard Round the World

shotsheard.org

In 2020, and for the foreseeable future, it's not enough to have available, safe, and effective vaccines. While most people are still vaccine-accepting, a vocal minority of anti-vaccine voices is undermining public trust in vaccines. These individuals and organizations weaponize social media to influence parents and caregivers who have genuine questions or concerns about vaccines. Their voices, by design, have a chilling effect: they isolate, overwhelm, and terrorize into silence the most trusted voices on vaccines — health care providers (HCPs).

The mission of Shots Heard Round the World is to support, defend, and empower vaccine advocates. Our vision is a world in which everyone is a vaccine advocate.

Shots Heard Round the World engages a wide variety of national and global stakeholders, and provides strategic, evidence-based, battle-tested resources both to counter and to combat coordinated social media anti-vaccine attacks.

Shots Heard Round the World's Resources

Shots Heard has developed two key resource categories to combat Anti-Vaxx attacks:

Rapid-Response Digital Cavalry

When a health care provider or other vaccine advocate is the target of a coordinated anti-vaccine attack on social media, **Shots Heard's** rapid-response **Digital Cavalry** provides both protection and support. The Cavalry helps quell the attack, elevate the trusted voice, and embolden vaccine advocacy.

Anti-Anti-Vaxx Toolkit

The Anti-Anti-Vaxx Toolkit is a free, downloadable, regularly updated guide to prepare for, defend against, and clean up after weaponized social media attacks. To access and download **The Toolkit**, visit ShotsHeard.org

Vaccine Advocates Wanted! Get Involved Today

Become a vetted volunteer for the digital cavalry by sending an email to Join@ShotsHeard.org and completing the intake survey.

Alert **Shots Heard** about coordinated social media anti-vaxx attacks by sending a message to Alert@ShotsHeard.org

Shots Heard Round the World is growing rapidly, with members from all around the globe. We continue to promote best practices in vaccine advocacy both online and in the exam room, shift the public narrative about vaccines, and collaborate with top researchers in the field.

Your voice as a health care provider — both online and in-person — is critical to vaccine advocacy and to public health. With **Shots Heard**, you're never alone!

The Constitutionality of Vaccines Mandates

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For over a century, courts in the United States—both at the state and federal level—have upheld the constitutionality of school immunization mandates. This essay explains why school immunization mandates rest on solid constitutional ground even if they do not provide non-medical exemptions.

School immunization mandates existed in the United States since the 19th century.¹ In 1905, in the famous case of *Jacobson v. Massachusetts*, in which a pastor challenged a Cambridge ordinance mandating that adults be vaccinated or pay a criminal fine, the court ruled that individual rights may, in some circumstances, have to give way to the public good, and upheld the vaccine mandate.² Jacobson relied, in part, on the prevalence of school mandates, and pointed out that courts have repeatedly upheld them: the existence of school mandates was part of its analysis.³ Seventeen years after Jacobson, in 1922, the Supreme Court of the United States upheld a school immunization mandate (with no exemptions).⁴ This was the last time the Supreme Court ruled directly on school immunization mandates; however, it did address compulsory vaccination one more time, in a passing statement in a case that upheld child labor law against a challenge based on parental rights and religious freedom. In that case, in *Prince v. Massachusetts*, the Court ruled that:

[A parent] cannot claim freedom from compulsory vaccination for the child more than for himself on religious grounds. The right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death.⁵

While we do not have more recent rulings on the topic from the Supreme Court, there is an extensive litigation in other courts—and as of today, no court, state or federal, has struck down a school immunization mandate on constitutional grounds.⁶

A school mandate does not involve stepping into the home of a family and vaccinating its children by force. A strong school mandate tells parents that if they want to send their children to the shared school environment – where other people's kids attend – they need to vaccinate and protect them from disease before doing so.

The reason is that school immunization mandates fit well within basic principles in the United States. School mandates, in a real sense, are an easy case. Vaccines mandates protect two important interests: the health of the community and the health of the child. Protecting public health is a traditional, well accepted responsibility of government, included in the police power of the state. It is that police power that forms the basis of much of our Covid-19 response, and it is that police power that allows the state to regulate private business and citizens to provide for sanitation and prevent disease outbreaks in other ways. Further, because the benefits of vaccines are larger than their risks, school immunization mandates also protect children. They protect children directly by encouraging parents to vaccinate, leaving more children protected from disease. It also protects children less directly, including children whose parents still will not vaccinate, even with a strong mandate. Vaccines protect not only the individual but also the community. This is because to spread, infectious diseases need a host: as more people in the community are immune, there are less hosts available for the germ, and it cannot spread as easily—a phenomenon referred to as herd immunity or community immunity. Herd immunity through vaccines is behind the elimination of polio and congenital rubella in the United States, and the low

rates of measles we have seen. School immunization mandate literature shows that states with stronger school mandates have higher rates of vaccination, and less outbreaks.⁷ Unvaccinated children—children who were left unprotected from disease—depend on herd immunity to protect them from preventable diseases like diphtheria, polio, measles or hib. One of the traditional roles of the state is to protect the vulnerable, those who cannot protect themselves, including children. This is referred to as the state's *parens patriae* power.

The combination of protecting children and protecting the public health situates school mandates in an extremely strong juncture of state authorities. Their nature—the fact that they are not the most extreme or most coercive tool the state has—makes them even stronger constitutionally. It is important to remember what a school mandate means. A school mandate does not involve stepping into the home of a family and vaccinating its children by force. A strong school mandate tells parents that if they want to send their children to the shared school environment—where other people’s kids attend—they need to vaccinate and protect them from disease before doing so. If parents do not wish to vaccinate, and prefer to leave the child unprotected, they need to make other educational arrangement, like home schooling. But nobody will come into their house and vaccinate the child against their will. Nobody will fine or jail them for not vaccinating. Homeschooling can be a difficult choice for a family, and can feel coercive—but it is not as coercive as direct force or a criminal penalty.

Specific Constitutional Claims Raised Against Vaccines

The extensive litigation against vaccines mandates provides a good view of the claims plaintiffs often make against such mandates, and the reasons courts reject them.

Plaintiffs often claim that school mandates violate the children’s right to education. As early as 1904, a New York court rejected that claim, finding that

“The right to attend the public schools of the state is necessarily subject to some restrictions and limitations in the interest of the public health . . . If vaccination strongly tends to prevent the transmission or spread of [smallpox], it logically follows that children may be refused admission to the public schools until they have been vaccinated.”⁸

For New Jersey, the California cases may be especially instructive, since, as in California, a series of decisions in New Jersey protected students’ rights to education in the context of equal school funding.⁹ Challenges using similar claims were rejected by California courts, for three reasons.¹⁰ First, the cases focused on equality in schools based on wealth. When used to prevent the state from regulating schools to increase health and safety—as school mandates do—these cases are used out of context. Second, the interest of preventing diseases that can harm, disable or kill children has long been acknowledged as a compelling state interest, and even the right to education may have to cede to it. Finally, there is no good viable alternative to strong mandates in terms of preventing outbreaks—and again, evidence shows weaker mandates lead to more outbreaks.¹¹

I would add a few more arguments, as I stated elsewhere.¹² First, outbreaks undermine education, by keeping children out of school and disrupting classes (and potentially even killing or disabling them). Second, high rates of exemptions make it impossible for immune compromised children to safely attend schools. Between the group of children whose families cannot choose to vaccinate—the medically exempt children—and the group of children whose families intentionally choose not to vaccinate, preferring the rights of those whose parents have a choice over the rights of those whose parents do not is problematic. And finally (an argument that is not in my article), if homeschooling is a legitimate educational choice, it does not violate a child’s right to education. Parents can choose to home school because they do not like the curriculum, because they feel school is unsafe, or for other reasons—including not being willing to comply with health and safety regulations, like vaccine mandates. If it is a valid alternative, it is not a deprivation.

Because vaccines protect children from disease, and the scientific consensus is that their risks are smaller than their benefits for all but children with medical exemptions, requiring them is in line with other laws limiting parental autonomy in the child’s interest

Another argument raised against school immunization mandates is that they violate religious freedom. This argument is not blocked by *Jacobson* or *Zucht*, because at the point those cases were decided, the Supreme Court has not yet applied the free exercise clause of the First Amendment to states; that happened in 1940.¹³ But the jurisprudence since consistently rejected this argument, on three grounds. First, under current Supreme Court jurisprudence, generally applicable, neutral on their face laws do not need to provide a religious exemption.¹⁴ School immunization mandates do not directly target religion, and therefore do not are generally applicable and do not have to provide a religious exemption. More recent Supreme Court jurisprudence has not changed that, and in fact, some of the Covid-19 decisions reinforce that.¹⁵ Second, even if the court retreats from its jurisprudence, school mandates were upheld before the *Smith* case referenced above, and in *Prince v. Massachusetts* the Supreme Court

explained why: children's welfare and the community welfare are important interests, and may trump even religious freedom.¹⁶ Finally, in the California cases, accepting for the sake of argument the suggestion that the standard for whether a religious exemption is required is the very demanding strict scrutiny standard, courts found that it survives that standard, since preventing disease is a compelling state interest, and there is no real alternative to strong school mandates to minimize the risk of outbreaks.¹⁷ New York courts looking at this similarly rejected claims against New York's repeal of the religious exemption.

That said, the religious freedom argument had a stronger impact on school immunization mandates than others—especially in New York, a state that, before it repealed the religious exemption in 2019, had a rigorous sincerity requirement for its religious exemption: parents had to show that they had sincere religious opposition to vaccines, and there was extensive litigation on that. Courts have made enforcing the sincerity requirement more challenging by forbidding a requirement of a clergy letter (finding that it discriminated in favor of members of organized religion), forbidding a focus on the religion's tenets rather than the individual's beliefs, and other limits.¹⁸ These limits make limiting a religious exemption to those with sincere religious objections challenging.

The other arguments raised by opponents are less strong. Opponents raise the argument that parental rights prevent the state from conditioning attending school on immunization, because the requirement interferes with parental autonomy to decide whether a child should be vaccinated. But while parental rights carry great weight in the United States, they have never been absolute.¹⁹ Parental rights do not trump over the child's welfare; states require compulsory education and limit the ability of parents to make the child work (via child labor law) in the name of the child's interests. States may require children undergo medical treatment over parental objection if it is in the child's best interest.²⁰ Because vaccines protect children from disease, and the scientific consensus is that their risks are smaller than their benefits for all but children with medical exemptions, requiring them is in line with other laws limiting parental autonomy in the child's interest. Further, in the school immunization context, child immunization laws also protect the child's classmates. Unvaccinated children, at higher risk of getting a preventable disease, are also at higher risk of transmitting it to others—and as they congregate and their numbers increase, they increase the risk of school outbreaks, creating a general risk.²¹

Parental rights are at their weakest when their decision puts their child's welfare at risk, or when their decision puts others besides their child at risk. Sending an unvaccinated child to school does both, and our courts have consistently upheld the ability of the state to limit parental rights in that way.

Another arguments plaintiffs often raise is the argument that school mandates violate equal protection. Opponents raise that argument both in an absolute form—claiming that school immunization mandates are discriminatory because they treat unvaccinated children differently than other children generally—and in a more specific form, for example, by claiming that school mandates discriminate between children with medical exemptions and children without. In California plaintiffs raised other categories, for example, suggesting that the gradual implementation of school immunization requirements—to be enforced when children reach kindergarten or seventh grade—discriminates between children of different ages.

This, too, was rejected by courts, on two grounds. First, discrimination means treating similarly situated children differently. But unvaccinated children are not similarly situated to vaccinated children. Unvaccinated children are at higher risk of getting and transmitting preventable diseases—they are meaningfully different than vaccinated children.²² Treating them differently is no more discriminatory than giving a driver license only to those who fill the medical requirements for driving is, or than giving a ticket only to people who jaywalk is.

Further, even if there was a distinction, not all distinctions are illegal discrimination. Our system distinguishes between different types of distinctions.²³ Some distinctions—those with an historical background of unmerited negative treatment of some groups, for example, on the basis of race or religion—are held to a high standard of strict scrutiny. Other distinctions—the vast majority—only require a rational basis behind them. There is a rational basis for treating children with medical conditions that make vaccination more dangerous differently than children without such conditions. There is a rational basis for setting gradual implementation of a change to school immunization requirements. These kinds of distinctions are routinely upheld by courts. The reason is that laws often draw distinctions for practical reasons, and those distinctions will not always be perfect. As long as they do not implicate categories that we have reason to be cautious about—often, because of a history of blatant discrimination—courts defer to the judgment of the legislature on those distinctions.

Finally, plaintiffs challenging such laws often claim that because they implicate a fundamental right—their liberty—such laws need to be held to strict scrutiny. This argument—referred to as a claim that mandates violate substantive due process—was raised in *Jacobson* and *Zucht*, and the Supreme Court rejected it then, on the ground that society can act for the public health even if, by doing so, it is limiting individual rights—and school immunization mandate is a traditional place where such limits have been upheld. There is clearly a degree of overlap between this substantive due process argument and the argument for parental rights, since the autonomy involved is the autonomy of parents to make decisions for their children, but the arguments are often discussed separately, so I (briefly) addressed this argument separately.

At the end of the day, from the courts' point of view, parents challenging school immunization mandates are demanding a right not only to refuse to protect their children from disease—rejecting an expert consensus that vaccines have small risks and large benefits—but also for a right to make schools less safe for other people's children, impose a risk on other families. Courts have been consistently unsympathetic to that demand.

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4. *Zucht v. King*, 260 U.S. 174, 176 (1922).
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12. This discussion is a short version of my points in: Dorit Rubinstein Reiss, *Litigating Alternative Facts: School Vaccine Mandates in the Courts*, 21 U. Penn J. Con. L. 207, 236-237 (2018).

13. *Cantwell v. Connecticut*, 310 U.S. 296, 306–07 (1940)
14. *Emp’t Div. v. Smith*, 494 U.S. 872, 879 (1990).
15. On the previous jurisprudence, see Dorit Rubinstein Reiss, *Litigating Alternative Facts: School Vaccine Mandates in the Courts*, 21 U. Penn J. Con. L. 207, 236-237 (2018). The Supreme Court twice rejected requests to stay an order that limited church gatherings because of Covid-19 – in *S. Bay United Pentecostal Church v. Newsom*, 140 S. Ct. 1613 (2020) and in *Calvary Chapel Dayton Valley v. Sisolak*, https://www.supremecourt.gov/opinions/19pdf/19a1070_08l1.pdf.
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22. *Whitlow v. California*, 203 F. Supp. 3d 1079, 1087 (S.D. Cal. 2016)
23. This discussion is a short version of my points in: Dorit Rubinstein Reiss, *Litigating Alternative Facts: School Vaccine Mandates in the Courts*, 21 U. Penn J. Con. L. 207, 253-256 (2018).

Don't Wait to Vaccinate

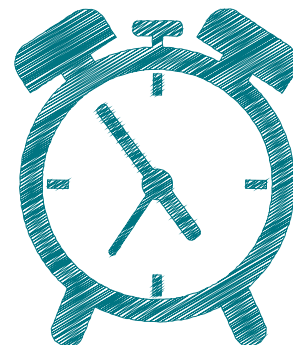


Mission: **HPV** CANCER FREE

cancer.org/hpv

DID YOU KNOW...

The American Cancer Society recommends that boys and girls get vaccinated against HPV between the ages of **9 and 12** to help prevent six types of cancer later in life.

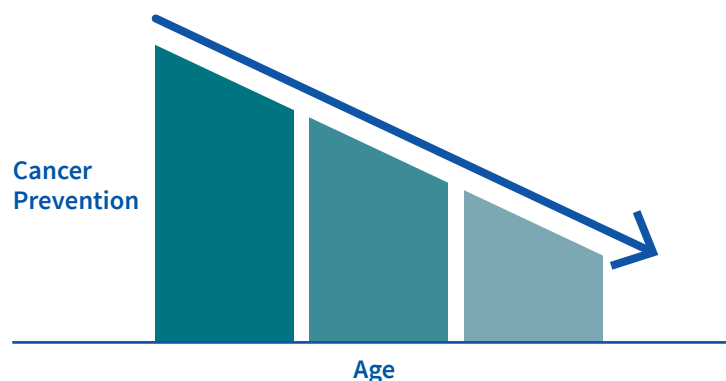


Age Matters

When you vaccinate your child on time, you help protect them from HPV cancers. HPV vaccination works best when given before age 13.

Vaccination at the recommended ages will prevent more cancers than vaccination at older ages.

Cancer Prevention Decreases as Age at Vaccination Increases



On Time

Ages 9-12

2 Doses
6-12 months apart



Late

Ages 13-14

2 Doses
6-12 months apart



Late – Extra Dose

Ages 15-26

3 Doses
1st dose at visit one
2nd dose 1-2 months later
3rd dose 6 months after 1st dose



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Vaccine Hesitancy Inside and Outside the Exam Room **CME**

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Vaccine hesitation and refusal, a reluctance to vaccinate despite the availability of vaccines, is a growing problem. The World Health Organization recently named rising vaccine hesitancy as a major threat to public health. Vaccination is one of the most safe, cost-effective ways of avoiding disease—it currently prevents 2-3 million deaths a year.¹

Whether the benefits are reported in terms of avoided morbidity, mortality, life-years saved, quality adjusted life years (QALYs) gained or health care dollars saved, vaccination is universally considered to provide important public health benefits.^{2,3} Conversely, children who are under-immunized due to parental vaccine refusal or delay have higher inpatient admission and emergency department utilization rates⁴ and increased morbidity^{5,6} and mortality⁷ from vaccine-preventable disease.

This article investigates vaccine hesitancy and refusal concepts and topics both inside and outside the exam room. We will examine current parental decision-making concepts in hesitancy, new data on their critique of clinical encounters as well as providers' experience and options for approaching hesitancy/refusal. Moving outside the clinical encounter in the exam room, we will discuss practice based policies and protocols to support vaccination in the clinical practice. Furthermore, we will discuss why public health policy and legislation are playing an increasingly critical role in ensuring community immunity.

Vaccine Decision-Making in the Exam Room

Vaccine decision-making in the exam room is multi-stage, multi-factorial and complicated by cognitive, psychological and societal factors. It represents the weighing of small, but serious risks of VPDs and vaccine adverse events in the setting of vast incomplete, conflicting and changing informational sources.

Diverse cognitive beliefs are cited by vaccine hesitant parents (VHPs) for vaccine hesitancy. Some parents believe that getting the natural disease is healthier than getting the vaccine or that some vaccine-preventable diseases pose minimal risk to their children.⁸ VHPs express concerns that vaccination is harmful, that giving multiple vaccines at once is unhealthy for the immune system and that providers are under-educated on issues of vaccine safety.⁹⁻¹⁵ Additionally, parents cite a perceived ability to control their child's susceptibility to and outcome of vaccine-preventable diseases (VPDs) and also that community immunity rates protect their children from disease outbreaks.^{8,16} Lastly, some VHPs express distrust of the government, pharmaceuticals and the economics behind the creation and promotion of vaccines.^{17,18} A recent systematic review of communications that most effect vaccine uptake are addressing parental concerns over vaccines adverse effects, focusing on children's susceptibility to the illness as well as promoting the belief that vaccines are effective.¹⁹

Increasingly, vaccine decision-making research has investigated the role of cognitive biases (e.g. uncertainty tolerance, ambiguity aversion, omission bias) and psychological traits (e.g. reactance or conspiratorial thinking) in the role of vaccine decision making.²⁰⁻²⁸ Cognitive biases such as ambiguity aversion and omission bias have been shown to play a role in vaccine decision-making. In 2015 study about ambiguity in vaccine decision making,²¹ VHPs engage in reasoning processes that lead them to perceive ambiguity in information about the harms of vaccination—citing concerns about the missing, conflicting, changing, or otherwise unreliable nature of information. At the same time VHPs engage in various reasoning processes and tend to perceive risks of vaccination as greater than the risks of VPDs. Mitigating vaccine hesitancy in these parents likely requires reconstructing the risks and ambiguities associated with vaccination—a challenging task that requires providing parents with meaningful evidence-based information on the known risks of vaccination versus VPDs and explicitly acknowledging the risks that remain truly unknown.

Omission bias, i.e. the tendency to consider bad outcomes resulting from a commission (e.g. side effects of a vaccine) as worse than the same bad outcomes resulting from an omission (e.g. symptoms of a vaccine-preventable disease) has been shown in hypothetical vaccine decisions to positively predict actual vaccine behavior in both retrospective^{24,29,30} and prospective studies.³¹ Research of debiasing health-judgments in decision-making may suggest promising areas of intervention.³²

Reactance is defined as the response to a perceived threat to—or loss of—a behavioral freedom. New research has demonstrated that the trait of psychological reactance can impact parents' perceived quality of physician communication and subsequent perception of vaccination safety and priority.²² Communication attempts perceived as persuasive (vs. information sharing) may have unintended consequences in VHPs' response. Presumptive vaccination techniques may be perceived in this light and subsequent vaccine hesitancy may be an unintended outcome. To the extent that VHPs have higher reactance or lower uncertainty tolerance is not yet determined, but can provide guidance for future studies and interventions.

Vaccine Hesitancy in the Exam Room

Provider's experience of VHPs encounters is important to consider as well. Medical providers report more encounters with vaccine hesitant parents (VHPs)^{33,34} and less job satisfaction because of these experiences.³⁵ Consequently, providers devote more time in clinical encounters to vaccine discussions.^{36,37} In one study, 53% of providers reported spending 10-19 minutes per VHP and 8% reported spending >20 minutes per VHP on vaccine discussions.³⁵ Due to providers' importance to parents' vaccination decisions,^{11,38} major research efforts have focused on raising vaccination rates via provider communication.

