



Increasing trust and vaccine uptake: Offering invitational rhetoric as an alternative to persuasion in pediatric visits with vaccine-hesitant parents (VHPs)

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ABSTRACT

Healthcare professionals are increasingly concerned about vaccine hesitancy, an exigency the World Health Organization named one of the ten threats to global health, even before the COVID-19 pandemic. Traditional rhetorical strategies (e.g., persuasion) remain the default to help increase vaccine uptake, despite mounting evidence such techniques may not improve uptake and could alienate families. We offer invitational rhetoric—in which people honor opposing viewpoints rather than trying to change behavior—as an alternative to improve trust and childhood vaccine uptake. We conducted a six-month, mixed methods case study of a small, urban, pediatric healthcare practice in the western United States we believed used invitational methods in discussions with vaccine-hesitant parents (VHPs). We administered pre- and post-visit surveys to families; audio recorded and transcribed their two-month well child checks (WCCs); and facilitated individual interviews with the providers. We analyzed the data looking for patterns in how providers and families use and view traditional persuasion as compared to invitational rhetoric and the effect each has on vaccine uptake, trust, and provider wellbeing. One hundred five (n = 105) families and six healthcare providers participated, with 35 families planning to receive fewer than the CDC-recommended number of vaccinations prior to their WCC. After their visit, however, 37% of VHPs increased their vaccine uptake compared to their pre-visit plans; 80% of VHPs selected top box scores for trust of their providers; and 85% of VHPs who chose to increase their vaccine uptake also selected top box trust scores. Our findings indicate invitational rhetoric may play a meaningful role in increasing vaccine uptake; sustaining or even improving a family's trust in their provider; and positively impacting provider wellbeing. Further research is needed on the use of invitational rhetoric exclusively.

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1. Introduction

Even before the COVID-19 pandemic, public health officials identified vaccine hesitancy (VH) as a growing public health exigency in the United States and throughout the world, particularly in pediatric healthcare settings [1,2,3]. Since the pandemic and the advent of COVID-19 vaccines, hesitancy appears to be even greater [4]. Research suggests the communication techniques healthcare providers adopt with vaccine-hesitant parents play a role in parents' vaccination plans for their children [2,5,6,7]. Therefore, communication research generally can help healthcare providers

engage in conversations about vaccines with parents, caregivers, and families [8,9,10,11,12]. Rhetoric specifically—or the study of persuasion—can help healthcare practitioners better achieve their desired goals with patients and families, such as “improving communication, patient engagement with the healthcare system, and better health outcomes for communities” [12]. For this study, we reviewed the literature on vaccine communication to determine what strategies healthcare providers use in conversations with vaccine-hesitant parents (VHPs).

Traditional persuasive responses to vaccine hesitancy in the past have included using fear-based messaging about the risks of not vaccinating [10,13,14] and attempting to educate parents about vaccinations by debunking vaccination myths and giving them evidence-based information instead [2,3,8,15]. Research has demonstrated that these traditional strategies do not lead to increased vaccination and can instead increase hesitancy and

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negatively affect the provider/family relationship [8,13,16,17,18,19]. As such, most current research on vaccine hesitancy communication techniques aims to provide, study, and recommend effective methods to increase immunization rates for those families who are hesitant.

Two emerging strategies are the use of a presumptive tone that frames vaccinating as the default course of action without inviting parents to participate actively in the decision [2,15,20,21,22,23]; and the use of motivational interviewing to resolve ambivalence and facilitate vaccine uptake in VHPs [2,3,15,19,20,21,22]. Although research suggests these techniques may be effective for decreasing hesitancy, that research has some key limitations. For example, studies often solicit healthcare providers' self-reported feedback on the use of particular communication techniques 1) without observing providers' communication practices directly, 2) without surveying parents about their experience of those interactions, and/or 3) without measuring whether there is a change in parents' vaccination plans after a particular communication intervention. Furthermore, the communication techniques still are rooted in traditional conceptions of persuasion and, as a result, have additional limitations. For example, the use of presumptive tone, although potentially efficient when adopted with families who are already planning to vaccinate, can be seen as manipulative and paternalistic, especially by parents who are vaccine hesitant [15,21]; and motivational interviewing is outcome-oriented in a way that may erode patient-provider trust as providers try to guide patients toward changing their behavior.

This study explores the use of invitational rhetoric as a potential alternative to traditional forms of persuasion in response to vaccine hesitancy. Proposed by Foss and Griffin [24,25], invitational theory offers communicators "an invitation to understanding as a means to create a relationship rooted in equality, immanent value, and self-determination," [24] rather than a method to win control over or change people through persuasion. Invitational rhetoric invites communicators to listen across difference, engage in dialogue, and try to understand viewpoints different from their own, by offering perspectives and creating the external conditions of safety, equality, and respect [24,25]. Whereas a traditional persuasive approach encourages communicators to seek out weaknesses in opposing perspectives and argue against them, invitational rhetoric provides a communicative framework characterized by understanding and valuing alternative perspectives without trying to change them.

