



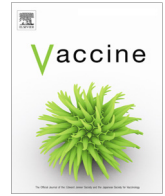
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Commentary

Supporting individual vaccine decision-making: A role for vaccination counselors



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The development of safe and effective COVID-19 vaccines is a major scientific achievement and a critical step toward achieving pandemic control. The scale and scope of the rapidly-evolving COVID-19 vaccine landscape has significantly increased public awareness about vaccines, bringing concerns and questions about vaccinations to the forefront of public discourse. It has increased the demand for opportunities to talk and learn about vaccines, and has highlighted the urgency surrounding facilitating informed discussions in real-time. While the first year of COVID-19 vaccine roll-out in the United States (US) achieved significant progress, vaccine demand plateaued, especially among eligible children, despite numerous communication campaigns, outreach efforts, and novel incentive systems. Less than 70% of those aged 5 years or older have received even a single dose of COVID-19 vaccine in 16 US states, leaving a large proportion of individuals at risk for infection and severe outcomes and placing communities at risk of outbreaks [1]. At present, there is no clear, coordinated, comprehensive approach to conduct outreach to those who have yet to be vaccinated.

While some individuals not yet vaccinated against COVID-19 face practical issues such as accessibility, a substantial proportion are hesitant and have chosen to delay or refuse COVID-19 vaccination despite availability [2]. Barriers to vaccination and hesitancy about vaccines are not only limited to COVID-19 vaccines or to the COVID-19 pandemic; a considerable proportion of US adults do not receive recommended vaccines each year and some parents do not ensure that their children receive recommended childhood vaccines [3,4]. The 'Increasing Vaccination Model' recognizes that an individual's motivation to vaccinate is influenced by what people think and feel (e.g. perceived risk, trust, safety concerns) and social processes (e.g. provider recommendation, social norms), while practical issues (e.g. availability, accessibility, convenience, cost, incentives) affect an individual's ability to actually act on their motivation to be vaccinated [5,6]. Since high vaccine uptake relies on a confluence of these factors, innovative, tailored strategies that increase vaccine intent, build trust in vaccines, lead to trusting relationships with healthcare providers, and address prac-

tical barriers to accessing vaccination must be developed and implemented [7,8].

To address many of these factors and increase vaccine uptake, we propose establishing and recognizing vaccination counseling as a credentialed professional role within the healthcare system to empower, support and motivate individual vaccine decision-making, and to improve vaccine access. Some clinics and organizations have employees designated as "vaccine champions," to serve as a resource for vaccine-related information, advocate for vaccination within the context of the workplace, and implement system-wide strategies to increase vaccine uptake among patients. Establishing the role of a vaccination counselor would provide specific members of a healthcare team with much more in-depth and standardized training needed to serve this function, and would create a professional network of highly specialized individuals who could engage in these discussions routinely with those facing vaccination decisions. Ensuring that at least one individual is trained in vaccination counseling in every clinical setting, and at every pharmacy that offers vaccinations could increase opportunities for discussion of questions and concerns about vaccines.

A vaccination counselor could be any member of a health and social support team who obtains additional specialized and interdisciplinary training that would enable them to function as a central resource for information regarding vaccination. Vaccination counselors would have expertise in the multiple domains of vaccinology including vaccine development, clinical trials, evaluation of effectiveness and safety, and skills in evidence synthesis and translation, critically combined with training in counseling and motivational interviewing. This training would enable vaccination counselors to interpret the latest evidence and make sense of the complex array of data presented about vaccines. Currently, no health professionals are trained in all of these areas, and while individuals with questions about vaccines are often advised to "consult their doctor", it can be a challenge to schedule an appointment just to discuss vaccines and not all health care professionals are equipped to engage in these discussions. Furthermore, they receive little to no training in risk communication for issues such

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as vaccine hesitancy.[9] Broad training in behavioral science is needed to engage effectively with those who are vaccine hesitant.

The need for specialized training becomes clear once one recognizes: 1) the volume and complexity of information about vaccines, 2) the need to understand, synthesize, and explain information about vaccines and vaccinations and respond to questions, and 3) the increasing demand for opportunities to discuss questions about vaccines and the complex and shifting priorities that individuals weigh when deciding how best to protect their health and the health of their family and community. Members on a healthcare team that are identified and trained as vaccination counselors would fill these gaps and provide the following support to increase vaccine uptake.

First, vaccination counselors would offer a tailored, dialogue-based approach to vaccine discussions with individuals based on the patient's specific concerns, experiences, questions, and needs. As the discourse around COVID-19 vaccines has demonstrated, individuals have a broad range of questions and concerns including about potential adverse events, changing evidence, and changing recommendations. Some individuals who are hesitant to receive a vaccine may desire the advice of an expert or trusted voice and may want to learn more information prior to making their decision. Or, they may wish to have a longer conversation, or several conversations, about the safety and effectiveness of vaccines, requiring more time than is typically allotted during a primary care or other office visit. Vaccination counselors would also be available to meet with people who only wished to discuss vaccine concerns, and could therefore dedicate more time to conversation than can typically be given in healthcare visits scheduled for another purpose.

Second, as a member of the healthcare team, vaccination counselors would utilize counseling skills to build trusting relationships with individuals considering vaccination. Findings from previous research indicate that having respect for concerns and showing empathy during vaccination discussions can help ease hesitancy [8]; counseling sessions would aim to reduce anxiety, improve trust, and increase self-efficacy surrounding vaccination decisions. Healthcare workers are consistently seen as one of the most important sources of information and a strong vaccine recommendation from a healthcare provider is associated with vaccine uptake [8,10]. Currently, doctors, nurses, public health professionals, pharmacists, and others in the healthcare setting routinely answer questions about vaccines. However, these medical professionals are not always given the training, communication skills, time, or institutional support to have extended conversations with individuals about vaccines and/or to address how an individual's values do or do not align with a decision to receive a vaccine. Designating specific individuals as "vaccine counselors" would help fill this critical gap.