Interventions have tested communication approaches that vary in how strongly providers guide parents' vaccination decisions. These range from motivational interviewing techniques that focus on empathizing with parents and exploring their hesitations^{39,40} to stronger guidance such as utilizing presumptive vaccine recommendations to discourage refusal.^{41,42} Unfortunately, despite intensive research efforts, there is little evidence for specific provider communication approaches that influence vaccine hesitancy in meaningful and reproducible ways.^{43,44}

Historically, two models, Shared Decision Making (SDM) and Informed Consent (IC), have provided guidance for providers in complex decision-making processes from cancer screening to end-of-life decisions and arguably could be utilized in vaccination discussions. SDM is a practical clinicians collaboratively help patients to reach evidence-informed and value-congruent medical decisions, especially when scientific uncertainty exists between several care strategies. In the realm of vaccination, the ACIP recommends SDM processes for 4 vaccines (PCV13 in adults >65, Hep B in adults >60 MenB in 16-23 year olds and HPV in 27-45 year olds).⁴⁵ Generally, ACIP makes SDM recommendations when individuals may benefit from vaccination, but broad vaccination of people in that group is unlikely to have population-level impacts. This is not the case with the pediatric immunization schedule that is strongly recommended by not only the ACIP, but CDC and AAP. In this case, there is no scientific uncertainty between vaccination or non-vaccination, leaving SDM processes inappropriate for vaccine hesitancy conversations.

Informed consent processes represent a perhaps more useful framework for approaching vaccine decisions with parents. After assessing the patient's ability to understand relevant medical, providers should present relevant information accurately and sensitively, in keeping with the patient's preferences for receiving medical information. The physician should include information about:

1. The diagnosis (when known)
2. The nature and purpose of recommended interventions
3. The burdens, risks, and expected benefits of all options, including forgoing treatment

Significant issues with informed consent in vaccination are three fold. First, consent is used for those who opt in for an intervention, thus in the case of vaccine refusal, the process would be more aptly entitled *Informed Dissent*.

Second, refusal of most vaccines is against commonly accepted medical advice. The risk of a serious vaccine adverse event, while not zero, is so small for some vaccines that it can be difficult to quantify. While providers are advised to convey known risks of vaccine side effects, it is widely studied and accepted that vaccine benefits vastly outweigh potential risks.

Lastly, the risks of not vaccinating are not solely carried by the child themselves, but pose societal risks when community immunity rates drop to non-protective levels. Many parents of school-aged children are unaware of the vaccine status of their children's counties more or less their schools. So while the Informed Consent Process might serve to inform parents of risks of vaccination and VPD to their children, it cannot not inform fully the risks of dissent to an nonconsenting community when an unvaccinated child participates in public areas like school.

Whether due to cognitive biases or non-effective provider communications, few approaches seem to alter vaccination choices in some VHPs. Growing data about VHPs experience with healthcare providers shows they approach communications about vaccines differently than non-VHPs in terms of timing, amount and source of information, as well as the content and style of communication.⁴⁶ In a Cochrane Review of 38 studies of high-income countries, VHPs wanted more information than they were getting from providers and this lack of information led to worry and regret about vaccination decisions among some parents. VHPs wanted balanced information about vaccination benefits and harms, presented clearly and simply and tailored to their situation. VHPs generally found it difficult to know which vaccination information source to trust and challenging to find information they felt was unbiased and balanced. The amount of information parents wanted and the sources they felt could be trusted appeared to be linked to acceptance of vaccination, with parents who were more hesitant wanting more information. VHPs viewed health workers as an important source of information, yet had specific expectations of their interactions with them and poor communication and negative relationships with health workers sometimes impacted on vaccination decisions.

Given that VHPs note conflict preparation or avoidance, providers could consider methods to preclude or respond to conflict such as demonstrating openness to VHPs sharing information that drew their attention about vaccines and to discussing it in non-judgmental ways. Additionally, unpublished focus group data demonstrates that VHPs with less strident pre-encounter vaccine perceptions may become vaccine hesitant after less favorable interactions with healthcare providers. Providers can prevent contentious interactions that potentially elicit or exacerbate hesitancy by acknowledging vulnerability and insecurity of being a new parent to avoid triggering feelings of guilt or ignorance. Seeking parental thoughts and concerns provides a safe place for questioning and potentially minimizes feelings of belittling.

Even after continued discussion, some parents may continue to refuse vaccines. Refusal and risk discussions are even more complex, lengthy and require significant mutual understanding. Providers could consider asking parents to return on 'off' months of the periodicity schedule for specific visits dedicated to the discussion of vaccine refusal. After multiple attempts to convince families to vaccinate have failed, some pediatricians have chosen to dismiss families as a last resort.³³⁻³⁵ Strong arguments for and against dismissal have been made including public health principles, exposures to other patients as well as the ethical obligation to care for children, even if their parents refuse vaccines.⁴⁷⁻⁴⁹ The AAP advises strongly against the dismissal of families who refuse vaccination but acknowledges that when differences in the philosophy of care emerge or poor quality of communication persists, the pediatrician may encourage the family to find another physician or practice.⁵⁰ In all practice settings, consistency, transparency, and openness regarding the practice's policy on vaccines is important. No published data exist regarding dismissal policies on the eventual acceptance of vaccines or unintended consequences of heightened hesitancy and additional studies are needed.

Outside the Exam Room, But in Our Practices

Practice policies and procedures can be adopted that support increased vaccination. Practices should use a common vaccination schedule and quickly alter schedules when shortages occur. Consider the creation of a delayed schedule that would be acceptable to offer to VHPs in lieu of self-created schedules. Managing alternative schedules can be difficult and time consuming and practices should determine methods to track schedules and use reminder systems for these schedules. Additionally, the delivery of vaccines is typically linked to the well-visit schedule, but utilizing EMR informatics can give providers and their staff information about vaccine opportunities at every visit.

It may not always be practicable to follow vaccine opportunities in real time, and vaccine catch up months can assist in running exception reports for points in time. Catch up vaccination clinics, either evening, weekend or drive through, are especially critical currently as the COVID-19 pandemic has disrupted vaccination systems to concerning degrees. Practices should enhance the role of clinical assistants in patient education and preparation of parents and providers for well-child vaccination discussion. The management of under immunized children both in the clinic space and when triaging phone call concerns should consider alternative spaces and entrances for evaluation of potential VPDs that are distanced from other patients. Additionally, flagging patient charts in the EMR can help staff and providers easily identify if a patient is at risk of a particular VPDs due to vaccine refusal or delay. As outbreaks continue in our communities, consider making calls to unvaccinated families to let them know about outbreaks and their potential vulnerability, because as previously noted VHPs report they do not see a heightened risk to their child from VPDs or that community immunity protects their children.

Practices may consider adoption of immunization policy statements or common refuser agreements and policies. Medical-legal liability to the pediatrician for vaccine refusal is unclear⁵¹ and pediatricians rightfully worry about whether refusing parents may later claim they weren't fully informed about the risk of refusal. The AAP encourages documentation of the health care provider's discussion with parents about the serious risks of what could happen to an unimmunized or under-immunized child. For parents who refuse one or more recommended immunizations, document your conversation and the provision of the VIS(s), have a parent sign the Refusal to Vaccinate form, and keep the form in the patient's medical record. The AAP also recommends that you revisit the immunization discussion at each subsequent appointment and carefully document the discussion, including the benefits to each immunization and the risk of not being age-appropriately immunized.⁵²

Vaccination Outside the Medical Home

Exemption Legislation

Vaccine refusal rates continue to rise in many states despite the best of practice and communication raising the critical question of limited ability of individual pediatricians or even larger health systems to protect common and public health commodities like community immunity.

Indeed, public health practice differs in many ways from the practice of clinical medicine. First, in terms of its basic activity, because clinical medicine is much more concerned with individual treatment, whereas the main goal of public health is whole population prevention. The predominant ethical orientation for medicine is one "favor of civil liberties and individual autonomy that one finds in bioethics, as opposed to the utilitarian, paternalistic, and communitarian orientations that have marked the field of public health throughout its history."⁵³

Forms of public health interventions include non-coercive measures (e.g. food or cigarette labeling), 'soft' coercive measures (e.g. incentive or disincentives) or highly coercive measures (e.g. compulsory isolation). Each public health intervention demands an analysis of potential disease impact on others and the subsequent balance of individual versus community rights. The current pandemic reminds us that communicable infectious diseases call for strong measures that involve a large degree of coercion and limiting of personal freedom as it is sometimes necessary to protect other people, our economy and way of life from the shutdown caused by contagious diseases.

Three states, Maine, California and New York, have recently revised their school immunizations laws to eliminate non-medical exemptions. Studies of the California experience indicate that these measures are effective in improving school vaccination rates.⁵⁴ Limits on personal freedom are not to be undertaken lightly and as such it is important to review the legal precedent for support of school immunizations requirements.

State and Federal Courts in all states with vaccine exemption limitations have resoundingly found them to be constitutional and consistent with the right of a safe education. The US Supreme Court decision in *Prince vs. Massachusetts* states:

*"[A state's] authority is not nullified merely because the parent grounds his claim to control the child's course of conduct on religion or conscience. Thus, [a parent] cannot claim freedoms from compulsory vaccination for the child more than for himself on religious grounds. The right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death."*⁵⁵

Two California Appellate Courts have found: "*The right of education, fundamental as it may be, is no more sacred than any of the other fundamental rights that have readily given way to a State's interest in protecting the health and safety of its citizens, and particularly, school children,*" and "*removal of the [personal beliefs exemption] is necessary or narrowly drawn to serve the compelling objective of SB 277.*"^{56,57} And the Mississippi Supreme Court stated in *Brown vs. Stone*: "*requiring immunization against certain crippling and deadly diseases particularly dangerous to children before they may be admitted to school, serves an overriding and compelling public interest, and that such interest extends to the exclusion of a child until such immunization has been effected, not only as a protection of that child but as a protection of the large number of other children comprising the school community and with whom he will be daily in close contact in the school room.*"⁵⁸

Despite the constitutionality of exemptions, religious exemptions for school immunization requirements are rising in many states thus proving another source of debate. Despite no major religion requiring its believers to not vaccinate, top Jewish and Islamic scholars, and the Vatican came together after measles outbreaks in New York last year to rule vaccines do not violate Jewish, Islamic or Catholic law.⁵⁹ It is individual parents or religious leaders and a person interpretation of religious practices that are opposed to vaccination.⁶⁰ As such, 'religious exemptions' are more akin to personal belief exemptions. Many are concerned that the religious exemption is being co-opted by personal belief exempting parents, and this is evidenced by the recent experience in Vermont which, until 2016 allowed both philosophical and religious exemptions. Upon eliminating *only* philosophical objections for school entry the Vermont Department of Health, reported that religious exemptions jumped from 0.9% in 2015-16 to 3.7% in 2016-17 after the philosophical exemption was removed. Currently, Vermont is trying to pass a bill limiting religious exemptions to ensure appropriate community immunity rates against measles outbreaks.⁶¹

Social Media Sows Discord and Disinformation

It is important to consider the role of social media in the rise of vaccine misinformation and the social movement of vaccine refusal. Health-related misconceptions, misinformation and disinformation spread over social media, posing a threat to public health.⁶² VHPs are more likely to turn to the Internet for information and less likely to trust health care providers and public health experts on the subject.^{63,64} Much health misinformation may be promulgated by "bots"—accounts that automate content promotion, and "trolls"—individuals who misrepresent their identities with the intention of promoting discord and one commonly used online disinformation strategy, amplification, seeks to create impressions of false equivalence or consensus through the use of bots and trolls.⁶⁵ Calculations suggest that between 40-52% of all internet traffic is automated.⁶⁶

A study relating to vaccine information on social media done by *Broniatowski et al.* in 2018 looked at the role of bot and Russian trolls in spreading vaccine misinformation by examining over 1.7 million vaccine-related tweets between July 2014 and September 2017. In the case of Twitter, most vaccine-focused bots were deployed with the direct goal of spreading vaccine misinformation, presumably with the purposed of amplifying anti-vaccine views. But interestingly, content originating in Russia conveys both pro- and anti-vaccine messages, which researchers attribute to a broader strategy aimed at sowing discord. Whereas bots spread malware and unsolicited content disseminated antivaccine messages, Russian trolls promoted discord. The authors also noted that accounts masquerading as legitimate users created false equivalency, eroding public consensus on vaccination. The noted public health implications of their study highlights that directly confronting vaccine skeptics on social media enables bots to legitimize the vaccine debate. Future research is critically needed to understand the magnitude and method of social media communication in the vaccine refusal movement. Additionally, strong calls must continue for social media responses to contain the impact of bots, anti-vaccine advertising and content from stoking the vaccine refusal movement further.

Increasingly, the vaccine refusal movement in its many forms has taken to using social media to coordinate offensive attacks, swarms and discrediting campaigns of parents, physicians and many other who speak out on behalf of vaccination.⁶⁷ Dr. Todd Wolin has done arguably the most in helping pediatricians understand this phenomenon after his own practice was swarmed in 2017 for promoting the HPV vaccine. Dr. Wolin working with others has studied the weaponizing of social media⁶⁸ and created *Shots Heard Round the World*⁶⁷—a vetted, rapid response, private, pro-Vaccine, social media rescue network created to come to the aid of healthcare providers/practices experiencing a large-scale anti-vaccine social media attack. Much more research and advocacy needs to be done on the fronts of social media, which is now an everyday part of our exam rooms.

SUMMARY

As vaccine hesitancy rises, U.S. communities face the age-old question of personal choice limitations when common good and health is not possible without them. The tobacco debate of last century reminds us that physicians alone are limited in altering patient or parent personal choices, and that multi-layered public health measures, including coercive mandates, are sometimes necessary to protect the public interest and health. The need for vaccine legislation such as vaccination (against certain diseases) a condition of school entry and/or community participation, is all the more pragmatic and necessary as we experience the shutdown and standstill of our lives when community immunity does not exist to communicable diseases like coronavirus.

Physicians, public health practitioners and other concerned citizens call upon our leaders to honorably protect our common good by protecting our public health. Perhaps most alarming to this author is the *partisanship* of public health measures like vaccines, despite widespread support by physicians, hospitals, public health leaders and many others on both sides of the political spectrum. In Maine, a public referendum supported vaccines for school entry by a margin of 46% (73% supportive), despite legislative votes occurring largely along party lines when the bill was passed.⁶⁹ Our government's essential role is to protect the health and well-being of **all** Americans. Facing the future, physicians must continue these critical advocacy efforts if legislators continue to congeal into partisan micelles on public health issues and refuse to support the will and well-being of its citizenry.

About the Author

Laura Blaisdell is a board-certified, public health trained pediatrician and advocate with expertise in vaccine policy and camp medicine.

She received a B.A. from Carleton College in Northfield, Minnesota, a medical doctorate and public health degree (MD/MPH) at the University of Minnesota, and completed a residency in pediatrics at Maine Medical Center. She currently serves as the Vice President of the Maine AAP and is a founding member of Maine Families for Vaccines.

In addition to community pediatrics, Dr. Blaisdell published research on vaccine hesitation and decision-making among parents with the Center for Outcome Research and Evaluation at MMCRI. She was the site director for the National Children's Study, where she also led studies of new social media strategies for research recruitment. In addition to her clinical and research activities, Dr. Blaisdell served as the Chair of the Institutional Review Board (IRB) at Maine Medical Center, was Chief of Pediatrics at InterMed Pediatrics, and currently serves as a Trustee to Mercy Hospital in Portland.

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CME QUIZ Questions

1. Vaccine prevent between 2-3 million deaths worldwide each year. True or False
2. Children who are under vaccinated do not seem to have any increase in healthcare utilization. True or False
3. Vaccine Hesitant Parents are concerned with:
 - A. Giving multiple vaccines is unhealthy.
 - B. Providers are not fully educated on vaccine adverse events.
 - C. Distrusting the economics of pharmaceuticals
 - D. All of the above.
4. Reactance is defined as the tendency to consider bad outcomes resulting from commission are worse than the same bad outcomes resulting from an omission. True or False
5. In one study, what percentage of provider reported spending >10 minutes per VHP.
 - A. 10%
 - B. 25%
 - C. 61%
 - D. 95%
6. Despite intensive research, there is little evidence for specific provider communication approached that influence vaccine hesitancy in meaningful and reproducible ways. True or False
7. Shared Decision Making is proving an appropriate and effective model in vaccine refusal. True or False
8. The AAP strongly advises against the dismissal of families who refuse vaccination. True or False
9. Laws that eliminate philosophical or religious exemptions are:
 - A. Constitutional
 - B. Lack legal precedent
 - C. Are unethical
 - D. All of the above
10. Social media little role in the proliferation of misinformation of vaccine injury. True or False



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Combating Vaccine Hesitancy: Teaching the Next Generation to Navigate Through the Post Truth Era

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Despite scientific evidence supporting the fact that vaccines are fundamental tools for preventing infectious diseases, a percentage of the population still refuses some or all of them. Vaccine hesitancy has become a widespread issue, and its complexity lies in the great variety of factors that can influence decisions about immunization, which are not just vaccine-related concerns, but also involve personal and societal levels. Our research group performed an extensive literature review to analyze: (1) different age groups, their relation to the problem and their characteristics; (2) the most important information (key messages) about immunization that could be used to counteract hesitancy; and (3) best approaches to transmit the messages to the target groups. We propose a long-term approach to overcome vaccine hesitancy that involves the education of children and adolescents on the basics about immunization and critical thinking, using different communication channels.

Keywords: immunization, vaccine hesitancy, critical thinking, health education, children

INTRODUCTION

Nowadays, in the “post-truth era,” where every fact seems to be object of debate, a considerable part of the population has access to the internet and not only uses it to find information, as on health-related issues, but to create and share their own content (1, 2). This facilitates the distribution of true and false information, which can reach a large audience. Messages about vaccines on social media predominantly focus on negative experiences, since they are easier to perceive than the main benefit of vaccination: the absence of disease (3). The result is an increased disbelief of vaccine efficacy accompanied by mistrust in pharmaceutical companies (4) and subsequent rise in the incidence of vaccine hesitancy around the world (5–8).

Hesitancy to vaccinate has been linked to some vaccine preventable disease outbreaks in the last two decades. One example was the resurgence of measles in different parts of the US (9). During the year 2011, 16 measles outbreaks occurred. The effort put in place to contain these outbreaks required 42,635 to 83,133 personnel hours of work and resulted in a significant economic burden estimated to be \$2.7 to \$5.3 million US dollars (10). This burden was shouldered by many stakeholders including governmental health and finance departments, health insurance groups/agencies as well as NGOs and aid agencies (10). An even higher economic impact is

expected in the future, with this increasing trend. Effective interventions are, therefore, urgently needed to reduce these high financial losses.

In 1999, the anti-vaxxer movement, an organized body of people who refuse to vaccinate and blaming vaccines for health problems (11, 12), got boosted when the journal *Lancet* published a paper claiming a correlation between the measles vaccine and autism (13). The paper was retracted 12 years later, when it was proven that several elements in it were incorrect (14); however, by this point in time, the anti-vaxxer movement had gained momentum like never before (15).

Due to the effectiveness of vaccines, health risks associated with vaccine preventable diseases are being perceived as low, which led to the cognitive bias working against the decision to vaccinate (16). Heuristics have been cursorily defined as mental shortcuts for arriving at satisfactory solutions with modest computations to allow individuals to reduce the effort associated with the decision-making process, e.g., for health risks (17). Unfortunately, heuristics often fail to produce a correct judgement, which leads to a cognitive bias, where judgement deviates from what would be considered logically desirable (18).

As vaccine hesitancy is a highly complex issue, our aim is to describe a novel approach to address it, acknowledging current efforts described in the literature and the recommendations of the World Health Organization (WHO) about this matter.

DEFINITION AND CHARACTERISTICS OF THE TARGET GROUP

Our policy tackles vaccine hesitancy by focusing on a novel target group: children and adolescents. We chose this audience, as most literature is addressing the current vaccine hesitancy problem in adults, in whom promoting change of attitudes toward vaccinations can be challenging. The reason for this is that the rarity of vaccine preventable diseases in developed countries has created a lack of awareness for them. Besides, parents seem to remain vaccine hesitant even after being exposed to messages designed to reduce vaccine misperception (19, 20). Although most people assume that communication about healthcare management primarily flows from parent to child, evidence exists that children can also act as behavior change agents regarding health-related issues, as health education activities brought home from school can also have a positive influence on how parents understand and manage health issues (21–24). For example, a study involving children between the age of 8 and 11, showed that teaching them about second-hand-smoke in school had a positive influence on the in-home smoking behavior of parents (23). Similarly, we expect that providing information about vaccine safety to children and adolescents in schools might lead to pro-vaccination behaviors in parents.

By targeting children and teenagers, we want to especially influence the vaccine behavior of the next generation, who will eventually become future influencers and parents themselves. As childhood and adolescence are fast pace developmental phases, different communication strategies have to be used for each age group, in order to successfully target them. Communication

strategies, on which social campaign messages are based on, have evolved and it has been recognized that, to favor behavioral change, it is important to address both the individual and its surrounding (25).