Invitational rhetoric is highly applicable to the challenge of responding to vaccine hesitancy, particularly because traditional forms of persuasion can lead to VHPs becoming more resistant to pro-vaccine perspectives due to the inherently competitive nature of persuasive communication. When healthcare providers encounter hesitancy, invitational rhetoric offers a way for providers and families to work together to cultivate mutual understanding in the context of a trusting provider-parent relationship. An invitational approach starts with the belief that people do not need to be changed or persuaded to change; as such, it provides a substantive alternative to more traditional strategies like presumptive tone and motivational interviewing. Whereas presumptive tone and motivational interviewing aim to identify, circumvent, and/or change vaccine-hesitant perspectives and/or behaviors, invitational rhetoric offers a way to understand and appreciate the lived experiences, fears, and beliefs that underlie those perspectives. Notably, there is evidence that some healthcare providers and health communication researchers already use and recommend elements of invitational rhetoric in responding to vaccine hesitancy [8,9,12,13,26,27]. The aim of this study is to explore invitational rhetoric as an alternative to traditional persuasion in conversations between healthcare providers and vaccine-hesitant families.

2. Materials and methods

2.1. Study overview and site

This case study began in 2019 at a small, urban, pediatric practice in the western United States. All six providers at the practice (Medical Doctors, Physician Assistants, and Nurse Practitioners) agreed to be audio recorded during patient/family visits and engaged in a one-hour, semi-structured interview, receiving a \$75 participation incentive. Front Desk staff administered informed consent forms, pre-visit surveys, and post-visit surveys to participating families. Each Front Desk staff person received \$120 for their considerable efforts during the six-month study. We chose this practice based on conversations with one of the providers who we thought might be using a more invitational style in their encounters with families. We hypothesized that families whose providers used invitational rhetoric would choose to administer more vaccines and that they would feel more trusting of their providers as compared to families whose providers used traditionally persuasive routes to change.

2.2. Study population and data collection

The Front Desk staff contacted families in advance of the two-month well-child checks (WCCs), the first opportunity to administer recommended immunizations according to the Centers for Disease Control and Prevention (CDC), including hepatitis B; rotavirus; diphtheria, tetanus, and acellular pertussis; haemophilus influenzae type b; pneumococcal conjugate; and inactivated poliovirus. The staff informed families of the study's intent and sent a message through the patient portal to families who agreed to participate, including a SurveyMonkey link with the consent form and a pre-visit survey modeled after the validated Vaccine Hesitancy Scale [28]. Participants were asked about expected vaccination plans; concerns, hesitations, or fears regarding their chosen plan; and a five-point Likert scale about level of trust of the child's healthcare provider as well as what makes for a trustworthy provider generally. The full informed consent and pre-visit survey can be found in Appendix A.

Staff audio recorded the encounter and then sent the post-visit survey via the patient portal, including questions about whether the vaccination plans changed and why; and Likert scale ratings regarding feelings of safety, respect, freedom, persuasiveness, and trust levels during the visit. Those parents who completed both the pre- and post-visit surveys received a \$10 gift card. The full post-visit survey can be found in Appendix B.

2.3. Data analysis

We focused exclusively on those participants who selected a plan other than the full, recommended CDC vaccination schedule in their pre-visit survey (e.g., the Dr. Sears schedule, no vaccines, unsure, etc.), a subsection of the population we refer to as the vaccine-hesitant (VH) subgroup. Those recordings were reviewed, transcribed, and coded by an independent coder using a coding dictionary based on central concepts and keywords from Foss & Griffin's foundational theory of invitational rhetoric [24]. The coding dictionary provided an analytical framework of categories informed by 1) Foss & Griffin's description of the typical features of traditional persuasion (e.g., domination/interruption, appeals to personal authority, intent to change/influence); and 2) the core tenets of invitational rhetoric (e.g., mutuality, safety, trust, validation). The full coding dictionary can be found in Appendix C. Finally, we conducted semi-structured interviews with the six pro-

viders to explore their views on vaccine hesitancy and communication.

We modeled our analysis of the various data on Yin's [29,30] description of pattern-matching and explanation-building in case study research. Specifically, our use of the coding dictionary was informed by Yin's explanation that case study research, supported by a matrix analytic technique for organizing evidence into categories [30], can develop understanding of theoretical propositions and hypotheses [29]—in this case, the proposition that invitational communication can function as a beneficial alternative to traditional persuasion. All study materials were approved by an IRB Chair and Research Protections Specialist (OHRP IRB00009069) on July 19, 2019.

3. Results

After six months of data collection, 105 families completed the pre- and post-visit surveys and were audio recorded during their two-month well-child visit ($n = 105$). Of those 105, 35 families (33%) selected something other than the full CDC-recommended vaccination schedule in their pre-visit survey, a contingent we're calling the vaccine-hesitancy (VH) subgroup. This Results section will outline the data as they relate to non-invitational/persuasive communication compared to more invitational communication in the VH subgroup specifically.

