Published in final edited form as:

Acad Pediatr. 2020 August ; 20(6): 729–730. doi:10.1016/j.acap.2020.02.007.

Progress in Evidence-Based Communication About Childhood Vaccines

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In 2010, the Bill and Melinda Gates Foundation launched the decade of vaccines by pledging \$10 billion to research, develop and deliver vaccines to the world's children ([https://www.gatesfoundation.org/Media-Center/Press-Releases/2010/01/Bill-and-Melinda-Gates-Pledge-\\$10-Billion-in-Call-for-Decade-of-Vaccines](https://www.gatesfoundation.org/Media-Center/Press-Releases/2010/01/Bill-and-Melinda-Gates-Pledge-$10-Billion-in-Call-for-Decade-of-Vaccines)). At the time of this pledge, there was a growing appreciation that public health and healthcare workers' communication about vaccines with patients, parents, and the public plays a critical role in vaccine acceptance. The World Health Organization's vision for the decade of vaccines, in fact, included communication research and training healthcare workers in effective communication techniques to address vaccine hesitancy (https://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/).

Vaccine communication research began to flourish in this context. We in particular sought to identify specific and modifiable clinician communication behaviors that increase parental acceptance of childhood immunizations. In a cross-sectional study in which we videotaped 111 vaccine discussions between parents of children 1–19 months old and their child's clinicians, we noted that clinicians relied almost exclusively on 2 communication formats to initiate vaccine discussions.^{1,2} Clinicians used either a presumptive format that linguistically presupposes that shots will be given (eg, “*Sarah gets three shots today.*”), or a participatory format that linguistically encourages parents' input in, and agency over, vaccine decisions (eg, “*What do you want to do about shots?*”). In quantifying how these initiation formats were associated with parental vaccine acceptance, we found that parents had significantly higher odds of verbally resisting recommended vaccines when clinicians initiated vaccine discussions with participatory (vs presumptive) formats, even after adjusting for parents' vaccine hesitancy.¹ Furthermore, participatory (vs presumptive) formats were associated with decreased odds of accepting all vaccines by visit's end.² Assuming, not asking, seemed to be the more effective format for initiating the vaccine discussion.

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The authors have no conflicts of interest to disclose.

Solidifying the Evidence Base

Several issues required attention before integrating the presumptive format into practice. In the May-June 2018 issue of *Academic Pediatrics*, we sought to address whether the presumptive format might be securing short-term vaccine acceptance at some expense of the clinician-parent relationship, which might negatively affect vaccine uptake in the long term. This seemed to be a potential issue because we had found in the aforementioned studies that clinician use of a participatory (vs presumptive) format was significantly associated with parents rating their visit experience more highly.² We, therefore, conducted a longitudinal prospective cohort study assessing the effect of repeated exposures to the presumptive format on a child's immunization status.³ We found that parental exposure to presumptive formats at 1 and 2 visits (vs no exposure) was associated with significantly less under-immunization of the child, while exposure to participatory formats at 2 visits was associated with significantly more under-immunization. Additionally, in a recent survey study, parent-reported provider use of a presumptive format for initiating the human papillomavirus (HPV) vaccine discussion did not seem to negatively impact parents' visit experience or trust in the information being provided.⁴

Another issue was that our initial studies were limited by their observational design. To confirm our results about the role of the initiation format in parental vaccine acceptance, an experimental study was needed. Brewer et al conducted this study.⁵ Using a cluster randomized controlled trial (cRCT) design, they demonstrated a 5.4% (95% confidence interval [CI]: 1.1%–9.7%) increase in HPV vaccine uptake in adolescents whose clinicians were trained to use the presumptive initiation format compared to adolescents whose clinicians received no training, with no difference in HPV uptake between adolescents whose clinicians received no training and whose clinicians were trained to use the participatory format. In addition, in a survey administered to clinicians immediately after the training, there was significantly higher agreement with the statement “using this communication strategy will be easy for me to do” among those who received training on the presumptive (vs participatory) initiation format; similarly, there was significantly higher agreement with the statement “using this communication strategy saves me time” among clinicians who received training on the presumptive (vs participatory) initiation format in a survey administered 1 month after the training.⁶ These results suggest that clinician use of presumptive formats increase parental acceptance of vaccines and are both time-saving and easy to implement.

Future Directions

In the remaining section of this progress report, we comment on studies published since we published our 2018 longitudinal study to highlight recent advances in vaccine communication and to detail future directions of the field. One significant advancement is the identification of an adjunctive communication strategy to the presumptive format. In a cRCT, Dempsey et al found that clinician use of motivational interviewing (MI) when parents verbally resisted the presumptively-initiated HPV vaccine recommendation increased HPV vaccine acceptance.⁷ Other adjunctive strategies—particularly those designed to occur before the vaccine encounter—have also been recently studied, with

mixed results. For instance, we (DJO, NBH, KL) found previsit parental vaccine hesitancy screening did not result in improved vaccine uptake by 8 months of age among children of vaccine-hesitant parents⁸; Glanz et al found that a web-based intervention that conveyed vaccine information with interactive social media components decreased child under-vaccination⁹; and Scott et al found increased influenza vaccine uptake in children whose parents received an educational handout about influenza disease before their visit.¹⁰

We (DJO and JDR) are now testing the effect of training pediatric clinicians how to presumptively initiate the childhood vaccine conversation with all parents and then pivot to using a brief version of MI among parents who voice resistance to the presumptive initiation. The Presumptively Initiating Vaccines and Optimizing Talk with Motivational Interviewing (PIVOT with MI) study is a National Institutes of Health-funded cRCT co-conducted with Sean O’Leary at the University of Colorado-Denver ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT03885232) Identifier: [NCT03885232](https://clinicaltrials.gov/ct2/show/study/NCT03885232)). Preliminary results are expected in 2022.

As the decade of vaccines ends, we have a long way to go to realizing its vision. Studies like the PIVOT with MI trial, though, are an example of some potent progress towards optimizing clinician communication integral to this vision. Yet, with vaccine hesitancy continuing to threaten global health, we should consider this progress only as a beginning.

Acknowledgments

Financial Statement: Research reported in this publication was supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the National Institutes of Health under awards K23HD06947 (PI: Opel) and R21HD083770 (PI: Opel), Seattle Children’s Research Institute, and the Group Health Foundation. These funding sources had no role in study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the article for publication.

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