In younger age groups (5 to 10 years old), the messages about health, science, and critical thinking must be kept very simple, and will function as an introduction to these topics. This would constitute a first approach before presenting more complex tasks and messages to older children and adolescents. For example, since nowadays children are exposed to online content from a very young age, giving them tools on how to verify the authenticity of the information they read could be a powerful tool to start with the development of critical thinking.

The respective characteristics and advertisement considerations for each age group, on which the recommendations of this paper were based on, are shown in **Table 1**.

MESSAGES TO COMMUNICATE TO THE TARGET GROUP

Immunization Also Protects Others

The target audience should be familiarized with the concept of herd immunity, which is defined as the proportion of immune individuals in a given population against a specific pathogen (32).

The idea that vaccines protect not just an individual, but enable us to protect others that cannot be vaccinated, could improve willingness to vaccinate (33). Highlighting the fact that there are individuals who cannot receive vaccinations e.g., against measles-mumps-rubella (MMR) as infants, immune deficient individuals, people with allergies against a vaccine's components, as well as pregnant and breastfeeding women can emphasize the role an individual's vaccination plays in a society setting (34, 35). Additionally, some people do not develop a protective immune response after vaccination and remain susceptible without knowing.

Approved Vaccines Are Safe and Go Through Thorough Evaluations

The measles vaccine, for instance, has falsely been associated with autism, which led to lower vaccination rate coverage (36, 37). This claim is arbitrary and is not supported with sound scientific information. The risk perception for vaccination has to be improved by informing the target group in a simplified manner about vaccine development and approval, about the vaccine's influence on the frequency of outbreaks and about the probability of complications during an infection compared to side effects of the vaccine.

Herd Immunity Can Eliminate Diseases

Partially overlapping with the first key message, this message focuses on highlighting the importance of reaching a certain immunization coverage to eradicate human pathogens as for example 95% coverage did for smallpox (38). It should also be emphasized that receiving all necessary doses of a vaccine (e.g., two doses of the MMR vaccine) are required to reach high levels of immunity.

TABLE 1 | Characteristics, advertisement considerations, and preferred communication tools for children and adolescents per age group.

Age group (Yo)	Characteristics	Advertisement considerations	Education at schools	Mass media channels
5 to 7	<ul style="list-style-type: none"> - Start to become aware of health attitudes and behaviors (26) - Growing understanding of morality labels and conventional rules (26) 	<ul style="list-style-type: none"> - More receptive to visual and audio elements (animations and voices) (26) 	<ul style="list-style-type: none"> - Simple homework about immunization 	<ul style="list-style-type: none"> - Messages can be reinforced using television and online videos
7 to 10	<ul style="list-style-type: none"> - Gradually undertake peer values (27) 	<ul style="list-style-type: none"> - Pay more attention to information they find interesting (27) 	<ul style="list-style-type: none"> - Teaching of concepts as "herd immunity." - Online search and internet using good practices 	<ul style="list-style-type: none"> - Information can also be endorsed on television, online videos, mobile apps, and educational shows (28)
10 to 13	<ul style="list-style-type: none"> - Begin to comprehend perspective and intention (29) 	<ul style="list-style-type: none"> - Start seeking information, media use, and experimentation (29) 	<ul style="list-style-type: none"> - Concepts about infectious diseases and eradication - Simple approaches to critical thinking are crucial. 	<ul style="list-style-type: none"> - Social media and the internet (interactive games and applications)
13 to 18	<ul style="list-style-type: none"> - Have more sophisticated problem-solving abilities - Reject explicit approval of adult-sponsored interests - Seeking social rewards and striving to avoid social threats (29) 	<ul style="list-style-type: none"> - More receptive to health-related negative effects, preferring short-term effects rather than long term abstract dangers (30). 	<ul style="list-style-type: none"> - Focus on education in critical thinking about immunization - Combination of dialogue, authentic situations, and mentorship to promote critical thinking (31) 	<ul style="list-style-type: none"> - Social media campaigns with personalized messages, focused on teenagers' interests, and motivations. Informative videos with celebrities can be spread through social media

Yo, years old.

COMMUNICATING POLICY IN AN ERA OF MISINFORMATION

To effectively communicate the suggested public policy in the post-truth era (when emotions prevail over facts), we recommend utilizing the already existing communication tools in smart ways. Employing all types of communication channels in combination, including interpersonal, community-based, and mass media channels, is preferable as it has a better chance of changing mindsets than a single channel approach (39–41).

Utilizing the interpersonal channels of communication by teachers, doctors, and childcare personnel to communicate our key messages could be a practical solution. Teachers and doctors can communicate directly with adolescents and children to raise their awareness and sensitize them regarding specific issues like the importance of vaccination. This channel has the advantage of being the most credible source of information, highly effective, and participatory (39, 42, 43). Furthermore, it has been proven that the attitude of people toward vaccination could be changed through indirect interpersonal communication by reading about a perspective of someone who contracted a disease or by seeing pictures of diseased individuals (44).

Considering the different stages of cognitive development (Table 1) as well as culture and other factors, public health days and visuals (colorful wall graphics) could be effective community-based tools that can be utilized in schools to raise the awareness of students about the importance of vaccination, disease prevention, and other issues (45). These are credible sources of information and participatory (39, 41). Games together with simulations, using videos or GIFs, are tools to easily depict the impact of vaccination (46). Thomas et al. (47) indicated that such school-based interventions can affect students' behaviors significantly.

Mass media channels like television, radio, public transport advertising, and the internet are among the best tools to communicate public policy to all segments of a community (39). In high-income countries, adolescents spend 18 to 80 h online per week and are the predominant users of social media like Tumblr, Twitter, Instagram, Facebook, and other Apps (48, 49). Generally, the time spent by adolescents on social media is up to 4.3 h per day, while watching television and YouTube take up the second biggest portion of time (50–52). Recently, the internet became an important alternative source of health information for adolescents who avoid visiting a health professional (28). Thus, we propose that WHO, CDC, ECDC, and/or national health departments use social media platforms in order to inform the public, especially adolescents, about relevant scientific data with financial support from international and national entities.

The WHO or international health NGOs can support the suggested objective by designing videos for YouTube and TV channels to spread health information on vaccination to children and adolescents. The national offices of countries facing vaccine hesitancy would then solely need to translate the video content into the native language, providing a cost-efficient alternative. Children under the age of 12 years prefer television programs or videos with social and emotional themes, spending up to 32 h per week on screen devices (19). These videos should be visually pleasing, simple, and easy-to-follow, with a single message, and shorter than 3 min. Since social media is user-friendly and widely accessible, the videos should be shared there to reach a wider public (40). Furthermore, adolescents and children should be educated on which sources of information to trust on the internet, as mentioned in Table 1.

Communicating directly or indirectly with the secondary target groups (i.e., teachers and family), who influence perceptions, attitudes, and eventual decision making of the main target group (children and adolescents), still plays an

important role. The perception of the secondary target group is mainly influenced by pediatricians, general practitioners, pediatric nurses or guidelines of schools, and daycare centers (53, 54). Therefore, continuous medical training of healthcare providers is of utmost importance to educate the secondary target group on this topic (54). However, as vaccine hesitant parents do avoid interacting with pro-vaccine-healthcare providers, they might not be reached through this approach.

It is evident that several stakeholders will be involved in facilitating the communication of our key messages. Lowering vaccine hesitancy is the most desirable for governments, the (inter)national health departments and (public) health insurances. Therefore, the finance departments at national and municipal levels are also important players. Those stakeholders will need to invest into trainings of school staff and healthcare providers to ensure effective usage of the interpersonal channel and provide funding for mass media approaches. It will thus be preferable to deliver the messages with the effort and help of the WHO SAGE, CDC, ECDC, NGOs and aid agencies, and possibly community groups, civil societies/organization, and political parties.

EDUCATION AND CRITICAL THINKING

Critical thinking refers to purposefully reflect and reason about what to do or believe when somebody is confronted with complex issues in a specific context (55). Nowadays, many students struggle with interpreting and making reasoned decisions from a text, and with children and teenagers' increased use of social media, students should be encouraged to distinguish facts from opinions and consider relative risk (56). These skills are not intuitive, but rather learned and developed via education, and they could possibly be a long-term solution for vaccine hesitancy issues.

Unfortunately, many teachers lack instructional strategies to help adolescent students make rational decisions in a given situation, express themselves through discourse and generate their own questions (55). To achieve discussions that enhance critical analytic skills, they need to be structured and focused, but not dominated by the teacher (57). Teachers need to gradually release their control and authority to let students take more lead in discussions (56). Additionally, students need to learn how to create, evaluate and use knowledge; they need to know more than just *what*, but also *why* and *how* (31). A student who is only taught the scientific facts compared to another, who understands how science works and can build arguments, will have more difficulties to evaluate effectively different claims about controverted topics (58). The establishment of teacher professional development programs, targeting ways to promote critical thinking, would help to integrate this concept at schools (59). We suggest that this should be predominantly provided to science teachers and teachers of the country's native language and be also made available already during their studies. Even though critical thinking is best developed in an educational environment at first, this skill should be used in real-world scenarios in order to make informed decisions and engage critically in a world where information is constantly changing and shared at faster rates than ever

(60). Recommendations of educational approaches to combat vaccine hesitancy, divided by age groups, are detailed in **Table 1**. Changes made to the educational system should preferably be implemented on a national level to avoid disparities in different regions.

CONCLUSIONS

Vaccine hesitancy has several causes. Our approach focuses mostly on combating the spread of false information, nevertheless, we do acknowledge that emotions play an important role. Due to the drastic influence of emotions, we suggest the alternative approach of targeting children and adolescence, who might not have strong emotions about vaccines yet (and whose opinion can still be influenced through different sources). This is important, as in adults, the chances of improving risk perception solely by providing appropriate information are low due to the already established emotional connection to the topic of vaccination. Solutions should focus on communicating effectively using evidence-based information, to counteract messages that can misinform the public. In this context, and taking into consideration that critical literacy is fundamental to this matter, we propose different tools to communicate and educate children and adolescents about immunization and critical thinking, according to different developmental periods. These approaches can be applied in combination or individually, depending on the grade of vaccine hesitancy and funding available. Therefore, each country will have to define their own evaluation framework to measure the success of their particular implementation. Governments that are interested in utilizing these recommendations have to clarify first, if vaccine hesitancy is a leading cause of low vaccination rates in their country. Therefore, surveys on the vaccination status and attitude of the population should be performed using guidelines such as the one provided by the WHO's SAGE Working Group on vaccine hesitancy (61). We acknowledge that immunization remains vulnerable to budget cuts, due to benefits not being visible immediately, but investing into prevention and health promotion, as well as communicating the importance of vaccination to young generations can have long-lasting beneficial effects in the population.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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EVALUATING INFORMATION:

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WHAT YOU SHOULD KNOW

With terms like “alternative facts” and “fake news” being used more frequently, it is important to know how to evaluate information presented in different settings, especially if the information is used to make decisions about the health of your children, yourself or others in your family. As we live in a time with a 24-hour news cycle and a variety of sources of information, let’s look at some different types of information.

EVALUATING MEDIA REPORTS

Most of us get our information about topics related to science through media outlets. Sometimes it can seem like new studies are being reported every day, and at times they directly conflict with other reports. When evaluating a media report, whether on the Internet, in print or on TV or radio, check for the following:

- Is the organization providing the information reliable?
- Is the report based on a scientific study or a personal anecdote? If the report is about a scientific study, evaluate the information provided about the study using the criteria outlined in the “Evaluating scientific studies” section. A good media report will not only include information about where the study was published, but also information about the study format and size.
- Who is interviewed or quoted? Is the person an expert? How much information is provided about the person being interviewed?

- Are the people being interviewed sharing anecdotes or talking about the data? While it is sometimes good to hear from people who are personally affected by the topic, it is important to distinguish between an opinion based on someone’s experiences or biases, and a scientific evaluation of the strengths and limitations of the study. If you have ever read a scientific paper, you might recall that the paper not only included the findings of the study, but also its limitations. As a result, a study author or scientist being quoted in a media report will typically be quite specific in what he or she is willing to state and will typically reference the data, whereas someone voicing an opinion, especially if he or she has a personal bias, tends to speak broadly, sometimes delivering more inferences than facts.

For example, speaking about the same study, a scientist might say, “This study shows that drinking 100 cups of coffee every day for 10 years leads to a two-fold increase in the risk of developing stomach cancer.” Whereas, a person from the anti-coffee drinker’s club might say, “This study confirms that drinking coffee causes cancer.”

Journalists often talk about presenting a balanced story. However, a few caveats are important to remember:

- An expert and a parent might be represented as presenting a balanced story, but if one person is motivated by data and the other by a personal experience, this is not balance. It is scientifically based versus emotionally based information.
- Consider the size and expertise of the group supporting each side of a story. Which position is supported by scientific bodies or other researchers in the field?

The goal of a journalist is to appeal to a large audience. One of the tools that allow for ratings or skyrocketing readership in the industry is controversy. Painting an accurate picture may be secondary to the goal of “getting a reaction.”

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EVALUATING WEBSITES

Because virtually anyone can establish a website, it is important to evaluate information found on websites before relying on it as being accurate or representative of sound science. Many of the same considerations of media reports can be applied to online information:

- Who is presenting the information? Is it an organization or an individual? Are the people behind the information clearly identifiable and have credentials that qualify them as experts? If not, is there any expert review of the information?
- Is the information based on science or anecdote? If the latter, does the website link to reliable sources of scientific information?
- Is the website presented in a professional manner? Does the navigation make sense? Is it updated regularly? Do links work? Is the information reviewed regularly (are review dates posted)?

Because of the number of websites related to vaccines that provide inaccurate and biased information, the World Health Organization (WHO) created the Vaccine Safety Net (VSN) project. The project outlines criteria important for evaluating websites in terms of quality and content. Find out more about their complete list of criteria at who.int/vaccine_safety/initiative/communication/network/vaccine_safety_websites/en/.

EVALUATING SCIENTIFIC STUDIES

Often information in media reports or on websites relates to scientific studies, so it is important to also be able to evaluate whether the study was completed according to established scientific methodology.

What constitutes a good scientific study?

Sound scientific studies have the following characteristics:

Random – A study is randomized when participants are separated into control and test groups in a random manner, such as by a pre-determined formula or software. By randomly assigning study participants, scientists decrease the possibility for biased results.

Multiple studies – Study results must be repeatable in order to be widely accepted. If a researcher tries to replicate a study's findings and fails, it is possible that an intentional or unintentional difference was introduced that caused the different findings. Many researchers will look at similar questions in different ways; only when a finding has been reproduced many times in a variety of populations is it widely accepted.

Double-blind – In double-blind studies, both the study participants and the scientists are unaware of whether the participant is in the control or test group. For example, in some clinical trials, neither the researchers giving the treatment nor the study participants receiving it know if they are receiving a placebo (the control group) or the drug (the test group). Double-blind studies are the most reliable because they eliminate potential for bias on the part of both the researchers and the participants.

Sometimes, however, it is impossible to perform a double-blinded study. An example would be a study evaluating the best way to provide a patient with verbal instructions for taking a medication. In this case, the researcher will know which version of text was used, but the patients will not know whether they are in the test or control group. When only the study participants are unaware of the group to which they've been assigned, it is called a single-blinded study. Sometimes, it's unethical to do a double-blind, placebo-controlled study, such as the evaluation of Ebola vaccines during the 2014 outbreak of Ebola in West Africa. In rare instances both the researcher and the participant know the group to which the patient has been assigned, such as when testing a new cancer treatment in someone who has no other options for treatment.

While the double-blind study design is considered the gold standard, this format may not always be an ethical or technically possible option. In these instances a single-blinded or unblinded study format may be employed. As you read media reports about studies, it is important to determine the study method used.

Large sample – Large sample sizes allow researchers to account for individual differences such as genetics, income, race and environmental or lifestyle choices.

Studies and the scientists who conduct them

Because some scientists have biases — and might doggedly stick to those biases — not all scientific publications are accurate. However, the strength of the scientific method is that it is self-correcting. Over time, studies with incorrect conclusions will not be reproducible; therefore, it is important not to rely on the conclusions of a study based on the reputation of the scientist who conducted it, but rather based on the study design and over time, reproducibility.

Studies and the outlets that report them

The best way to determine the strength of a study is to read the original paper. However, because most of us do not have the time or expertise to evaluate all scientific studies that are published each week, we rely on others, such as news outlets, to share accurate assessments with us. Therefore, these organizations should be held to high standards, and as consumers, we should assess each statement made in reports of scientific topics.

This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies. ©2017 Children's Hospital of Philadelphia, All Rights Reserved. 17018-08-17.

Vaccine Hesitancy: Lessons Learned from H1N1 Pandemic and the Development of a Hispanic Risk Communication Model

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COVID 19 is with us. The impact has been heavy on many levels—economically, socially, and emotionally. The disease burden has been exceptionally impactful for medically vulnerable populations including African Americans and Latinos.¹ Protective factors and systems, including public health, have been strained. Thus, accessibility to routine vaccination has been mitigated by fear, competing priorities, and a public health workforce that is in a state of emergency. The likelihood of parents to abide by the Centers of Disease Control and Prevention (CDC) recommended vaccination schedules is double jeopardized within the Latino community as health disparities, lack of a medical home, and distrust of government institutions create additional barriers for protecting adults and children alike.^{2,3,4,5}

The lack of accessibility for routine vaccines is challenged further by the hesitancy parents may have about protecting their children against vaccine preventable diseases including influenza, pertussis, measles, or chicken pox beyond the current threat of COVID-19. There is a need to understand the motivators and facilitators for working with vaccine hesitant parents from a cultural perspective that may be translated to communication tools for healthcare providers and vaccine champions, alike.

This article highlights research efforts to develop messaging and communications strategies in response to another pandemic that heavily impacted Latinos in 2009—H1N1.³ Lessons can be reflected upon and findings can be applied to the current crisis. As a society, we can apply lessons learned from our response to H1N1 to COVID-19. This includes the application of a risk communication framework to counter vaccine hesitancy within Latino populations.

Background

In April of 2009, H1N1 flu virus was the focus of intense surveillance and prevention activity for health officials worldwide as early outbreaks were reported along the border of Mexico and the United States.⁶ Cases of human infection with the H1N1 influenza virus were first confirmed in the U.S. in Southern California and near Guadalupe County, Texas. These two areas were and continue to be, highly populated by Latinos (31.6% and 38.5%, respectively) and other incidence spikes were discovered in areas with similar demographics, including counties in Wisconsin, Washington, Arizona, Michigan, Oregon, and Illinois. Based on the early outbreaks, the CDC identified the need for targeted messages for the Latino community, given the flow of seasonal and migrant workers who are often medically underserved in these states.

Early in the pandemic the vaccine uptake rates for the H1N1 vaccine was lower among Latinos than for other groups. The reason was a combination of crowded living conditions, differential exposure, lower income, distrust of government, and susceptibility to complications caused by chronic diseases.

Jump forward 11 years and vaccination uptake for adults still lags in Latino populations and the coverage has dropped with the onset of COVID-19. This low uptake rate in a large, growing and highly segmented portion of the American public.

The overall goals of the research that was undertaken in the early months of the H1N1 crisis were to identify new messages and a new messaging framework that would more effectively reach individual segments of the Latino population that will ultimately increase inoculation rates against the H1N1 virus.

This research explored the parameters for message development by encompassing the following:

- Delineating the target audience by segment characteristics
- Identifying cultural factors that impact message meaning and adoption
- Comparing risk communication perceptions through a prism of cultural factors

This research provided a rationale for audience segmentation that included such factors as language preference, education level, health risk behaviors, and socioeconomic attributes. This article will also present a discussion of cultural factors and values that can influence preventive health practices and begin to investigate their impact on various segments of the Latino community.

A risk communication model was adapted in collaboration with Dr. Vincent Covello, a seminal researcher in the communications field. The risk communication model was broadened to consider Latino cultural factors. This model is used as a framework for the development of the focus group questions and as a guide in the message development process through strategic message mapping techniques. Research on risk communication within the Latino community to date has focused on the application and effectiveness of strategies to educate farm workers about pesticide and other agricultural hazards and to address hard-to-reach populations including low socioeconomic status, SES, Mexicans in the Texas border region with information about bioterrorism preparedness.

A model of risk communication has not been formulated based on cultural factors that reflect the perceptions of risk. Thus, the development of a Hispanic Risk Communication Model is warranted as a way to gauge the effectiveness of messages that will drive Latinos to influenza vaccination uptake, and to help determine the appropriate segments of the Latino population that perceive risk in similar ways.

Segmentation

This research first reviewed the larger Hispanic audience, especially the key cultural identity factors that impact Hispanics' perception of and response to risk; these factors include geographic distribution, population trends, language preference, literacy level, patterns of health risk, and environmental conditions, and will be discussed in detail below. This overview was a first step toward determining broad segments of the Hispanic population that share key cultural identity factors. These broad segments could then be compared vis-à-vis their response to risk, with the goal of determining how influenza prevention messages might be shaped so that they reach each segment of the Hispanic audience in the most impactful way.

The acculturation to mainstream values of might take on average 10 years for first generations Latinos to adopt new cultural values of their new home country.⁷ The adoption rate will depend on several factors, such level of education, socio economic factors, language comfort, length of residency, living community, and exposure to mainstream culture, to name a few.⁸ Second-generation Hispanics (born in United States from at least one foreign-born parent) are more exposed to American mainstream; however, they live into two worlds, the one of their parents' country and the one they experience at school, work, and social networks. However, the acculturation rate could range from unacculturated, to acculturated to selective acculturated to bicultural. Third generation and higher (born in the United State with two U.S-born parents) are more acculturated to mainstream American cultural value while preserving their Hispanic identity.