Third, vaccination counselors would be trained to help individuals weigh the substantial benefits and rare risks associated with vaccination. One of the fundamental challenges facing vaccination programs in general and COVID-19 vaccines in particular is the wide range of information available online, through social media outlets and other channels, and dedicated vaccine disinformation campaigns, making it difficult for individuals to evaluate claims. Parents of children receiving routine childhood vaccinations report a desire for clear communication that provides information regarding both the benefits and potential harms of vaccination [8,10]. Vaccination counselors would be trained to address vaccine misinformation and provide a strong recommendation based on national guidelines according to the latest evidence. Counselors would ensure those eligible for vaccination have an opportunity to ask questions, are aware of the benefits and rare risks of vaccination,

and are well-informed of their risk of disease and the potential adverse outcomes of an infection.

Fourth, vaccination counselors would help to identify and address practical barriers to vaccination. Vaccination counselors could help ensure vaccination programs have a clear and actionable equity focus, with representativeness of patient populations being an important consideration in selecting and training those who will serve in the role of counselors. Vaccination counselors must be able to reach individuals most in need, who may have many barriers to accessing care of all types. For this reason, those with vaccination counseling credentials should be embedded in essential healthcare services, accessible at pharmacies, community clinics and locations where people access other wrap-around services, and should be representative of (ideally, members of) the community accessing services. Vaccination counselors should be prepared to discuss with empathy a myriad of reasons for vaccine delay including hesitancy, barriers to access, and lack of trust for example due to experiences of racism in the medical system. Moreover, counselors must be given the institutional support and resources to resolve structural barriers to vaccination.

The pandemic has made explicit what those working in the public health and vaccinology fields have long recognized: that vaccine communication is an important and complex skill. Recognizing vaccination counseling as a critical professional role is one step toward addressing many of the challenges around vaccine acceptance. The success of vaccination programs will require the same level of investment dedicated to the development of vaccines, but there is currently limited investment and no coordinated effort or outreach plan. As existing approaches for addressing inadequate vaccine uptake are limited both in scope and in resources, vaccination counselors would help bridge the gap between successful vaccine development and successful vaccination programs. Going forward we must implement strategic, sustainable solutions that can address the need to prevent COVID-19 plus help ensure high vaccination rates for routinely recommended vaccines. To do so, we must recognize behavioral science a science, that failing to adequately plan for or coordinate vaccination outreach means that many will remain unvaccinated, and that ensuring that vaccines are widely accepted is as challenging as developing the vaccines themselves.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- [1] CDC. COVID Data Tracker. Centers for Disease Control and Prevention; 2020. <https://covid.cdc.gov/covid-data-tracker> [accessed December 15, 2021].
- [2] National Academies of Sciences, Engineering, and Medicine Health and Medicine Division; Board on Population Health and Public Health Practice; Board on Health Sciences Policy; Committee on Equitable Allocation of Vaccine for the Novel Coronavirus. Framework for Equitable Allocation of COVID-19 Vaccine. Chapter 7: Achieving Acceptance of COVID-19 Vaccine. National Academies Press (US); 2020.
- [3] Kempe A, O'Leary ST, Markowitz LE, Crane LA, Hurley LP, Brtnikova M, et al. HPV Vaccine Delivery Practices by Primary Care Physicians. *Pediatrics* 2019;144(4). <https://doi.org/10.1542/peds.2019-1475>.
- [4] Ventola CL. Immunization in the United States: Recommendations, Barriers, and Measures to Improve Compliance. *P T* 2016;41:492–506.
- [5] Brewer NT, Chapman GB, Rothman AJ, Leask J, Kempe A. Increasing Vaccination: Putting Psychological Science Into Action. *Psychol Sci Public Interest* 2017;18(3):149–207. <https://doi.org/10.1177/1529100618760521>.
- [6] World Health Organization. Acceptance and demand: Improving vaccination demand and addressing hesitancy n.d. <https://www.who.int/teams/>

- [immunization-vaccines-and-biologicals/essential-programme-on-immunization/demand](#) [accessed July 26, 2021].
- [7] Jarrett C, Wilson R, O'Leary M, Eckersberger E, Larson HJ. SAGE Working Group on Vaccine Hesitancy. Strategies for addressing vaccine hesitancy - A systematic review. *Vaccine* 2015;33(34):4180–90. <https://doi.org/10.1016/j.vaccine.2015.04.040>.
- [8] Connors JT, Slotwinski KL, Hodges EA. Provider-parent Communication When Discussing Vaccines: A Systematic Review. *J Pediatr Nurs* 2017;33:10–5. <https://doi.org/10.1016/j.pedn.2016.11.002>.
- [9] Katzman JG, Katzman JW. Primary Care Clinicians as COVID-19 Vaccine Ambassadors 21501327211007024. *J Prim Care Community Health* 2021;12. <https://doi.org/10.1177/21501327211007026>.
- [10] Ames HM, Glenton C, Lewin S. Parents' and informal caregivers' views and experiences of communication about routine childhood vaccination: a synthesis of qualitative evidence CD011787. *Cochrane Database Syst Rev* 2017;2. <https://doi.org/10.1002/14651858.CD011787.pub2>.