Latinos can trace their family origins to 21 different Latin American countries. A Latino family can span up to four generations; if it extends beyond four generations, then it is considered primarily mainstream. Latinos have various levels of acculturation and generational differences. For the purposes of this and subsequent formative research it is important to consider the country of origin in defining the target audience.

The overall Latino population is relatively young compared to other ethnic groups with the exception of the Cuban population.⁹ The median age of the various Hispanic groups reflect the differences in fertility rates and immigration patterns. The median age of Mexican Americans is 23.6, followed by Puerto Ricans with a median age of 26.8 and Central/South Americans with 28.4. Cubans have the highest median age, 41.1. A significant demographic trend is that the proportion of the Mexican American population under the age of 18 is significantly larger than all other Hispanic ethnic groups, and larger than non-Hispanic whites.

Demographic variables such as geographic distribution, education level, and language preference are all signifiers as to the level of acculturation that a Latino may experience. Generational differences can exist in terms of the level of traditional Latino values (i.e. family and respect for hierarchy) that are retained by an individual or community. Therefore, the focus group participants were recruited based on indicators of acculturation and ethnic background to capture segmentation of Hispanic audiences.

This segmentation allowed the researchers to test to what extent different levels of acculturation or ethnicity would interact with the perceptions of risk. The questions for the focus groups were developed using research in risk communication. The assumption was that cultural values which vary as per a person's level of acculturation would have an interaction with the way in which risk was perceived. The Hispanic Values Model will be discussed in depth as it relates to the theoretical approach this research adopted.

Hispanic Risk Communication Model

Risk communication is a highly specialized category of health communication.¹⁰ It consists of the two-way exchange of information about risks, such as those posed by influenza. For public health professionals, risk communication is a core practice. It corresponds to one of the ten essential public health services, Inform, Educate and Empower People about Health Issues.

Effective risk communication provides people with timely, accurate, clear, objective, consistent and complete risk information. It is the starting point for creating an informed population that is:

- involved, interested, reasonable, thoughtful, solution-oriented, cooperative, and collaborative;
- appropriately concerned about the risk;
- more likely to engage in appropriate behaviors.

The four major goals of risk communication are to:

- enhance knowledge and understanding;
- build trust and credibility;
- encourage dialogue;
- encourage the development of appropriate attitudes, decisions, and behaviors.

These goals apply to all four major types of risk communication:

- information and education;
- behavior change and protective action;
- emergency warning and notification;
- joint problem-solving and conflict resolution.

Many of the obstacles to effective risk communications derive from the complexity of risk information and the complexity of human judgments about risks. These complexities are illustrated in the Hispanic Risk Communication Model shown in Exhibit 1.

The Hispanic Risk Communication Model contains four elements or sub-models:

- The Risk Perception Model
- The Hispanic Cultural Values Prism
- The Hispanic Health Belief Model
- Implications of the Hispanic Risk Communication Model for Messages, Messengers, and Means (Delivery Channels)

One of the most important paradoxes identified in the risk perception literature is that the risks that kill or harm people and the risks that alarm and upset people are often very different. For example, there is virtually no correlation between the ranking of hazards according to statistics on expected annual mortality and the ranking of the same hazards by how upsetting they are to people. There are many risks that make people worried and upset but cause little harm. At the same time, there are risks that kill or harm many people, but do not make people worried or upset.

Numerous studies indicate there are often large discrepancies between the risks experts worry about and those lay people are most concerned about. The purpose of much of risk communication research is to unravel the bases for these disagreements.

In a classic study, Dr. Paul Slovic compared the responses from two—experts on risk assessment and laypeople—on the relative risks of 30 activities and technologies. He found striking disparities. For example, while the laypeople rated nuclear power as the No. 1 risk, the experts ranked it 20th; while the experts put X-rays at No. 7, laypeople ranked it at No. 22.

The perception of a given risk is amplified by what behavioral scientists call “risk perception factors” or “outrage factors.” Risk perceptions and outrage can make people feel that even small risks are unacceptable. More specifically:

- Risks perceived to be imposed loom larger than those perceived to be voluntary. People will accept the risk from skiing, for example, but not from food preservatives, even though the potential for injury or ill health from skiing is roughly 1,000 times that from preservatives.
- Risks that seem unfairly shared are seen as more hazardous than risks that seem fair. If people perceive they are not getting anything from the activity that causes the risk, while other people benefit from the activity, the risk is more objectionable.
- Risks that people can take steps to control are more acceptable than those they feel are beyond their control.
- Natural risks are perceived as less threatening than man-made ones. For example, the exposure to radon found naturally in the soil is more acceptable than exposure to the same amount of radon from radioactive mine tailings.
- Risks that are associated with catastrophes are especially frightening to people. For example, the 2001 terrorist attacks on the World Trade Center amplified people’s fears of terrorism and made people fearful of a repeat.
- Risks from exotic technologies create more dread than do those involving familiar ones. A train wreck that takes many lives has less impact on people’s trust of trains than would a smaller, hypothetical accident involving biotechnology, which might be perceived as a harbinger of further, possibly catastrophic, mishaps. Negative events—such as a child becoming paralyzed after being vaccinated—are far more vivid in people’s minds and often carry a much stronger impact than do events that might build confidence, such as extensive safety testing.

A large number of risk perception/outrage factors have been identified by researchers. Several of the most important are described below:

- **Trust.** Risks associated with individuals, institutions, and organizations lacking in trust and credibility are judged to be greater than risks from activities associated with risk associated with individuals, institutions, or organizations perceived to be trustworthy and credible.
- **Voluntariness.** Risks from activities considered to be imposed are judged to be greater, and are therefore less readily accepted, than risks from activities that are seen to be voluntary.
- **Controllability.** Risks from activities viewed as unfamiliar are judged to be greater than, and are less readily accepted, than those from activities that appear to be under the control of the individual.
- **Familiarity.** Risks from activities believed to be unfair processes are judged to be greater than risks from fair activities.
- **Benefits.** Risks from activities that seem to have unclear, questionable, or diffused personal or economic benefits are judged to be greater than risks from activities that have clear benefits.
- **Catastrophic potential.** Risks from activities viewed as having the potential to cause a significant number of deaths and injuries grouped in time and space are judged to be greater than risks from activities that cause deaths and injuries scattered or random in time and space.
- **Understanding.** Poorly understood risks are judged to be greater than risks that are well understood or self-explanatory.

continued

- **Uncertainty.** Risks from activities that are relatively unknown or that pose highly uncertain risks are judged to be greater than risks from activities that appear to be relatively well known to science.
- **Delayed effects.** Risks from activities that may have delayed effects are judged to be greater than risks from activities viewed as having immediate effects.
- **Effects on children.** Risks from activities that appear to put children specifically at risk are judged to be greater than risks activities that do not.
- **Effects on future generations.** Risks from activities that seem to pose threat to future generations are judged to be greater than risks from activities that do not.
- **Victim identity.** Risks from activities that produce identifiable victims are judged to be greater than risks from activities that produce statistical victims.
- **Dread.** Risks from activities that evoke fear, terror, or anxiety are judged to be greater than risks from activities that do not arouse such emotions.
- **Media attention.** Risks from activities that receive considerable media coverage are judged to be greater than risks from activities that receive little.
- **Accident history.** Risks from activities with a history of major accidents or safety problems are judged to be greater than risks from those with little or no such history.
- **Reversibility.** Risks from activities considered to have potentially irreversible adverse effects are judged to be greater than risks from activities considered to have reversible adverse effects.
- **Personal stake.** Risks from activities viewed by people to place them (or their families) personally and directly at risk are judged to be greater than risks from activities that appear to pose no direct or personal threat.
- **Ethical/moral nature.** Risks from activities believed to be ethically objectionable or morally wrong are judged to be greater than risks from ethically neutral activities.
- **Human vs. natural origin.** Risks generated by human action, failure or incompetence are judged to be greater than risks believed to be caused by nature or “Acts of God”.

Because of these factors, risk assessment experts and non-experts often look at very different parts of the elephant in assessing risk. Experts often look at mortality rates to assess risk, while people in the community worry about factors such as trust, voluntariness, fairness, and control, which are typically not part of the risk assessment formula.

Research indicates these risk perception factors, together with actual risk numbers, have a major influence on a person’s emotional response to risk information, on their beliefs, and on their behaviors. They affect levels of public fear, worry, anxiety, fear, anger, and outrage. For example, levels of fear tend to be greatest and most intense when a risk is perceived to be involuntary, unfair, not beneficial, not under one’s personal control, and managed by untrustworthy individuals or organizations.

The greater the number and seriousness of these factors, the greater the likelihood of public concern about the risk, regardless of the scientific data. When experts or authorities dismiss such concerns as misguided, they often stir anger and distrust.

These factors, together with actual risk numbers, determine a person’s emotional response to risk information. For example, they affect levels of public fear, worry, anxiety, anger, and outrage. Levels of fear, worry, anxiety, fear, anger, and outrage tend to be greatest and most intense when a risk is perceived to be involuntary, unfair, not beneficial, not under one’s personal control, and managed by untrustworthy individuals or organizations.

These risk perception factors contribute greatly to our understanding of how people make judgments about risk. However, these risk perception factors alone will not adequately explain Hispanic risk perceptions, beliefs, and behaviors until they have been filtered through cultural factors.

Hispanic Cultural Values Model

As shown in **Exhibit 1**, risk perception factors are filtered through the prism of culture in the Hispanic community; this “prism of culture” will help us to identify subsets of the Hispanic community and their varying perceptions of and response to risk.

Culture is a pattern of human behavior and includes thought, communication, languages, beliefs, values, practices, customs, courtesies, rituals, manners of interacting, roles, relationships, and expected behaviors of a group.

Culture expresses itself through beliefs and behaviors regarding dress, language, eye contact, facial expressions, body language, sense of self, concepts of justice, value placed on the individual vs. the group, notions of modesty, concepts of cleanliness, appropriate emotional responses, rules for social interaction, child rearing practices, decision-making processes, approaches to problem solving, perceptions of authority, and perceptions of health.

Researchers have identified a set of beliefs and behaviors that function as a starting point for characterizing Hispanic or Latino culture. However, even though Latinos share the same language and elements of culture, there is great diversity.

Table 2 below provides a listing of cultural values that reflect behaviors and beliefs that exist within a cultural and historical context for Hispanics. Each of these values has the potential of shaping and reflecting preventative health behaviors and can influence the level of risk by which Hispanics perceive themselves for H1N1 infection.

Table 2: Description of Hispanic Cultural Themes

Cultural Theme	Description
Familismo	Importance of family at all levels: nuclear, extended, fictive kin (<i>compadres</i> —Mexican and Salvadoran). Needs of family take precedence over individual needs. Mutual reciprocity.
Personalismo	Display of mutual respect, trust building.
Jerarquismo	Respect for hierarchy. Spanish language provides forms of formal and non-formal address (different use of <i>usted</i> vs. <i>tú</i> for the pronoun you, polite and familiar commands, the use of titles of respect before people's first names such as <i>Don</i> or <i>Doña</i>).
Presentismo	Emphasis on present. Hispanics tend to display the following behaviors: <ul style="list-style-type: none"> • Balance many tasks at one time • Consider time commitments as more of a goal than real commitments • Change plans often and easily • Care about close friends and relatives more than private and closed connections • Casually touch each other with ease
Espiritismo	Belief that good/evil spirits can affect well being and spirit of the dead. Fatalism can often allow people to surrender themselves to a higher power with the thought that no intervention can make a difference in behavior.
Machismo/Marianismo	Machismo depicts men as being dominant, virile, and independent. Self-sacrifice is at the heart of marianismo, whereas <i>Marianismo</i> depicts women as semi-divine, morally superior and spiritually stronger than men.

The patterns and relationships between race, ethnicity and health can be complex. Hispanics as a group have lower levels of income, wealth, and education than whites; however, they fare as well or sometimes even better than whites on several key health outcomes such as infant mortality. This is considered a paradox but it only holds true for Mexican Americans and new immigrants as opposed to Puerto Ricans. Stronger acculturation patterns are associated with greater access to medical care because of economic mobility but weaker health outcomes in terms of obesity rates, hypertension, and diabetes. With more acculturation Latinos fall into negative health practices including sedentary lifestyles and the consumption of processed foods. Conversely, recent immigrants may benefit from healthier behaviors, stronger social networks, and other sources of psychological resilience that their US-born counterparts may not have.

Acculturation is the process by which a person learns or accommodates to new culture values. Acculturation operates on a continuum. At one end of the continuum, a Hispanic person retains values and beliefs from his/her culture of origin. At the other end of the continuum, there are Hispanics who are fully assimilated with mainstream values and hold no cultural ties, except of self identification as Hispanic or Latino.

Traditional Acculturation Models segment the market into three distinct groups: less acculturated, partially acculturated, and more acculturated. However, this form of segmentation does not adequately represent the many shades and grades of acculturation. For example, it does not account for biculturalism, in which individuals may change their behaviors by incorporating different dimensions of culture depending on the situation.

continued

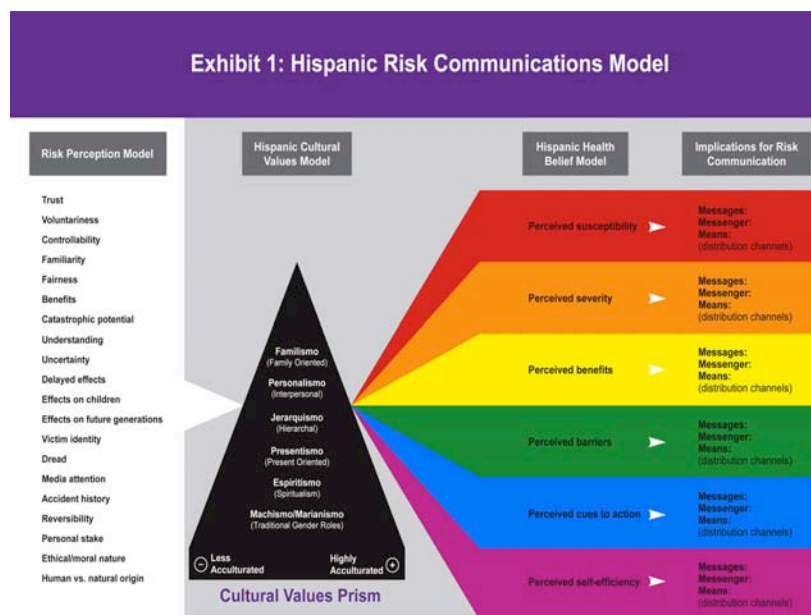
The proposed acculturation prism takes into consideration acculturation levels among the different segments of the Hispanic populations by identifying them as personas. The persona scale can go from Traditional to Progressive. A Traditional Hispanic persona maintains Hispanic traditions, values, and norms of behavior. For example, he/she will mainly speak Spanish, will adhere to traditional cultural roles, and will respect traditional authorities. At the other end is the Progressive Hispanic persona. The Progressive Hispanic persona will adopt the values and beliefs of the host culture, such as gender equality and individualistic orientation.

The Hispanic Health Beliefs Model

Risk perception factors, filtered through the prism of Hispanic cultural values, affect Hispanic health beliefs (see **Exhibit 1**). More specifically, as described in the health belief literature, they help explain:

- Perceived susceptibility (a person's beliefs regarding chances of getting an illness);
- Perceived severity (a person's beliefs regarding how serious the illness is);
- Perceived benefits (a person's beliefs regarding the efficacy of advised actions to reduce the risk or the seriousness of illness);
- Perceived barriers (a person's beliefs regarding the tangible and psychological costs of the advised action);
- Perceived cues to action (a person's beliefs regarding the relevance of recommended prevention or protection strategies); and
- Perceived self-efficacy (a person's beliefs regarding their ability to take effective action).

These perceptions, in turn, will affect the development of messages, the identification of messengers, and the selection of the most appropriate means (channels) for message delivery.



Participants

Research to test the applicability of the Hispanic Risk Communication model was initiated by conducting focus groups among segmented Latino groups consisting of new immigrant less acculturated groups to more acculturated groups, aged 19-50 as a means of capturing their perceptions of risk for the H1N1 influenza infection. Research was conducted among the largest segmented groups of individuals who immigrated or identify as Mexican, Puerto Rican, Cuban, Central American (El Salvadoran, Guatemalan) and South American (Columbian, Peruvian, Venezuelan). Mexicans make up 58.5% of the entire Hispanic population followed by Puerto Rican, 9.6%; Cuban 3.5 %; El Salvadoran, 1.9%; Guatemalan, 1.1%; Columbian, 1.3%, Peruvian, 0.7%; and Venezuelan, 0.3%.

The longer that Spanish-speaking Latinos live in the U.S. the greater the chances of acculturation or adopting behaviors, values, and expectations as it pertains to health decisions. Many cultural factors need to be considered because the acculturation process is not linear. Acculturation levels vary greatly among all segmented groups and it is important to note that some groups maintain selective acculturation, i.e., they retain some cultural values no matter how many years they have lived in the U.S. Many immigrants will choose to live in geographic regions where a large concentration of Hispanics live and thus makes it difficult for immigrants to interact and learn from other non-Hispanics. Socioeconomics also factors into the acculturation process. Another factor is if immigrants are not accepted by non-Latino groups, then the chances of non-interaction are greater.

For the purpose of this study, researchers developed participant selection criteria based on acculturation factors and formative research that has typically been conducted among Latino subgroups for CDC. Acculturation for this study is defined as:

- Length of time in the U.S.—an individual is less acculturated if they have lived in the U.S. no more than 10 years; and more acculturated if they have lived in the U.S. more than 10 years.
- Language—an individual is less acculturated if they speak Spanish at home and at work, and more acculturated if they speak Spanish at home but not at work.
- Media preference – an individual is less acculturated if they watch/listen to television/radio/internet in Spanish for 10 or more hours per week, and more acculturated if they watch/listen in Spanish less than 10 hours per week.

Studies can be expanded to include acculturation segments such as language, country of origin, time of residency, geographic location, relationships, and education.

Six (6) focus groups, each two hours long, were conducted in both traditional market research facilities as well as in a community-based center setting. Research indicates that less acculturated migrant groups are more likely to accept an invitation to attend a focus group discussion if the focus group is held in an informal community setting close to their home.

Data Collection

Data were collected using a semi-structured open-ended focus group interview guide. The interview guide was translated into Spanish, back translated into English, and then revised in Spanish to create the Spanish-language version. The interview guide elicited participants' concerns, motivations, and intentions regarding adoption of the H1N1 vaccine. Focus group participants were asked to give their own opinions as well as their perceptions of the opinions and responses of their peers.

Data Analysis

Focus groups were audio-taped and transcribed verbatim in Spanish and were translated into English for data analysis. Multiple readings of the transcripts were performed by independent investigators using narrative thematic analysis to identify major themes. Next, a line-by-line review of the transcripts was performed, and first-level codes (descriptors of important components of the interview) were noted in the margins. The results correspond to the emergent categories, and all quotations are drawn from the focus groups.

Results

Table 3. Data Analysis: H1N1 Study Implications

Risk Perception	Common Findings	Less Acculturated	More Acculturated
Trust	<ul style="list-style-type: none"> Distrust of vaccine and/or government High regard for doctor's advice 	<ul style="list-style-type: none"> North Carolina children and teens vaccinated LA and Miami subjects did not 	<ul style="list-style-type: none"> Parents want H1N1 vaccine safety record, heard of bad side effects
Dread Catastrophe	<ul style="list-style-type: none"> Vaccine side effects Not high-risk 	<ul style="list-style-type: none"> Parents fear for children getting H1N1 flu 	<ul style="list-style-type: none"> North Carolina teens worry Miami subjects think that impact is less than 10% of population* Los Angeles subjects are more concerned about seasonal flu
Control Voluntary	<ul style="list-style-type: none"> Wash hands* Good nutrition Not at risk (youth) 	<ul style="list-style-type: none"> God helps those who help themselves 	<ul style="list-style-type: none"> Miami subjects thought that breast feeding would prevent babies from getting flu and they did not believe that the outbreak was an act of God
Benefits Fairness	<ul style="list-style-type: none"> Know vaccine benefits but need doctor's approval 	<ul style="list-style-type: none"> H1N1 vaccine uncertainty outweighs benefits 	<ul style="list-style-type: none"> Los Angeles Mexicans felt targeted and most other subjects blamed the epidemic on the Mexican community The Miami subjects accepted the benefits of the vaccine

Discussion

This study is among the first to explore the concerns, motivators, and intentions in regard to adoption of the H1N1 vaccine among Latinos. With insufficient uptake, even highly efficacious vaccines may fail to control the pandemic and any future outbreaks. The findings suggest that H1N1 vaccine uptake is not highly adopted by the Latino community.

Participants indicated reluctance to accept partially efficacious vaccines, compounded by misunderstandings about H1N1 and the H1N1 vaccine fear of vaccine-induced flu infection, and mistrust of government-sponsored or pharmaceutical company research. There is a need to create linkages with trusted messengers that can act as information hubs for Latinos and their perception of risk from a cultural framework.

The present investigation also raises concerns not heretofore addressed in the vaccine acceptability literature. Participants' ambivalence in their adoption intentions was expressed in a "wait and see" approach: refrain from immediate uptake once a vaccine becomes available and see if others adopt the vaccine before deciding whether to be vaccinated oneself. Bandwagon, a concept in the general vaccine literature, aptly characterizes the attitudes expressed in the present study: individuals may wait until they perceive acceptance by others, perhaps presuming that others have done the necessary deliberation to make a wise choice, before accepting H1N1 vaccination.

Ambivalence about H1N1 vaccine uptake and the variety of consumer concerns raised in the present study, along with the context of suboptimal uptake from Hispanics, suggest a need for interventions to facilitate the uptake of H1N1 vaccine.

Formative research to identify concerns, motivations, and adoption intentions among important potential consumers of H1N1 vaccines may facilitate the design of successful empirically based interventions. Although the present findings suggest that these divergent communities shared in many vaccine concerns, specific issues arose in each community as well. Further research to assess differential motivators and concerns regarding vaccine uptake among diverse Latinos communities at risk may enable the design of population-specific interventions to increase vaccine uptake and prevent risk behavior increases.

The same level of testing is needed when the context in which decisions are being made impact the choices Latino parents make for complying with ACP recommended vaccines for children. Parents are making decisions that are mitigated by conditions and values that filter their perception of risk and their sense of agency. Vaccine hesitancy among Latinos needs to be considered in a larger context to adapt messages that speak to their values and the motivators for uptake.

Limitations

Notwithstanding our findings, the present study had several limitations. Intentions to adopt H1N1 vaccines may not translate into actual behavior. The expressed “wait and see” approach to H1N1 vaccine uptake, for example, is reflective of present intentions rather than future behavior. A related limitation is that lay participants may not be able to understand or reasonably comment on the risks or efficacy of the H1N1 2009 vaccine.

Other limitations exist because of the focus group method. Group process may at times be problematic with one person dominating the group. In addition, concerns may arise in the group context that individuals otherwise may not have raised themselves. Facilitators were experienced in managing group dynamics, and the study protocol prompted the facilitator at every question to give all participants the opportunity to talk.

Still, group process may influence the data, which may not accurately reflect each individual’s concerns. Our purpose was not to rank or quantify individual concerns, however, but to elicit and explore an array of consumer concerns in regard to H1N1 vaccine among relatively homogeneous groups.

In addition to its limitations, group process presents a unique opportunity to elicit in-depth reactions and to replicate some of the decision-making processes around actual vaccine adoption. Although in part a private decision, vaccine adoption occurs within the larger social context, research on adoption of existing vaccines suggests that individuals are influenced by the attitudes and behaviors of others.

Finally, the small sample size as well as the participant selection process limits the ability to generalize our results to others. The purpose of this investigation was to elicit and explore reactions to H1N1 vaccine among select consumers at risk for H1N1 infection rather than to quantify and generalize results.

Acknowledgments

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Addressing HPV Vaccine Hesitancy CME

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Introduction & Author's Note

This CME article on dealing with human papillomavirus (HPV) vaccine hesitancy is not going to be like other CME articles you've read because, frankly, responding to this vaccination barrier is a challenge for **YOUR** practice, about which I am not the expert. You are.

I am going to share with you what some other practices have tried and have worked and I am going to ask you to reflect on how these strategies might be adapted to your office. The learning will happen during the reflection, not while I'm talking, so it's really important that you do the reflecting.

This CME article also is different because this year is different than every other year since we became pediatricians. A lot of patients are afraid to come into our offices. We are all acutely aware of how unpredictable and uncontrollable the future is, so planning seems like a silk hoop skirt—luxurious but antiquated. A lot of offices are running without any profit margin (maybe that is not so new in pediatrics) so efficiency must be maximized at the same time that we are warmly reassuring stressed out families.

Author's note. I have a severely autistic son and his special needs have absorbed me and my husband throughout his life. At one point my son had a setback and some well-meaning helping professional tried to impress upon us what a growth opportunity this presented. After the visit my husband snarled, "Just what we needed. Another @\$%^&*+ growth opportunity!" Growing vaccine hesitancy plus a potential triple pandemic (SARS CoV-2, influenza, and measles) PLUS economic disaster...I'm not going to purr about what a great *growth opportunity* this is. But it is what we are faced with and this CME article is just an invitation to think together about potential approaches to HPV vaccine hesitancy in your office during the perfect storm. (May your next life be boring.)

HPV Vaccination Is Worth A Piece of Your Passion

As pediatricians we have so much to be passionate about. Every day we see beautiful young people who are struggling with everything from congenital problems to obesity to learning and emotional disabilities to disastrous social situations. Why would prevention of a viral infection that doesn't cause immediate multisystem failure warrant the attention of you and the families of adolescents?

HPV-associated cancers. The long-term consequences of HPV infection are the cause of a lot of suffering. A table is worth a thousand words so please answer the question below by closely examining **Table 1**, which shows the US average annual number and rate of HPV-associated cancers and estimated percentage and annual number of cancers attributable to HPV, by HPV type, cancer type, and sex—2012–2016.¹

QUESTION 1

According to Table 1, when we consider only HPV types in the current 9-valent HPV vaccine, which of the following is **FALSE**?

- a) Each year about 32,100 cancers were caused by these nine HPV types.
- b) 13,100 out of 32,100 (about 40%) of the cancers caused by the vaccine type HPVs were in males.
- c) There were more cases of cervical cancer than oropharyngeal cancer caused by these nine HPV types.
- d) The HPV types in the current 9-valent HPV vaccine caused more than 80% of all cervical cancers and about 66% of all oropharyngeal cancers.

ANSWER 1

The FALSE statement is c.

In fact, there were more cases of oropharyngeal cancer (12,600) than cervical cancer (9,700) caused by these nine HPV types. More than 80% of the oropharyngeal cancer cases were in males. It's important to understand that we vaccinate males primarily in order to prevent cancer in males, as well as preventing the spread of HPV.

Oropharyngeal cancer. Because of an epidemic that remains relatively unfamiliar to most of us, in the U.S. the oropharynx is the leading site for HPV-associated cancers. Because of the relative unfamiliarity of this cancer there are potential delays in diagnosis and treatment. It used to be that head and neck cancers primarily occurred in smokers and in those with a significant alcohol history, but HPV-positive oropharyngeal cancer typically presents in younger, healthier men. Although survival rates are high, many survivors develop lifelong disabilities because of their intensive treatments. Prevention is better than treatment.²

QUESTION 2

TRUE or FALSE? Cervical cancer is the only type of HPV cancer with a routinely recommended screening test.

ANSWER 2

TRUE. At this time cervical cancer is the only type of HPV cancer with a routinely recommended screening test. The other types of HPV cancer (e.g., oropharyngeal) may not be detected until they cause health problems. And, despite the recommendations for cervical cancer screening and early treatment, each year in the U.S. more than 4,000 women die from cervical cancer.

Cervical pre-cancers. What is not reflected in the cancer statistics are the persistent HPV infections that lead to precancerous cervical lesions, which require regular, on-going medical attention. The CDC states that each year "nearly 200,000 women are estimated to be diagnosed with a cervical precancer."³ Most of the cervical precancerous lesions can be identified with regular screening; progression to invasive disease usually can be prevented with appropriate follow-up. Low-grade squamous intraepithelial lesions may be managed with repeat cytology to detect persistence or progression, but for high-grade lesions treatment may include removal or destruction of the abnormal area of the cervical os. This treatment, while potentially lifesaving, is associated with reproductive harms.⁴ The focus of this article is not to detail evolving management guidelines, but to highlight that HPV disease—even if it does not progress to cancer—has clear and proven potential for reproductive harm. In contrast there is no evidence that HPV vaccine causes infertility or prematurity.

QUESTION 3

A parent saw a social media post about HPV vaccine making girls infertile. She asks one of the Medical Assistants in the office about her perspective on whether or not this is true. Which of the following answers is the best choice?

- a) There's really no evidence that getting HPV vaccine will have a bad effect on future fertility, but women who develop an HPV precancer or cancer could need treatment that would limit their ability to have children.
- b) I'm not really sure. Maybe I should read that post, too.
- c) Oh, if you're worried, we just won't give it.

ANSWER 3

Obviously, knowing that the HPV vaccine—and all the vaccines we are giving in this office—are safe is important or the recommendation doesn't come from the heart. The nursing and office staff may need a different depth of knowledge than the providers, but everyone needs the basic facts on vaccination.

All these statistics are persuasive to some people but leave others cold. When you are talking to a vaccine hesitant person it may be more compelling for them to hear the real-life stories of people who have suffered because of the consequences of an HPV infection. Frequently, someone who works in the office has been touched by this. In my town a pediatrician who herself had cervical cancer has achieved very high immunization rates among her patients because, as you can imagine, her recommendation is anything BUT ambiguous. I have met another pediatrician who became the HPV office champion because a close friend died of oropharyngeal cancer. It doesn't have to be one of the physicians, either. In one office a staff member had trouble carrying a pregnancy to term because of sequelae of treatment for cervical precancer; she made it a point to call every family with a child past due for their HPV vaccine to remind them not to miss out on this protection. If there is no individual in your office who is up for sharing a personal HPV story, it's worth getting people to view one of these compelling videos to reflect on the potential life consequences of making the active choice to refuse or delay HPV vaccination.

- *Someone You Love*: <https://www.hpvepidemic.com/>
This poignant full length documentary narrated by Vanessa Williams takes a look into the lives of five women affected by HPV. Each of these women has an intimate story to tell. This movie has often been shown at large gatherings (e.g., PTA, immunization coalition meetings, pediatric conferences), but is available online. Viewers can earn CMEs, CNEs, or Pharmacy CEs for watching this powerful documentary. (For continuing education information, see <https://www.hpvepidemic.com/cme>)
- *ShotbyShot.org*: <http://www.shotbyshot.org/story-gallery/>
This website gathers the stories (text or video) of people who have been affected by vaccine preventable diseases, including HPV.
- *National HPV Vaccination Roundtable's Resource Library*: <https://hpvroundtable.org/resource-library/#filter=.video>
The National HPV Vaccination Roundtable is organized by the American Cancer Society. Their Resource Library includes "HPV Survivor Stories" (denoted with a white arrow in a blue circle). These videos may help hesitant families reflect on the real-life survivors who urge HPV vaccination, so others don't have to go through what they have been through.

QUESTION 4

When you reflect on personal stories about HPV disease that moved you, whose experience comes to mind? (Choose all that apply)

- a) Your own
- b) The experience of a family member, friend, or co-worker
- c) Another person's experience
- d) A story you saw in print or online
- e) Other

ANSWER 4

For each of us the answer will be different. If you cannot think of a story that moves you, please watch Heather's story [<http://www.shotbyshot.org/stories/heathers-story/>] of death from cervical cancer and Steve's story [www.youtube.com/watch?v=m8CcEZtYk60&feature=youtu.be] of surviving HPV-attributable penile cancer. If you can make it through these two videos unshaken you are tougher than I am.

HPV vaccine is tremendously effective and very safe. CDC researchers documented that within 8 years of the introduction of HPV vaccine, vaccine type HPV prevalence decreased 71% among 14- to 19-year-old females and 61% among 20- to 24-year-old females. Comparing HPV prevalence in sexually active 14- to 24-year-old females in 2003-2006 (the pre-vaccine period) and in 2011-2014, they found a decrease of 89% among those vaccinated and 34% among those unvaccinated, indicating benefits of "herd immunity."⁵ A study published in *Pediatrics* in February 2019 showed similar results.⁶ A Cochrane review of the available literature concluded that "there is high-certainty evidence that HPV vaccines protect against cervical precancer in adolescent girls and young women aged 15 to 26." They also noted that—with high certainty—the risk of serious adverse events was similar in people given HPV vaccine versus control vaccines, that is, (that is, injected placebo or a vaccine against a different infection. HPV vaccines also did not increase the risk of miscarriage or termination of pregnancy.⁷

QUESTION 5

Before reading the next section, please take your best guess regard which of the following reflects the 2018 data on the proportion of 13-17 year olds in New Jersey who received at least one dose of HPV vaccine. (*Choose all that apply*)

1. 60.8% (lowest quintile)
2. 65.4% (next-to-lowest quintile)
3. 67.3% (middle quintile)
4. 72.1% (next-to-highest quintile)
5. 84.1% (highest quintile)

ANSWER 5

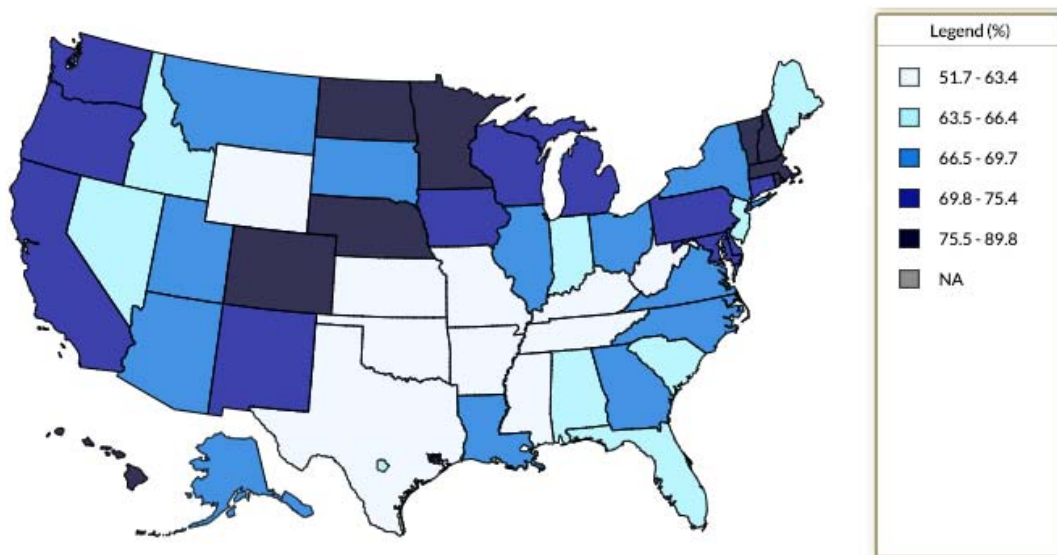
2018 data on the proportion of 13-17 year olds in New Jersey who received at least one dose of HPV vaccine: 65.4% (next-to-lowest quintile). This data is shown on CDC's TeenVaxView.⁸

In case you are curious...

- | | |
|-------------------------------------|-----------------|
| a) 60.8% (lowest quintile) | Arkansas |
| b) 65.4% (next-to-lowest quintile) | New Jersey |
| c) 67.3% (middle quintile) | New York State |
| d) 72.1% (next-to-highest quintile) | New York City |
| e) 84.1% (highest quintile) | City of Chicago |

New Jersey Could Be Protecting More of Its Young People

In the figure below you see HPV vaccination coverage with at least one dose among adolescents 13-17 years of age by state according to the National Immunization Survey-Teen, 2018.⁹ The coverage in New Jersey is 65.4%, which puts the state in the next-to-lowest quintile (shown in light blue). Only states shown in light grey have lower HPV vaccine initiation rates.



Compare this with NJ's performance on other adolescent vaccines:

- At least one dose of Tdap or Td—NJ reached 88.4% of 13-17 year olds
- At least one dose of MenACWY—NJ reached 91.9% of 13-17 year olds (putting it at the next-to-highest quintile).

Of course, this was in 2018. Immunization rates have dropped during the pandemic because families were afraid to come into the office. The New York Times reported on a study by PCC, a pediatric electronic health records company, that showed a 50% drop in MMR vaccinations, a 42% drop in pertussis-containing vaccinations, and a 73% drop in HPV vaccination from the week of February 16 to the week of April 5. This data was gathered from 1,000 independent pediatricians nationwide, not from a single state.

QUESTION 6

Please reflect on these questions.

- Do you know your office's immunization rates? Might knowing that inspire some new action?
- If everyone in the office saw and discussed the office's rates for HPV, Tdap, and MenACWY vaccinations, would that comparison leave less room for excuses?
- Might showing immunization rates by provider lead to friendly competition?

Sidestepping Hesitancy by Starting HPV Vaccination at Age 9 - 10 Years

Given the backlog of patients who need HPV vaccine and the HPV vaccine hesitancy among parents worried the vaccine could make their child promiscuous, consider a solution that might seem counterintuitive: start giving the vaccine at age 9 years. The American Academy of Pediatrics (AAP) recommendation in the 2018-2021 *Red Book* states that *"the AAP recommends starting the series between 9 and 12 years, at an age that the provider deems optimal for acceptance and completion of the vaccination series."*

Of course, someone needs to keep checking the immunization records of all the patients 9 and older to be sure they all get caught up, but starting HPV vaccination at age 9 years has been found by some offices—in studies and quality improvement projects—to offer some distinct advantages, including:

- Some providers report that there is less resistance from parents at age 9 or 10. This may be because initiating the vaccine earlier makes it so the HPV recommendation comes in on a "different channel" than the conversation about puberty and sexuality that typically occurs at age 11 or 12.
- Parents and patients may prefer starting the HPV vaccine series at age 9 or 10 to avoid receipt of three or four (in influenza season) vaccines at a single visit as happens at age 11 or 12.
- If a vaccine is delayed at the 11- or 12-year visit, it's usually the HPV vaccine. Then—if you are diligent—you are launched into a time consuming spiral of sending recall messages and checking to see if follow-up occurred.
- More 9 and 10 year old patients, compared with older adolescents, attend well care visits.
- If you start offering the vaccine at age 9 and they decline or delay, you can offer it again at every well care visit until they graduate from the practice. There will be more opportunities for them to accept protection.
- Similarly, if they decline or delay at age 9, you can offer it again at every well care visit with the hope of initiating the series before the 15th birthday so the series can be completed with just two doses.
- There is no known downside to vaccinating at age 9 or 10. The immune response is robust, and protection persists.

In their useful review of this approach in the AAP News, Drs. O'Leary and Nyquist highlight that practices could consider changing their electronic medical record to prompt an alert at age 9 or 10. "The change could result not only in improved vaccine uptake but also fewer cancer deaths."¹⁰

QUESTION 7

Which of the following do you see as important arguments for starting HPV vaccination at age 9 in your office? (Choose all that apply)

- a) Less parental HPV vaccine hesitancy
- b) Less parent and/or child concern about receiving 3-4 shots at one visit
- c) Less office personnel time spent sending recall messages
- d) More 9 year old patients, compared with older adolescents, attend well care visits
- e) More opportunities to offer it again at every well care visit before the 15th birthday
- f) The immune response is robust, and protection persists so there is no downside
- g) I don't see any of these as important arguments

ANSWER 7

Each of us will have different responses, but most of us can see one or two advantages. You may want to try starting this approach now when in-person visits are less common and more precious.

Communication

Many studies have shown that the recommendation of the health care provider is key to parental acceptance. I think few of us are surprised by that. However, some of us may be surprised by how pediatricians and others in pediatric offices “recommend” HPV vaccine. Please watch this funny and insightful video about how NOT to “recommend” vaccines (created by the Minnesota Department of Health):
https://www.youtube.com/watch?v=vFHjK5L0t-Y&feature=emb_title

QUESTION 8

Which of the following HPV vaccine introductions is associated with higher immunization uptake?

- a) “How do you feel about receiving vaccines today?”
- b) “Today we have three vaccines for you: Tdap (which is required for school), MenACWY (which is required by some colleges), and HPV vaccine (which is optional).”
- c) “Today we have three vaccines for you: Tdap, MenACWY, and HPV vaccine. We can postpone the HPV vaccine if you want.”
- d) “Today we have three routine vaccines for you: Tdap to prevent whooping cough, HPV vaccine to prevent some cancers, and MenACWY to prevent some forms of meningitis.”

ANSWER 8

The correct answer is “d”

Many pediatricians working to increase HPV vaccination rates in their office have been amazed at what a large difference they see by just making the simple change to presenting HPV vaccination as a routine vaccine to prevent cancer.

What I am suggesting is called the “Same way, same day” approach. In this simple, time efficient method, HPV vaccine is introduced in exactly the same way as the other routine vaccines are introduced and on the same day as the other routine vaccines are introduced.

If your office starts HPV vaccination before you give other adolescent vaccines (e.g., at age 9 or 10 years) you can adapt this method, introducing the HPV vaccine by saying, “Today we have the HPV cancer prevention vaccine for you.”

One easy way to teach your entire staff the same way, same day approach is to have them play with the free app, **“HPV vaccine: Same way same day.”** It’s a cool interactive simulation, kind of like “The Sims” game and it takes about 12-15 minutes. It’s available on Android and Apple, via phones and tablets. It was created through a collaboration of the AAP and the Academic Pediatric Association with funding from the Centers for Disease Control and Prevention.

QUESTION 9

One of your office staff, Dolores, is calling families of patients who are behind on services to let them know your office visit is taking pandemic precautions and to set up appointments. When Dolores tells a mom that her son needs to come in to get caught up on well care and his HPV vaccine, the mother says, “My son’s not that type. He’s not into girls yet. He can wait until he’s at least 16 before we open that can of worms.” Which of the following answers is the best choice?

- a) I’m just doing what the doctor told me to do.
- b) I’m not really sure why we do this so young.
- c) Vaccines protect your child before he’s exposed to a disease. It’s like a seat belt -- you have him buckle it before leaving the driveway. That’s why we give HPV vaccine earlier rather than later, to protect them long before they’re exposed.
- d) Oh, if you’re worried, we just won’t give it.

continued

ANSWER 9

The correct answer is “c”

If Dolores understands her part in cancer prevention, she'll be much more motivated, and her enthusiasm carries a message to the parents that this is important.

The office staff may not have time to develop a deep understanding of the facts of HPV, but they should be ready with the answers to the most common questions. CDC has prepared succinct answers on one page. The flip side of the sheet called *Talking to Parents About Infant Vaccines* is *Talking to Parents about HPV Vaccine* (Go to <https://www.cdc.gov/hpv/hcp/for-hcp-tipsheet-hpv.pdf> and scroll down or see the website <https://www.cdc.gov/hpv/hcp/answering-questions.html>) The head nurse or nursing supervisor may want to review these responses with the nursing team during their huddle. They may even try role playing until everyone is confident that they can accurately answer the common questions before referring harder questions to the provider.

This kind of preparation may be more important now than ever because offices are strapped financially so we need to be efficient. All personnel need to work to the top of their license. In many settings that includes nursing staff starting the recommendation process.

QUESTION 10

Our office is going to start sending visit reminders to families through our portal system. We will include information about our pandemic procedures and about the vaccines due at the visit. For each vaccine we will include the CDC Vaccine Information Statement in the parent's preferred language (see <https://www.immunize.org/vis/>).

If the patient is only behind on HPV vaccine, we'll include a weblink to an HPV vaccine handout, too. Which of the following handouts would be most useful for parents in your office?

(Note: all these are in English and Spanish) (Choose one)

- a) From Children's Hospital of Philadelphia, "Human Papillomavirus: What you should know" available at <https://media.chop.edu/data/files/pdfs/vaccine-education-center-hpv.pdf>
- b) From the Immunization Action Coalition, "Human papillomavirus (HPV): a parent's guide to preteen and teen HPV vaccination" available at <https://www.immunize.org/catg.d/p4250.pdf>
- c) From the American Cancer Society, "HPV Vaccination: Just the Facts" available at <https://www.cancer.org/content/dam/cancer-org/online-documents/en/pdf/flyers/hpv-vaccination-just-the-facts-for-parents.pdf>
- d) Other
- e) None

ANSWER 10

There is no one answer to this question. Some parents need a lot of detail, some trust a particular organization, and some just won't read anything. Knowing what's most useful in your setting is part of the art of medicine.

Reminders and Recall Messages

I want to say a few quick words about reminders, which you may not think is part of a discussion of vaccine confidence. I think that by letting families know which vaccines can be expected at the next visit and giving them at least one reliable website to refer to, we *inoculate* them with information. Sometimes the first seed that lands on the soil takes root and prevents other growth. Similarly, if the scientific perspective is the first to take root, we may prevent misinformation from flowering.

Recall messages are a little different than reminders because recall messages are sent after a patient is already late for some routine well care or vaccination. Because of the pandemic, many patients are behind on preventive care. Of course, older adolescents had, on average, low attendance at preventive visits even before the pandemic. Many offices are sending reminders and recalls to maximize office traffic so that can catch up can occur before...well, before who knows what (the back to school rush? The next wave of COVID-19? The flu season?).

It's best to have your office systems (e.g., offering HPV vaccine starting at age 9; using the same way, same day introduction) in place so that the reminders and recall messages don't just drive patients into a "torn net", that is, a work flow that allows patients to slip through.

What is the best way to bring patients in—for example, automated phone calls (very inexpensive) or SMS text messages (because everyone is on their phone constantly)? Evaluate what is feasible in your office. Often a personal call from a nurse who knows the family is very persuasive because her caring comes through. In emotional decisions (choosing to vaccinate has become an emotional decision for many people) statistics are not persuasive but people do respond to genuine caring.

How to Handle Rejection

Despite your and your team's best efforts to address vaccine hesitancy, some parents will decline vaccination. You are a pediatrician, so it is likely that you are (a) very nice and (b) very conflict avoidant, but don't *over-remember* this declination. You can protect 80% of the kids even if 2-out-of-10 parents refuse. While you can rest assured that you did your best for this child at this visit, don't stop there. Declination is not final. Many parents who decline at today's visit, will vaccinate later. Offer reading material. As Dory sang to Nemo's father, "Just keep swimming."¹⁰

Waiting to vaccinate is the risky choice, so some pediatricians ask parents to sign a declination form, such as the one created by the AAP.¹¹ Some have found that parents accept the vaccine when they recognize that they are taking an active risk by declining vaccination. Others feel that having parents sign a declination form shifts the focus away from caring and so is counterproductive.

Summing Up

There is a tool to which I refer very frequently, but have not mentioned, *The Vaccine Handbook: A Practical Guide for Clinicians*. This textbook by Dr. Gary Marshall—a pediatric infectious disease specialist who is both knowledgeable and wise—is clear, thorough, and persistently updated. The app version is both free and priceless. I offer, as a summary of many of the suggestions presented in this paper, a truncated adaptation of his "Communication Strategies" (from Chapter 7, Addressing Concerns About Vaccines).

Basic Communication Tips

- *Begin the discussion early*—To some degree, decisions about vaccinating are made long in advance so inoculate parents with information.
- *Start strong*—People are more likely to accept vaccination if the provider begins the conversation from a presumptive ("We have some shots due today") rather than a participatory ("What do you want to do about shots today?") position.
- *Be firm*—Building on the trust you have earned, your approach should be nonjudgmental, empathetic, mutually respectful—and *affirmative*. Endorse a patient's right to question without lending validity to their concerns.
- *Personalize the narrative*—Personal testimonies such as "I get a flu shot every year, without hesitation" carries a lot of weight.
- *Be aware of pitfalls*—Understand how words and phrases can be misconstrued.
- *Check for understanding*—Make sure parents and patients understand what you have told them and ask if they have any questions.

Advanced Communication Tips

- *Normalize vaccination*—Parents should understand that the vast majority of children receive all recommended vaccines according to the recommended schedule.
- *Emphasize disease risks*—In general, replacing erroneous beliefs with new information on the consequences of disease is a better approach than trying to correct erroneous beliefs.
- *Avoid "fact tennis"*—Endlessly countering the patient's "facts" with your own, tit-for-tat, is seldom productive. Ask permission before giving your perspective.

- *Understand individual backgrounds and concerns*—A myriad set of personal factors can affect risk perception. People tend to interpret evidence in ways that strengthen ties to their in-group. Vaccine messages should be nuanced with these ideas in mind.
- *Layer information appropriately*—Providers should be aware of the patient's cognitive foundation and begin with information appropriate to that level. People who want to know more will ask.

Communication Within an Office Practice

- *Use a team approach*—Communication should be a coordinated effort among all office personnel. Each team member should be empowered and should know their function during the vaccination visit.
- *Organize visits effectively*—Build efficiencies into the visit. This may include the following.
 - o Make a preparatory phone call to remind the parent what to bring and perhaps introducing the vaccines that are scheduled for the visit
 - o Use a screening questionnaire for contraindications
 - o Give the pertinent VISs
 - o Explain the vaccines' importance as well as commonly expected side effects and how they should be managed
 - o Be prepared with simple direct messages to address frequently asked questions
 - o Offer easy-to-understand printed or online materials that may solidify concepts introduced during the visit
- *Be consistent*—Reach consensus on how the practice will handle specific issues. Communication is more difficult when some providers in the practice endorse "alternative schedules" while others do not.

Focus on the 99%

- *Focus on the 99%*—The very small number of anti-vaccine adamant parents are not likely to change their minds. Providers should focus their energies where they have a possibility of positive impact.

THE END



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Facilitating Vaccination in Your Practice

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The importance of Immunizations is well understood by practitioners. The process of advocating for timely immunizations through effective communications is not. Success is not a “come and get it” kind of deal; you need to adopt an approach that recognizes every time a vaccine-hesitant parents—or even those who are “on the fence” - access care, it represents an opportunity to engage in a conversation and influence decisions.

The American Academy of Pediatrics underscores the importance that providers strive to understand and acknowledge parental concerns in a non-confrontational manner, seeking to clarify and reaffirm correct beliefs and addressing misconceptions about immunizations.

The foremost step for attaining and sustaining a well-organized and successful vaccination strategy in a practice is to ensure every member of the office buys into the program; they need to gel into a well-oiled machine. When a parent asks a member of the team a question, the answers from every member of the staff needs to be the same, consistent and effective.

To best meet that objective, proactive and repeated training of staff is required AND essential. Training that provides tools for driving discussion and responses to frequently asked vaccine-hesitant questions. It is important to remember that consistency in the messaging and recommendations separates an average immunization program from one that is exceptional.

The following recommended steps will assist practices in developing a simple and effective team-based approach for increasing immunization rates.

The Training:

Bring you staff together for an “Overcoming Vaccine Hesitancy” kick-off training. Keep the trainings short (20-30 minutes), employ a simple learning tool, and emphasize practice make perfect. A good meeting framework will focus on:

1. **Conducting an open and honest discussion** about staff vaccine questions and concerns. In order to achieve buy-in, you first have to know where everyone stands.
2. **Providing a simple training tool** that will guide the group in refining responses to frequently asked questions and concerns. For our trainings, we provide staff members with a toolkit
3. **Role playing.** Practice, practice and practice some more. Take time to discuss the answers feel best represent your practice.

Encourage (require) staff members to participate in each role playing session, taking turns playing the part of a vaccine hesitant parent, a staff member or clinician. After completing a few rounds of these sessions, assign one staff member to the role of ‘daily challenger’. In this role the ‘challenger’ presents a colleague with a vaccine hesitancy question or scenario from the training tool. Afterwards (lunchtime?) there can be a brief huddle discussion to assess the response. Remember, practice makes perfect!

As the team fine-tunes their responses, be sure to emphasize the importance of making recommendations with confidence and conviction. Encourage each team member to use a presumptive approach when speaking to parents. “Your child is due for his/her HPV vaccine. We will take care of that today”, rather than, “Have you thought about your daughter/son receiving the HPV vaccine today?”

Be factual, never make up facts. If you have personal stories to add, do so, it makes the conversation and your recommendation more effective. Remember, for many, facts are boring. Bringing your perspective to the forefront can make it more interesting and meaningful.

Always take into consideration the family’s cultural background and tailor your conversation appropriately. Engage the parent, do not disregard or shun their concerns. Successful vaccination outcomes rarely result after a parent’s belief system is ignored or challenged. Reinforce their understanding when they are right and clarify misinformation with science and personal experience.

Using the Tool—It is imperative that all practice team members are prepared to respond to the most frequently voiced concerns and questions with the exact same words. Some may think of this as being excessive, but believe me, the approach works. It is an approach that Bellevue has employed for some time. Truthfully, it played a leading role in helping us achieve the NJ CDC HPV Champion of the Year. You can too, and this VACCINE FAQ's—Frequently asked questions and suggested answers will help you accomplish the goal.

Some suggested practice questions and responses:

1. Is it OK for my baby to get so many vaccines at once?

Points to Convey:

- Multiple vaccines given at the same time do not overload a baby's immune system.
- Every day, babies are exposed to far more antigens than those contained in vaccines.
- Splitting the vaccines does not mean less pain for the baby, it just increases the time and cost for additional visits to the doctor's office.

2. Are Shots harmful for the baby?

Points to Convey:

- The vaccines we administer are safe, it's the diseases they prevent that are dangerous.
- The vaccines prevent the type of outbreaks recently seen in communities who shun vaccinating their children.

3. Are shots very painful for my baby?

Points to Convey

- Yes, but there are steps you can take to reduce the discomfort.
- Feeding them before, during and afterward help distract the child
- You can distract the child by making funny faces

4. Isn't it better to use an alternate schedule?

Points to Convey

- Alternate schedules are not recommended by our practice. It can expose children to increased risk from preventable disease.
- The ACIP recommended schedule is based on the scientific research of medical and public health experts.

5. Isn't natural immunity preferable to vaccine induced immunity?

Points to Convey

- Natural immunity can be strong and long-lasting, however, the consequences or complications that come from fighting the infection can be quite serious.
- It is estimated that vaccinations to children born between 1994 and 2013 will prevent 322 million illnesses and 732,000 deaths.

6. Do Vaccines cause Autism?

Points to Convey:

- No, there is no link between receiving vaccines and developing autism spectrum disorder.
- The CDC and many other scientific organizations agree, **there is no link between the two.**

The above examples are but a few of the most frequently voiced questions and concerns by parents. To request additional information and examples for facilitating vaccinations in your practice or to request a supply of the *Facilitating Vaccinations in Your Practice*, keyring training kits, reach out to your Pfizer Vaccines Representative, or call Customer Service at 800-666-7248.

VACCINATED OR UNVACCINATED:

WHAT YOU SHOULD KNOW

Some people ask the question, “If vaccines work, why do unvaccinated people present a risk to those who have been vaccinated?” This sheet is meant to answer that and related questions while highlighting the different considerations for families of vaccinated and unvaccinated individuals.

ALL COMMUNITIES HAVE VACCINATED AND UNVACCINATED MEMBERS

While unvaccinated people are often thought of as those who have chosen to remain that way; in fact, people can be unvaccinated for any number of reasons.

Newborns and young infants may not be old enough to receive certain vaccines, like the influenza or MMR vaccines. Also, some people have legitimate medical reasons for not getting one or more vaccines, such as an allergy to a vaccine component. Others may be immune-compromised due to medicines like steroids for asthma that cause them to be susceptible to infections. Still others might not be vaccinated because they are receiving chemotherapy for cancer or immune suppressive medicines following an organ transplant.

Also, vaccines don’t work 100 percent of the time. For example, 95 of every 100 people who receive a single dose of measles vaccine will be protected, but five will not. These five vaccinated people who didn’t develop an immune response to the vaccine are just as susceptible to disease as people who aren’t vaccinated.

For all of these reasons, virtually every family experiences periods of time when they rely on the collective immunity of their community to protect their loved ones.

ALL MEMBERS OF THE COMMUNITY CONTRIBUTE TO ITS COLLECTIVE IMMUNITY

Just as every family relies on their community for protection of their loved ones, so too does every family contribute to the relative strength of their community’s ability to stave off the spread of infection. So how does this work?

Germs (or pathogens) are like rainwater. They find the weak spots in a community the same way that rainwater finds the weak spots in a leaky roof. When a high percentage of people in a community are protected against a disease, everyone in the community, including those who have not been vaccinated, is at lower risk of being infected with a potential pathogen. This concept is commonly known as herd (or community) immunity. In this case, the roof is effectively sealed.

On the other hand, as the unvaccinated population increases, so does the opportunity for a pathogen to spread through the community. This shared environment is important to all families because studies have shown that vaccinated people in a relatively unvaccinated community are at greater risk than unvaccinated people in a highly vaccinated community. In the first case, the roof is too leaky; in the second case, it’s not. Therefore, collectively, the community plays an important role in individual protection, particularly for those who are most susceptible.

Virtually every family experiences periods of time when they rely on the collective immunity of their community to protect their loved ones.

continued >

MY FAMILY MEMBER IS UNVACCINATED

While vaccination provides the best measure of protection, as discussed earlier, sometimes vaccination is not possible. Therefore, if you or a family member is unvaccinated, here are some things to consider:

Limit opportunities for exposure — Several strategies can help keep an unvaccinated family member — especially a newborn or infant — healthy by identifying and limiting opportunities for them to be exposed to potentially harmful germs. These include:

- Discourage kissing babies or susceptible relatives on the lips
- Limit exposure to those who are sick by asking how others are feeling before setting up visits
- Limit exposure to places with large groups
- Wash hands thoroughly and often, especially after using the restroom, before preparing or consuming meals, before holding a newborn or infant, and before hugging or holding hands with older relatives
- Don't share cups, utensils, pacifiers or teething toys
- Don't put the baby's hands in other people's mouths

Pay attention to news of outbreaks — Being aware of outbreaks in your community is important. Monitoring news reports and social media can alert you to outbreaks of vaccine-preventable diseases or other infections circulating in your area. When traveling, check for news of outbreaks in the areas you're visiting.

Inquire about the vaccine status of caregivers — If you have an unvaccinated family member, you can make sure those around them most — yourself, other family members, and primary caregivers — are vaccinated. This protected ring of close contacts decreases the chance for exposure to a vaccine-preventable disease.

Consider the time it takes to become immune — After vaccination, it takes time for an immune response to develop and be protective. For example, it takes approximately two weeks after vaccination against influenza to develop protective immunity. In the interim, the vaccine recipient could be exposed to the virus and become infected.

MY FAMILY MEMBER IS VACCINATED

If you or a family member is vaccinated, here are some things to consider:

Confirm whether all doses have been completed — Some vaccines require multiple doses before a vaccine recipient is considered protected. For this reason it is useful to check if additional doses of a vaccine are necessary.

Check immunization status at each healthcare visit — Because new vaccines may be developed; existing vaccines updated; or vaccine recommendations changed, it is good to be in the practice of asking if you or your family members need any vaccines at each healthcare visit. This is particularly true for adults who often think they are up-to-date or no longer need vaccines because they are adults. Given that some adults require certain vaccines as determined by their age, immune status, job or lifestyle habits, the need for vaccines may change from time to time.

Realize that immunity could wane — In some instances, immunity from a vaccine may decrease over time. This is why booster doses of the same or a similar vaccine later in life are sometimes recommended. In fact, mumps outbreaks on college campuses are probably the result of waning immunity from childhood mumps vaccine.

Keep in mind the vaccine may not have worked — While most vaccines work well, the reality is that in some cases, a person will not develop a protective immune response even after multiple doses. Because we do not typically check immune response to vaccines, we don't know who among a population of vaccinated individuals may still be susceptible during an outbreak. The good news is that often these people develop some immunity, so even if they are infected, their illness tends to be of shorter duration and less severe compared with someone who was not vaccinated.



This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies. ©2017 Children's Hospital of Philadelphia, All Rights Reserved. 17018-08-17.

Immunizing Adult Patients:

Standards for Practice

Your patients trust you to give them the best advice on how to protect their health. Vaccine-preventable diseases can result in serious illness, hospitalization, and even death.

Make adult vaccination a standard of care in your practice.

Your patients have probably not received all the vaccines they need.

Even though most insurance plans cover the cost of recommended vaccines, adult vaccination rates in the U.S. are extremely low. Each year, tens of thousands of adults needlessly suffer, are hospitalized, and even die as a result of diseases that could be prevented by vaccines.

Your patients may not even realize that they need vaccines.

Many adults don't know which vaccines are recommended for them throughout their lives. Many also report not receiving vaccine recommendations from their healthcare professional.

You can make a difference.

Clinicians are the most valued and trusted source of health information for adults. Research shows that most adults believe vaccines are important and that a recommendation from their healthcare professional is a key predictor of patients getting needed vaccines.

Make Immunization a Standard of Patient Care In Your Practice:

1. **ASSESS** the immunization status of all your patients at every clinical encounter.
 - Stay informed about the latest CDC recommendations for immunization of adults.
 - Implement protocols in your office to ensure that patients' vaccine needs are routinely reviewed and patients get reminders about vaccines they need.
2. Strongly **RECOMMEND** vaccines that your patients need.
 - Address patient questions and concerns in clear and understandable language.
 - Highlight your positive experiences with vaccination (personal or in your practice).
3. **ADMINISTER** needed vaccines or **REFER** your patients to a vaccination provider.
 - For vaccines that you stock, make vaccination services as convenient as possible for your patients.
 - For vaccines that you don't stock, refer patients to providers in the area that offer vaccination services.
4. **DOCUMENT** vaccines received by your patients.
 - Participate in your state's immunization registry to help your office, your patients, and your patients' other providers know which vaccines your patients have had.
 - Follow up to confirm that patients received recommended vaccines that you referred them to get from other immunization providers.

DON'T WAIT. VACCINATE!



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Standards for Adult Immunization Practice emphasize the role of ALL healthcare professionals—whether they provide immunization services or not—in ensuring that adult patients are fully immunized. These standards are published by the National Vaccine Advisory Committee and supported by the Centers for Disease Control and Prevention as well as a number of national medical associations.

Overview of Recommended Vaccines for Adults*

VACCINE	WHO NEEDS IT	NUMBER OF DOSES
Seasonal Influenza	ALL Adults	1 dose every year
Tdap	ALL Adults who have not received a dose since age 11 or older Women should receive during every pregnancy	1 dose (All) 1 dose each pregnancy
Td	ALL Adults	1 dose every 10 years
Zoster	Adults 60 years or older	1 dose
Pneumococcal Conjugate	Adult 65 years or older Adults 64 or younger with certain medical conditions (HIV, asplenia, sickle cell disease, cerebrospinal fluid leaks, cochlear implants, or conditions that cause weakening of the immune system)	1 dose (if not previously received) 1 dose (if not previously received)
Pneumococcal Polysaccharide	Adults 65 years or older Adults 64 years or younger with certain medical conditions and who are at higher risk of infection	1 dose 1 or 2 doses
HPV	Adults 26 years or younger who have not started or finished the vaccine series	3 doses
Meningococcal	Adults who have not had the vaccine and are at risk for exposure or have damaged spleen	1 or more doses
MMR	Adults born during or after 1957 who have not had the vaccine or do not have documented evidence of immunity	1 or 2 doses
Varicella	Adults who have not had chickenpox or do not have documented evidence of immunity	2 doses
Hep A	Adults who are at risk and have not had the vaccine series	2 doses
Hep B	Adults who have not had the vaccine series and who are at risk, including adults with diabetes, end-stage kidney disease, chronic liver disease, or behaviors that increase risk	3 doses
Hib	Adults with special health conditions (sickle cell disease, HIV/AIDS, removal of the spleen, bone marrow transplant, or cancer treatment with drugs) who have not already had the vaccine	1 dose

*Visit www.cdc.gov/vaccines/schedules/ for a detailed schedule of recommended vaccines and guidelines for administration.

Coverage of Adult Vaccines

Most private health insurance plans cover the cost of recommended vaccines. If your patients do not currently have health insurance, refer them to www.HealthCare.gov to learn more about health coverage options.

For patients 65 years or older enrolled in Medicare, Medicare Part B covers the cost of influenza and pneumococcal vaccines as well as Hep B vaccine for persons at increased risk of hepatitis. Those with a Medicare Prescription Drug Plan (Part D) or enrolled in a Medicare Advantage Plan (Part C) that offers Medicare prescription drug coverage may also have coverage for additional vaccines like zoster, MMR, and Tdap. Visit www.Medicare.gov for more information.

Vaccine coverage for Medicaid beneficiaries varies by state. Contact your State Medicaid Agency for more information.

In 2014:

- Only 20% of adults 19 years or older had received Tdap vaccine.
- Only 28% of adults 60 years or older had received zoster vaccine.
- Only 20% of adults 19 to 64 years at high risk had received pneumococcal vaccine.

Source: National Health Interview Survey, 2014.

For additional information on adult immunization and resources for patient education, visit: www.cdc.gov/vaccines/hcp/adults.

Last Updated May, 2016

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Vaccine Needs Assessment

A Series on Standards for Adult Immunization Practice



Assessment is the critical first step in ensuring that your adult patients get the vaccines they need for protection against serious vaccine-preventable diseases.

As a standard of care—whether you provide vaccines or not—you should assess your patients' immunization status at *every clinical encounter* and strongly recommend vaccines that they need.

Assessing your patients' vaccination status at every clinical encounter will decrease missed opportunities to vaccinate.^{1, 2, 3}

- Many adults do not schedule annual check-ups or come in for preventive services, therefore it is critical to assess vaccine status whenever they do come in for a visit.
- Some vaccines are indicated for adults based on factors other than age, making it important to assess regularly whether your patients have had lifestyle, health, or occupational changes that may prompt the need for additional vaccines.
- Vaccine recommendations for adults change over time, and your patients may not be up to date with the latest recommendations.

There are simple ways to implement routine vaccine assessment into your office patient flow.

- Give patients a vaccine assessment form at check-in.
 - Include standing orders or protocols for nursing staff to assess and administer needed vaccines.
 - Integrate vaccine prompts into electronic medical records.
- See back for more tips and resources.*

Routinely assessing patient vaccination status will make a difference.

Adults think immunization is important, but most don't know which vaccines they need throughout their lives. Research indicates that your recommendation is the strongest predictor of whether patients get vaccinated.⁴ Implement policies to ensure your patients' vaccination needs are routinely reviewed.

For information on insurance coverage of vaccines for adults, visit: www.cdc.gov/vaccines/hcp/adults

U.S. vaccination rates for adults are extremely low.

For example:

- Only 20% of adults 19 years or older have received Tdap vaccination.
- Only 28% of adults 60 years or older have received zoster (shingles) vaccination.
- Only 20% of adults 19 to 64 years old, at high risk, have received pneumococcal vaccination.
- Only 44% of adults 18 years or older had received flu vaccination during the 2014–2015 flu season.

Sources: NHIS 2014 (MMWR 2016; 64(4)), BRFSS 2014–2015 (www.cdc.gov/flu/fluview)

For resources and tips on vaccine recommendation, administration, referral, and documentation, visit:

www.cdc.gov/vaccines/adultstandards

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www.cdc.gov/vaccines/adultstandards

Tips for Improving Vaccine Assessment in Your Practice

- **Implement standing orders or protocols.** Routinely incorporate vaccine assessment and vaccination the same way you incorporate measuring weight and blood pressure during patient office visits.

Examples: www.immunize.org/standing-orders

- **Give your patients a vaccine questionnaire to complete at check-in.** This can help identify vaccines your patients may need based on factors such as upcoming travel or changes in medical conditions.

Example: www.cdc.gov/vaccines/hcp/adults/downloads/patient-intake-form.pdf

- **Use reminders to help your practice stay on top of needed vaccines that are due soon or are overdue.** These reminders can be generated by a computer system (Electronic Health Record) or immunization registries, or you can make a note of needed vaccines on a patient's vaccination chart.

Example: www.immunize.org/catg.d/p2023.pdf

- **Send your patients reminders about missed vaccines or vaccines that are due soon.** This can help keep vaccines on your patients' radar and encourage them to stay up to date.

Example: <http://www.adultvaccination.org/professional-resources/adult/appointment-reminder-cards.html>

- **Review how your practice does in keeping your patients up to date on vaccines.**

This can be done by reviewing a sample of patients' charts or analyzing electronic health record data for your practice. Learn more about the CDC Comprehensive Clinic Assessment Software Application (CoCASA) tool here:

www.cdc.gov/vaccines/programs/cocasa/index.html

CDC's recommended Adult Immunization Schedule is available in various formats, including an online scheduling tool and mobile phone application:

www.cdc.gov/vaccines/schedules

To learn more about evidence-based strategies for improving vaccination rates, visit:

www.TheCommunityGuide.org/vaccines

Don't forget to review contraindications and precautions for vaccination when assessing your patients' vaccine needs.

Learn more: <http://www.cdc.gov/vaccines/hcp/admin/contraindications-adults.html>

References:

1. Hurley LP, Bridges CB, Harpaz R, Allison MA. US physicians survey regarding adult vaccine delivery: Missed opportunities. *Ann Intern Med.* 2014; 160:161-70.
2. Nowalk MP, Zimmerman RK, Feghali J. Missed opportunities for adult immunization in diverse primary care office settings. *Vaccine.* 2004; 22(25-26):3457-63.
3. Nowalk MP, Zimmerman RK, Cleary SM, Bruehlman RD. Missed opportunities to vaccinate older adults in primary care. *J Am Board Fam Pract.* 2005; 18(1):20-7.
4. Johnson DR, Nichol KN, Lipczynski K. Barriers to Adult Immunization. *Am J Med.* 2008; 121:528-535.

For more information and resources on adult immunization,
visit: www.cdc.gov/vaccines/hcp/adults

2

Vaccine Recommendation

A Series on Standards for Adult Immunization Practice



Your recommendation is a critical factor in whether your patients get the vaccines they need.

Routinely assess patient immunization status and strongly recommend vaccines that patients need, whether you stock the vaccines or not.

Recommending vaccines prompts most patients to get immunized.

Research indicates that most adults believe that vaccines are important and are likely to get them if recommended by their healthcare professionals.

For some patients, a clear and strong recommendation may not be enough. You can encourage these patients to make an informed decision about vaccination by sharing critical information.

SHARE

SHARE the tailored reasons why the recommended vaccine is right for the patient given his or her age, health status, lifestyle, occupation, or other risk factors.

HIGHLIGHT positive experiences with vaccines (personal or in your practice), as appropriate, to reinforce the benefits and strengthen confidence in vaccination.

ADDRESS patient questions and any concerns about the vaccine, including side effects, safety, and vaccine effectiveness in plain and understandable language.

REMIND patients that vaccines protect them and their loved ones from many common and serious diseases

EXPLAIN the potential costs of getting the disease, including serious health effects, time lost (such as missing work or family obligations), and financial costs.

For tips on answering common patient questions and links to patient education materials, see back.

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For example:

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Sources: NHIS 2014 (MMWR 2016; 64(4)), BRFSS 2014–2015 (www.cdc.gov/flu/fluview)

For resources and tips on vaccine assessment, administration, referral, and documentation, visit:

www.cdc.gov/vaccines/adultstandards

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Tips for Addressing Common Questions About Adult Vaccination

Do I really need vaccines?

- All adults need vaccines to help protect against serious diseases that could result not only in poor health, but also missed work, medical bills, and not being able to care for their families.
- You may not have gotten all of your recommended childhood vaccines. Also, the protection from some vaccines you had as a child can wear off over time and you might need a booster (tetanus and whooping cough). Some vaccines are recommended based on your age, job, lifestyle, or health conditions. For example, adults with chronic conditions like heart disease, diabetes, asthma, or COPD are at higher risk for complications from certain diseases like flu and pneumonia.
- Getting vaccinated not only lowers your chance of getting sick, but also lowers the chance that you will spread a serious disease to those around you—including those most vulnerable to severe illness (infants, older adults, and people with chronic health conditions and weakened immune systems).

For tips on addressing common questions about specific adult vaccines, visit:

www.cdc.gov/vaccines/AdultPatientEd

How well do adult vaccines work?

- Vaccines work with the body's natural defenses to reduce the chances of getting certain diseases and suffering from their complications.
- How much protection you will get varies by vaccine and other factors like your age and health, but immunization is the best defense against many of these serious, and sometimes deadly, diseases.
- The greatest risk of vaccine-preventable diseases occurs among people who are not vaccinated.

Are adult vaccines safe?

- Vaccines are one of the safest ways to protect your health.
- Vaccines go through years of testing before they can be licensed by the Food and Drug Administration (FDA). Once a vaccine is licensed, research is reviewed by medical and scientific experts to make recommendations on who should be vaccinated. Even after a vaccine is licensed, CDC and FDA continue to carefully monitor the safety of vaccines.
- It is safe to receive vaccinations while taking prescription medications. If you take medication that suppresses your immune system, you may not be able to get certain live vaccines including MMR, varicella, and shingles vaccines.

Patients vary in their level of knowledge about immunization and their preferences for learning about it.

Find free education materials for your patients:

www.cdc.gov/vaccines/AdultPatientEd

What are possible risks from adult vaccines?

- Side effects from vaccines are usually minor, such as feeling sore where you get the shot or a slight fever, and go away within a few days.
- Some people may have allergic reactions to vaccines, but serious or long-term effects are rare.

For additional information and resources on adult immunization, visit: www.cdc.gov/vaccines/hcp/adults

3

Vaccine Administration

A Series on Standards for Adult Immunization Practice



Take steps to improve vaccine administration in your office and better protect your patients from vaccine-preventable diseases.

1. Assess patient vaccination status at every visit.

U.S. vaccination rates are extremely low, and research shows that there are many missed opportunities for vaccination of adult patients during clinical encounters.

2. Recommend and offer vaccines at the same visit.

Research shows when patients receive a vaccine recommendation and are offered the vaccine at the same time, they are more likely to get vaccinated. **For vaccines you don't stock, it is still critical to make the recommendation and then refer to another immunization provider.**

See fact sheet 4 in this series for tips on referral.

3. Train and educate your staff on vaccine administration.

Building your staff's skills and confidence in vaccine administration can help improve vaccine delivery and ensure patient safety.

4. Properly store and handle vaccines.

This critical step can reduce wastage.

5. Distribute Vaccine Information Statements (VIS) to patients.

Help your patients make informed decisions about vaccinations by providing them with up-to-date information about the benefits and potential risks for each vaccine they need.

6. Ensure proper care for patients.

Minimize potential risks to your patients by following safety protocols such as having your patients sit or lie down while you administer vaccines.

7. Follow standard precautions to control infection.

Minimize the risks of spreading disease when administering vaccines.

8. Be aware of and prepared for potential adverse reactions.

All vaccines have the potential to cause adverse reactions. Most are minor (e.g., itching, soreness) but severe reactions (e.g., anaphylaxis), while rare, can occur. Make sure you and your staff are prepared to handle severe reactions.

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Sources: NHIS 2014 (MMWR 2016; 64(4)), BRFSS 2014–2015 (www.cdc.gov/flu/fluview)

For resources and tips on vaccine assessment, recommendation, referral, and documentation, visit:

www.cdc.gov/vaccines/adultstandards

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Resources to Help You and Your Staff Improve Vaccine Administration in Your Practice

- **CDC General Immunization Training**

Self-paced online trainings with free CE or CME credits, webcasts, and more:
www.cdc.gov/vaccines/ed/courses.html

- **Immunization Skills Self-Assessment**

A tool for healthcare staff and supervisors to assess immunization skills and develop a plan of action to improve performance if needed:
www.immunize.org/catg.d/p7010.pdf

- **Storage and Handling**

Training and guidance on proper vaccine storage and handling practices:
www.cdc.gov/vaccines/recs/storage

- **Dose and Route Chart**

Dose, route, injection site, and needle size information for all adult vaccines:
www.immunize.org/catg.d/p3084.pdf

- **Vaccine Information Statements (VIS)**

Federal law requires that you provide VIS to patients prior to administering certain vaccines; however, it is a best practice to do so for all vaccines because the VIS explains both the vaccine benefits and risks to your patients. You can find print-ready VIS at:
www.cdc.gov/vaccines/hcp/vis

- **Guide to Infection Prevention for Outpatient Care**

A downloadable and printable guide on infection prevention including information regarding protective equipment and safe injection practices:
www.cdc.gov/HAI/settings/outpatient/outpatient-care-guidelines.html

- **Chart of Medical Management of Vaccine Reactions in Adult Patients**

Procedures to follow if various adverse reactions occur:
www.immunize.org/catg.d/p3082.pdf

- **Vaccine Adverse Events Reporting System (VAERS)**

The National Childhood Vaccine Injury Act (NCVIA) requires healthcare providers to report certain adverse events that occur following vaccination. VAERS is a national reporting system that accepts reports on adverse events with vaccines licensed in the United States:
www.cdc.gov/vaccinesafety/Activities/vaers.html

Standing orders or protocols save time and reduce missed opportunities by authorizing nurses, pharmacists, and other healthcare professionals (where allowed by state law) to assess patient vaccine status and administer vaccinations without examination or direct order from the attending provider.

For sample standing orders, visit: www.immunize.org/standing-orders

For more information and resources on adult immunization,
visit: www.cdc.gov/vaccines/hcp/adults

4

Vaccine Referral

A Series on Standards for Adult Immunization Practice



Even if your practice doesn't stock all or any vaccines, you still have a critical role to play in ensuring your patients are protected from serious diseases.

Routinely assess your patients' immunization needs, vaccinate with vaccines you do stock, and provide referrals for recommended vaccines you do not stock.

Here's why it's important:

- **Each year, thousands of adults in the United States suffer illness, are hospitalized, or even die from diseases that could be prevented by vaccines.**

Adults believe immunization is important, but most don't know which vaccines they need throughout their lives.

- **Patients rely on you to give them the best advice on how to protect their health.**

If you don't tell them about the vaccines they need, your patients are unlikely to get vaccinated.

Here's what you can do:

- **Refer your patients to other immunization providers for vaccines you don't stock.**

It may not be possible to stock all vaccines in your practice. But you can still ensure that your patients are getting the vaccines they need by following up your strong recommendation with a referral. There is an expanding network of immunization providers, and it is easier than ever to find providers in your area who offer vaccination services. See back for details.

- **Confirm that patients received recommended vaccines by following up at the next visit.**

Document the vaccines your patients receive, whether you administer them or not, to make sure patients are fully immunized. Simple reminders can help your practice and your patients stay up to date.

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- Only 44% of adults 18 years or older had received flu vaccination during the 2014–2015 flu season.

Sources: NHIS 2014 (MMWR 2016; 64(4)), BRFSS 2014–2015 (www.cdc.gov/flu/fluview)

For resources and tips on vaccine assessment, recommendation, administration, and documentation, visit:

www.cdc.gov/vaccines/adultstandards

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Vaccine Referral Options

- **HealthMap Vaccine Finder** (<http://vaccine.healthmap.org>) is a free, online service where users can search by zip code for providers who offer vaccines.
- **Health Departments** often provide routine vaccinations or can help you identify other local vaccine providers. Visit www.vaccines.gov/getting/where/ and click on your state to learn more.
- **Pharmacies** are a convenient location for many patients to get vaccinated. Most pharmacies have on-site clinics that provide vaccines.
- **Travel Clinics** are current with vaccine recommendations for international travel and often carry vaccines that are less frequently recommended and might be cost-prohibitive to stock. Find travel clinics in your area: <http://wwwnc.cdc.gov/travel/page/find-clinic>

Remind patients to check with their insurance plans regarding which providers their insurance includes for vaccine services.

When referring, consider giving your patients a vaccine prescription. If your patients can leave your office with a prescription for the vaccines you recommend it may help them to take the next step.

Vaccine prescription pads, customizable with your provider information, are available at: <http://www.cdc.gov/vaccines/hcp/adults/downloads/vaccine-rx-pad.pdf>

For more information and resources on adult immunization, visit: www.cdc.gov/vaccines/hcp/adults

FAMILIES AND VACCINES: WHEN OPINIONS DIFFER

WHAT YOU SHOULD KNOW

While most parents choose to vaccinate their children, some concerned about vaccine safety choose not to. From a community perspective, these choices create pockets of unimmunized people, providing opportunities for diseases to gain a foothold in otherwise vaccinated communities. From a family perspective, these choices can cause minor friction to untenable situations.



The differences of opinion can occur between husbands and wives, parents and their teens, or parents and grandparents, brothers, sisters, nieces, nephews, cousins, friends and other loved ones.

Individuals caught in these situations often look not only for reliable information, but also for guidance related to keeping vaccine-preventable diseases from harming their unvaccinated family members. They also seek guidance for having conversations with those in their family concerned about vaccine safety.

GETTING RELIABLE INFORMATION

Reliable information about vaccines can be found in many places. A few are described here:

- **Vaccine Education Center (VEC), vaccine.chop.edu:** In addition to vaccine science and safety information, a list of reliable websites from other organizations is also available. Likewise, the VEC offers a free mobile app, *Vaccines on the Go*, vaccine.chop.edu/mobileapp.
- **Vaccine Safety Net (VSN), vaccinesafetynet.org:** A program of the World Health Organization, the VSN vets vaccine-related websites in multiple languages from around the world.
- **Centers for Disease Control and Prevention (CDC), cdc.gov/vaccines:** Part of the U.S. Department of Health and Human Services, this organization makes vaccine recommendations and oversees disease outbreaks and vaccination coverage.

PROTECTING UNVACCINATED FAMILY MEMBERS

At some point, every family has unvaccinated family members who need to rely on those in the community to shield them from vaccine-preventable diseases. This can include babies too young to be immunized, family members undergoing treatments that compromise their immune systems, or those who cannot get particular vaccines because of certain health conditions.

Those who are unvaccinated should limit opportunities for exposure to vaccine-preventable diseases, stay abreast of outbreaks in the area, and ensure that others around them are immune if possible.



continued >

HAVING CONVERSATIONS

Like with politics, vaccine conversations can become heated and uncomfortable. Unlike with political conversations, however, in some cases joint decision-making related to the health of a family member is required.

Expectant parents — Pregnancy is a good time to gather vaccine information and discuss each other's concerns or opinions related to vaccination. In most cases, parents agree that vaccination is an important way to protect their babies, as evidenced by the fact that most children are immunized.

Some parents may consider individualizing the vaccination schedule; however, this approach is not recommended since the schedule, established by the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP), is tested for safety and is designed to afford children the best levels of protection in a timely manner.

Parents of young children who disagree or older children who disagree with their parents' decisions not to vaccinate when they were younger — In these situations, respectful conversations and listening are an important starting point. If agreement upon next steps is not able to be reached in these conversations, consider making an appointment with the child's healthcare provider to discuss concerns and help with making a plan that is amenable to all involved.

Unfortunately, sometimes these situations end up being decided in courts — most often as part of custody disagreements. Because courts are not the best place to get accurate health information or to make health-related decisions, it is important to try to resolve differences of opinion before a situation rises to this level.

Grandparents, aunts and uncles, or other extended family members — For generations, families have passed along advice and offered guidance about virtually every aspect of life, including parenting. The recipients of this guidance have not always opted to listen to or act on this guidance, but in most cases, they at least consider what is said or offered. So, families are natural places for vaccine conversations to occur.

Because the topic of vaccines has become emotionally charged, opinions (solicited or unsolicited) are sometimes not well received. However, most new or expectant parents are just trying to do what is right for their children and welcome input from others. Often, older family members have witnessed the severity of vaccine-preventable diseases in a way that younger family members have not. They have also typically chosen to vaccinate themselves or their children without evidence of harm. Whatever a young family decides to do, they should be respected in their decision. If they are opting not to vaccinate, it may be difficult to support the choice, but try to remain respectful and share information when or if it feels appropriate. They may eventually opt to vaccinate if they do not feel like they have to constantly defend themselves.

If you are the sibling or cousin of someone who has opted not to vaccinate, you may decide you are not willing to have your child exposed to their unvaccinated children. These conversations can be difficult, but just as much as they have the right to make the choice not to vaccinate, you have the choice to limit interaction. The Q&A Special Topics sheet, *Vaccinated or Unvaccinated: What You Should Know* (chop.edu/collective-immunity), provides information that may be helpful in creating a plan and for offering support as to why you are making your decision.

Regardless of how you decide to proceed, be respectful and realize that the difference of opinion and approach between yourself and the family member choosing not to vaccinate will not only affect the two of you, but will also affect the extended family. At a minimum, try to work together in a way that does not require the rest of the family to feel as though they need to pick sides.

In sum, remember that family relationships are more important than a single topic or issue. Hopefully, these tips and resources will help. Finally, don't lose sight of the fact that by vaccinating your family and encouraging others to do so, you are protecting not only your family but also your community.

An original version of this article was published in the March 2019 issue of the Parents PACK newsletter. Find out more at vaccine.chop.edu/parents. This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies. ©2020 Children's Hospital of Philadelphia. All Rights Reserved. 20118-05-20.

Talking with Parents about Vaccines for Infants

Doctors, nurses, physician assistants, and office staff all play a key role in establishing and maintaining a practice-wide commitment to communicating effectively about vaccines and maintaining high vaccination rates. You can all answer parents' questions, provide educational materials, and ensure that families make and keep vaccine appointments.

Parents consider their child's health care professionals to be their most trusted source of information when it comes to vaccines. This is true even for parents who are vaccine-hesitant or who have considered delaying one or more vaccines. Therefore, you have a critical role in helping parents choose vaccines for their child.

With all you do, you may feel that long vaccine conversations are stressful when you also need to check physical and cognitive milestones and have a full schedule of patients. Because of this, we designed this resource to guide you with conversational techniques and resources for discussing vaccines with parents.

Assume parents will vaccinate

State which vaccines the child needs to receive.

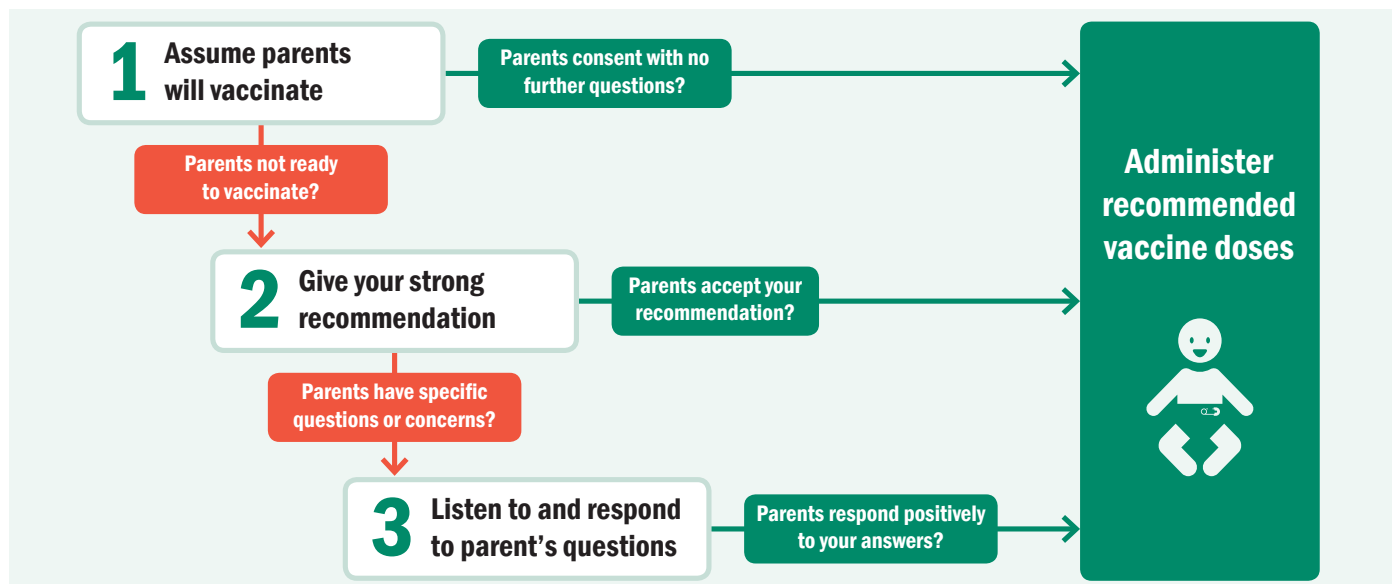
When discussing vaccines for children, it is best to remember most parents are planning to accept vaccines and to introduce the topic with that in mind. State the child will receive

vaccines as though you presume that parents are ready to accept recommended vaccines for their child during that visit. For example:

Instead of saying *"What do you want to do about shots?"*, say *"Your child needs three shots today."*

Instead of saying *"Have you thought about the shots your child needs today?"*, say *"Your child needs DTaP, Hib, and Hepatitis B shots today."*

A research study looking at health care professionals' (HCPs) and parents' interactions during vaccine visits showed that parents were more likely to express concerns when providers used language that asked parents about their vaccination plans. In this study, the presumptive approach resulted in significantly more parents accepting vaccines for their child, especially at first-time visits¹. However, if parents still hesitate or express concerns, move to the next step and give your strong recommendation.



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Give your strong recommendation

If parents express concerns, then share your strong vaccine recommendation.

Although parents frequently consult family members, friends, and webpages for information on vaccines, parents consistently rank their child's doctor as their most trusted source for vaccine information. With this unique position, your strong recommendation is critical for vaccine acceptance.

Clearly state your strong recommendation. If appropriate, you can add a brief supporting statement that uses a mix of science and anecdote, depending on what you think will be most effective with that parent. Share the importance of vaccines to protect children from potentially life threatening diseases, or talk about your personal experiences with vaccination. For example:

"I strongly recommend your child get these vaccines today..."

"...These shots are very important to protect him from serious diseases."

"...I believe in vaccines so strongly that I vaccinated my own children on schedule."

"...This office has given thousands of doses of vaccines and we have never seen a serious reaction."

Listen to and respond to parents' questions

Seek to understand parents' concerns and provide requested information.

Although research shows most parents in the U.S. support vaccines, you will encounter parents with questions. If a parent has concerns, resists following the recommended vaccine schedule, or questions your strong recommendation, this doesn't necessarily mean they won't accept vaccines. Sometimes parents simply want *your* answers to their questions. Your willingness to listen to their concerns will play a major role in building trust in you and your recommendation.

When listening, seek to understand the concerns behind parents' questions before responding with information the parent may not be asking about. If you encounter questions you do not know the answer to, or information from sources you are unfamiliar with, it is best to acknowledge the parent's concerns and share what you *do know*. Offer to review the information they have found and, if necessary, schedule another appointment to discuss it further.

What if parents refuse to vaccinate?

If parents decline immunizations after your strong recommendation and conversation, use the following strategies:

- Continue the conversation about vaccines during the next visit and restate your strong recommendation.
- Inform parents about clinical presentations of vaccine-preventable diseases, including early symptoms.
- Remind parents to call before bringing their child into the office, clinic, or emergency department when the child is ill so health care professionals can take precautions to protect others. Explain that when scheduling an office visit for an ill child who has not received vaccines, you will need take all possible precautions to prevent contact with other patients, especially those too young to be fully vaccinated and those who have weakened immune systems.
- Share *If You Choose Not to Vaccinate Your Child, Understand the Risks and Responsibilities* with parents. This fact sheet explains the risks involved with their decision, including risks to other members of their community, and additional precautionary responsibilities for parents.
- You may wish to have parents sign AAP's Refusal to Vaccinate form each time a vaccine is refused so that you have a record of their refusal in their child's medical file.

Wrapping up the conversation

Remember that success comes in many forms. It may mean that parents accept all vaccines when you recommend them, or that they schedule some vaccines for another day. For very vaccine-hesitant parents, success may simply mean agreeing to leave the door open for future conversations.

Work with parents to agree on at least one action, such as:

- Scheduling another appointment or
- Encouraging the parent to read additional information you provide them.

If a parent declines vaccines once, it does not guarantee they always will. Continue to remind parents about the importance of keeping their child up to date on vaccines during future visits and work with them to get their child caught up if they fall behind.

Find resources for specific parent questions:
Preparing For Vaccine Questions Parents May Ask

For information on vaccines, vaccine safety, and vaccine preventable diseases:
www.cdc.gov/vaccines/conversations

¹ Opel, D. J., MD, MPH. (2015). The Influence of Provider Communication Behaviors on Parental Vaccine Acceptance and Visit Experience. *The American Journal of Public Health*, 105(10), 1998-2004.

LOGICAL FALLACIES AND VACCINES

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WHAT YOU SHOULD KNOW

Have you ever heard someone say, “You have your facts, and I have mine?” In this time of “alternative facts,” it is easy to forget that scientific facts can’t simply be chosen based on convenience or beliefs. Even more difficult, is sorting through a series of statements to ascertain what the facts actually are. Sadly, the result is that *myths*, or false ideas, can be considered as truths. In many cases, the arguments that support myths are based on fallacies. *Fallacies* are errors in reasoning that make an argument unsound. In the case of vaccines, fallacies have been used to intentionally mislead parents seeking information to make sound decisions for their children and families. This sheet describes some common types of fallacies as well as examples of how they have been used to argue that vaccines are not safe.

AD HOMINEM ATTACK

Ad hominem attacks criticize the messenger in the absence of counter-arguments related to the facts being discussed.

Example: When vaccines are suggested to be unsafe because of a conspiracy between government officials and pharmaceutical companies, this is an example of an ad hominem attack because it does not address vaccine safety but rather groups that state vaccines are safe.

Reality check: Vaccine safety is not established by who says vaccines are safe, but rather the result of thousands of studies and years of experience.

STRAW MAN ATTACK

Straw man attacks address a position or fact that was not actually put forth. Exaggeration of a position with which one disagrees is an example of this.

Example: When someone states that a person who promotes vaccination against influenza is in favor of all vaccines even if they don’t work, this is an example of a straw man attack because the position of the person defending influenza vaccine is exaggerated.

Reality check: A person arguing in favor of influenza vaccination may or may not support the use of all other vaccines. Their support of influenza vaccine does not provide information about their opinion of other vaccines.

CIRCULAR ARGUMENT

Circular arguments use the preliminary assumption as the basis for arriving at the same conclusion.

Example: When someone says MMR vaccine causes autism and their child got autism because he got the MMR vaccine, this is an example of a circular argument.

Reality check: Multiple well-controlled studies on several continents involving hundreds of thousands of children have not identified a link between the development of autism and receipt of the MMR vaccine. Likewise, the notion that a child is harmed by receiving too many vaccines has also been studied and is not supported by the findings.

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APPEAL TO IGNORANCE

Appeals to ignorance take advantage of what is not known. Sometimes, they focus on the notion that something has never been, or can never be, proven definitively.

Example: When someone argues against vaccine mandates because we don't know if certain individuals have genetic predispositions that can cause them to be harmed by receiving the vaccine, this is an example of an appeal to ignorance.

Reality check: Science offers a way to understand the world in which we live. However, it does not allow us to definitively rule out that something will never happen. For this reason, many people arguing against scientific facts that they do not believe (or agree with) rely on this fallacy. It is a way to leverage the fear of the unknown. While genetic predisposition can increase risks associated with certain diseases, vaccines present a weakened or partial form of a potentially harmful pathogen. Therefore, even if a genetic predisposition would be found in the future, it is more likely that someone would be harmed by the disease than the vaccine to prevent it.

FALSE DICHOTOMY

False dichotomy arguments incorrectly suggest an “either/or” situation when the options are not mutually exclusive or when more than two options exist.

Example: When someone argues against vaccine safety by stating they are “pro-information,” they are suggesting that to believe vaccines are safe means being against information and vice versa. Another example of a false dichotomy related to vaccines occurs when people say that vaccines don't work because fully vaccinated people get sick during vaccine-preventable disease outbreaks.

Reality check: Believing vaccines are safe does not mean a person disregards information; these are not mutually exclusive understandings. Likewise, while vaccines work for most, they do not work for all. We also know that often when a vaccinated person gets the disease, their infection tends to be less severe than that of someone who was not immunized at all. So arguing that vaccines do not work because a vaccinated person got a disease presents a false “all or nothing” situation.



SLIPPERY SLOPE

A slippery slope fallacy argues against a fact or situation by suggesting unlikely, extreme outcomes.

Example: When someone suggests that a vaccine mandate will lead to a state takeover of parental rights, this is an example of a slippery slope fallacy.

Reality check: Vaccine mandates are not an attempt by the government to control parental decision-making but rather to keep communities safe by ensuring that more people are vaccinated. Mandates increase immunization rates and ensure a vaccine supply for those who couldn't otherwise afford vaccinations.

HASTY GENERALIZATION

Hasty generalizations involve jumping to conclusions without reviewing all available evidence.

Example: When someone uses anecdotes of a small group of individuals as evidence for a link between vaccines and autism, this is an example of a hasty generalization.

Reality check: It is reasonable to observe a group of individuals who got vaccinated and were subsequently diagnosed with autism and hypothesize that a causal relationship could exist. However, it is not enough to stop with the observation. To know if there is a causal relationship, controlled studies need to compare people who did and did not get vaccinated to see if those who got vaccinated were more likely to be diagnosed with autism. The good news is this has been done — repeatedly — and no causal relationship has been found.

APPEAL TO AUTHORITY

The appeal to authority fallacy occurs when something is considered to be true simply because a perceived authority said it is so (without evidence) or because it was said to be true by authority figures who are irrelevant or not qualified based on the topic being discussed.

Example: When someone suggests that vaccines cause autism because an actor believes it to be the case, this is an example of appealing to authority.

Reality check: Facts should never be based on who does the studies or who reports on them. The data, how the studies were done, and whether they are reproducible are what is important.

CAUSAL FALLACY

Causal fallacies occur when two things are incorrectly identified as being causally associated without enough evidence to do so (false cause); solely based on one occurring before the other (*post hoc*); or because they were found together (correlational fallacy).

Example: When someone argues that aluminum adjuvants in vaccines must cause autism because aluminum adjuvants cause inflammation and inflammation causes autism, this is an example of a causal fallacy.

Reality check: While it would be reasonable to consider whether aluminum adjuvants lead to inflammation that causes autism, the notion that aluminum adjuvants cause autism because of inflammation is not sufficient by itself for establishing causality. And to date, no clear evidence supports the notion that autism is caused by inflammation.

APPEAL TO PITY

Appeals to pity rely on evoking emotion to deter or replace the discussion of facts.

Example: When someone points out the challenges or stress related to having a child with autism as a way to suggest that vaccines are not safe, this is an example of an appeal to pity fallacy.

Reality check: The challenges that may come from having a child with autism, or any other condition or disease, are worth consideration, and supporting these families is essential. However, this notion has nothing to do with whether or not vaccines are safe.

BANDWAGON APPROACH

The bandwagon approach suggests something is true because it is a popular belief; it is accepted by authorities or large numbers of people; or because someone specific, based on their reputation, agrees.

Example: Suggesting many parents are concerned about vaccine safety so vaccines must be unsafe is an example of using the bandwagon approach.

Reality check: While it is reasonable to be concerned about vaccines safety, concern doesn't mean that vaccines are unsafe. Scientific studies determine vaccine safety, not the number of people who believe something might be a problem.

APPEAL TO HYPOCRISY

Appealing to hypocrisy occurs when someone suggests deception or insincerity of the messenger as a way to neutralize or distract from the message.

Example: When a scientist explains that the immune system is capable of responding to 10,000 vaccines at one time during a discussion about too many vaccines, and someone argues that because the scientist won't take 10,000 vaccines, his message is invalid, this is an appeal to hypocrisy.

Reality check: Some have been concerned about whether children receive too many vaccines that overwhelm their immune system leading them to develop chronic diseases. So, explaining the theoretical quantity of vaccines that the immune system could handle provides evidence that the currently recommended schedule is not "too much." Whether or not the scientist making the claim would take that many vaccines is irrelevant and is just meant to distract from the explanation.



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EQUIVOCATION OR AMBIGUITY

Equivocation occurs when someone takes advantage of the fact that a word has more than one meaning to mislead.

Example: When someone claims that vaccines are not safe because they are not “natural,” it is an example of equivocation.

Reality check: The use of the word “natural” in this manner implies that vaccines are not safe because they are manmade or because they are introduced in a way that is different from exposure in the community. However, vaccines actually protect us from pathogens, which are not manmade and can cause severe disease and death. Vaccines are typically made from disease-causing agents, so that our immune systems can recognize an exposure if it occurs in nature. Further, the manner by which our immune systems are exposed to any foreign agent does not alter its ability to respond. So suggesting that when it comes to vaccines, natural is better is not only misleading, it is dangerous.

RED HERRING

A red herring fallacy uses a parallel or seemingly relevant argument to distract from the original point being discussed.

Example: When someone is discussing genetic mutations, such as the MTHFR mutation, and then describes how the “poisons” in vaccines provoke an immune response in genetically susceptible children, this is an example of a red herring because the original point related to the mutation, but moved to a discussion of vaccine ingredients as the problem rather than explaining why the genetic mutation is problematic.

Reality check: People with the MTHFR mutation can be vaccinated since the mutation has not been found to be problematic when it comes to vaccinations. Likewise, vaccine ingredients have been studied and are safe in the quantities presented in vaccinations.



This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from the Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies. ©2018 Children's Hospital of Philadelphia, All Rights Reserved. 18059-09-18.

13 Best Practices in Vaccine Communication

Health communications experts on the Project VCTR team reviewed a wide range of research and examples to develop best practices for effective, evidence-based vaccine messages. These thirteen items apply across different audiences and media platforms.

1. **Prepare your messages and keep them simple.** Prepare the key messages you really want the public to know and remember. Do not use scientific jargon or acronyms if you can avoid them. Keep your messages short. If your message is longer than 30 seconds, most will lose interest.
2. **Stay up-to-date on vaccine information, tell the truth, and be transparent.** Be honest about what you do and do not know. Stay up-to-date on [recommended vaccines](#) so you can accurately inform and share the benefit of vaccinations.
3. **Repeat your key messages.** If you repeat information, your audience will be more likely to remember it and will perceive it as more valid. However, facts should be tailored for particular audiences. Simply repeating the same talking point over and over will appear tone deaf.
4. **Be cautious when addressing vaccine misinformation or arguments.** Repeating vaccine misinformation can inadvertently reinforce it. You may also have your acknowledgement of the misinformation taken out of context. However, if certain misinformation has been widely circulated, it may necessitate a response.
5. **Give the facts before addressing the myths.** Put the emphasis on the facts, not the myths. When creating written materials, lead with the facts not the myth.
6. **Do not assume the “numbers will speak for themselves”.** While the content of a message should be based on available scientific evidence, the development of that message should be based on [risk communication](#).
7. **Do not question a vaccine opponent’s motivation.** Questioning motive takes the focus away from the facts, and offers attention to emotional, personal narratives that have been shown to increase an audience’s perceived risk of adverse events.
8. **Use inclusive terms.** Whenever possible, be human. Being a spokesperson for the facts is not mutually exclusive from being a parent, or a community member. You do not jeopardize your expertise by showing empathy. In fact, the opposite is true. If an audience feels a connection with a speaker, they are more likely to listen to them.
9. **Tailor and target your message to your audience.** As much as is possible, frame messages to reflect the attitudes, values, and norms of who they are intended for. To disseminate tailored messages, recruit partners, stakeholders, and allies who best reach the populations they are for.

10. **Communicate through stories.** Highlight positive experiences with vaccines to reinforce the benefits of vaccination and “lead by example.”
11. **Use visual aids when possible.** Visual supports like infographics or video can enhance a person’s understanding of complex risk information. Graphs can make numeric information easier to understand and pictographs are the best strategy for communicating both gist (meaning) and verbatim (exact details) knowledge. Give over editorial control to partners, stakeholders and allies. As long as the facts are correct, let others help you create new messages and better reach people.
12. **Emphasize scientific consensus.** Research related to vaccination and climate change shows that the belief in a scientific fact increases when consensus is highlighted. However, independently identifying scientific consensus requires a thorough understanding of the specific area of interest, and laypersons will not gain that knowledge all by themselves. Therefore, highlighting scientific consensus in public is a powerful tool to transfer essential scientific knowledge and increase the belief in a scientific fact, especially when presented in a simple and short message.
13. **Emphasize the social benefit of vaccines.** Psychological research shows that emphasizing social benefits in the context of vaccination can increase an individual’s intention to vaccinate. Make sure your audience understands the importance of community immunity.

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Project VCTR (pronounced “vector”) is a platform that tracks media trends in vaccine news, misinformation, and legislation. It is the only resource that monitors vaccine communications 24/7, managed by a team of public health analysts who give context to the data. Data comes from a wide variety of media, including social media, news, broadcast, print, and more. Project VCTR provides interactive dashboards at the state and national levels. Analysts provide weekly vaccine misinformation trends, videos on a variety of vaccine-related topics, and webinars with prominent experts.



This tool is a collaboration between [PGP](#) and the [New York State Health Foundation](#). Users can include members of health organizations, health educators, or members of the press who report on public health.

To request access, register at ProjectVCTR.com
Get in touch with our team at info@projectvctr.org

Join Stronger in the fight against misinformation and for vaccines.



[Stronger](#) is a new national campaign on behalf of science, medicine, and vaccines. The campaign is created and managed by [PGP](#), a 501(c)(3) public health nonprofit, and is supported by PGP, [BIO](#) and individual donors. Stronger is the first vaccine advocacy campaign to focus on the root cause of vaccine hesitancy: misinformation.

While other campaigns have focused on the important work of educating the public, **Stronger will mobilize the vast majority of Americans who know vaccines are safe and effective.** It will do this by working with partner organizations, sharing correct information, and arming people with ways to fight back.

Stronger’s strategy is three-fold:

1. **Mobilize the majority.** The campaign will show people how to block, hide, and report misinformation. People can also report to the campaign, and it will do so for them.
2. **Track misinformation.** The campaign will send alerts when there is an outbreak of misinformation. This includes directing people to scientists, health care workers, and officials under attack for promoting vaccines and science-based policies.
3. **Use social network analysis.** The campaign tracks misinformation related to vaccines across multiple public media sources, identifying trends, networks, and falsehoods on the verge of going viral.

We need to signal to the millions of Americans who support science and vaccines that we’re in this together. Join us.

- Sign up at stronger.org to receive our weekly newsletter and misinformation outbreak alerts
- Follow Stronger on social media: [Facebook](#), [Twitter](#), [Instagram](#), [YouTube](#)
- [Contact us](#) about partnership or media opportunities