3.1. Non-invitational communication

Traditionally persuasive or non-invitational communication is often the de facto strategy providers use in conversations with VHPs. We characterize non-invitational communication as language that asserts a provider's authority over families by assuming intentions (presumptive tone) and privileging positivistic (empirical science) lines of thinking over other forms of knowledge and experience. According to the independent coder, all six providers utilized some degree of traditional/non-invitational rhetoric in speaking with VHPs. Of the 35 families in the VH subgroup, 16 (46%) of them reported the provider tried to persuade them at least somewhat during the encounter. The vaccination uptake of 10 of those 16 (63%) families remained the same or decreased, confirming our hypothesis that non-invitational communication styles may lead to more cemented vaccine hesitancy.

3.1.1. Using presumptive tone

Presumptive tone—or the initial presumption that all families intend to vaccinate until expressed otherwise—does not appear to be an effective strategy for increasing vaccine uptake or improving trust at this practice. In one example, the independent coder noted a presumptive tone when Provider E initiated the conversation about vaccines. Although the provider expressed support for the refusal to vaccinate, the moment was bookended by an attempt to persuade:

Provider E: We do start immunizations today.

Parent #1: We're not gonna be doing them.

Provider E: Okay.

Parent #1: Yeah.

Provider E: Okay, um, we don't— at our practice here, we absolutely are gonna support whatever decision you decide to make, 'cause she's your baby.

Parent #2: Yeah.

Provider E: We do feel they're really safe, they're really effective at preventing these diseases.

In the post-visit survey, this family (#34) noted about Provider E, "She never pushed anything, nonetheless I did not feel very comfortable with her." This is a clear instance of the provider using presumptive tone (a non-invitational technique), and the post-visit survey reflected the family's discomfort: no top box responses for persuasion or safety, no change to the vaccination plans, and a reduction in trust from a top box 5 in the pre-visit survey to a 3 in the post-visit survey ("Very trusting" to "Somewhat trusting"). Note that top box refers to the highest possible score (a rating of 5) on the Likert scale from 1 to 5.

In one interview, Provider C noted the following about presumptive tone specifically:

When I was a resident, I usually would just say, "Here is what your vaccines are for today." I had learned that was really the only effective approach, to kind of presume that they're getting them until they say otherwise. . . . [But] they don't really take that very well if you kind of come in and just tell them, "This is what we're doing today."

From our data collection, we found presumptive tone may be a detriment to trusting relationships and increased vaccine uptake.

3.1.2. Privileging positivism

We also noted instances of privileging positivism—another non-invitational technique—that may have led to fewer top box trust scores and no change in vaccination plans. In one transcription example (Family #90), Provider C stated:

It's just really hard with anecdotal evidence. The vaccine injury reporting system is challenging because people can put anything they want on there— and that's not discounting at all what they're going through or what they're seeing, it's just hard to— you know, anybody can go on there and say something about some random thing that happened, and we don't have any evidence around why or if it had anything to do with the vaccination.

On their post-visit survey, Family #90 selected a 3 ("Tried to persuade me somewhat") on persuasion, and their trust in the provider did not improve from a 4 ("Moderately trusting").

In another encounter, the following exchange occurred between Provider E and Family #10, including instances of interrupting and positivist thinking:

Parent: I want to talk to you about that because I just, I feel better with it being spaced out. Being the scientist, for him, he feels like it's either we immunize or don't immunize, and he doesn't see any issue with—

Provider E: [talking over] Just doing it all at once.

Parent: Doing it all at once. 'Cause he says, whatever, scientifically, that—

Provider E: [interrupting] There is no scientific proof that the spaced-out schedule is any better.

Parent: Yeah.

Provider E: Like, there's none. There's no research that shows it's better or worse. There's just nothing. It's just this random doctor who decided this is what we should do.

Parent: Oh, ok.

Provider E: Yeah.

Parent: And then, you know, have there been. . . my neighbor says that the whole connection between vaccinations and Autism—

Provider E: There's not.

Parent: —is—

Provider E: There is no connection.

Parent: Yeah.

Provider E: They've disproved that.

Family #10's vaccination plans did not change.

In our semi-structured interview with Provider E, we noticed a reliance on empirical science as the basis for knowledge: "I think vaccinations work, and I think they're necessary; they're science, right? Science proves that they work. . . . I try to stay up on what's good evidence, what's appropriate. But some people don't care about evidence. There's a fear, and I'm not going to change their mind." Our data suggest this kind of positivist thinking may not lead to additional vaccine uptake and could negatively impact the relationship between families and providers.

3.2. *Invitational communication*

In addition to the presence of non-invitational communication, all providers also adopted elements of invitational rhetoric in their encounters with the VH subgroup. Invitational elements included encouraging critical engagement with the decision-making process; deferring to a family's authority on their reality; honoring autonomy; and accepting decisions without judgment.

Of the 19 families who reported "[The provider] did not try to persuade me at all," seven (37%) of those 19 families increased their vaccine uptake after the visit. Six of those seven families (86%) also selected improved or top box trust scores. Our data suggest that actively avoiding traditional persuasion and instead inviting connection may help improve vaccine uptake and trust, as evidenced in the following examples.

3.2.1. *Encouraging critical decision-making and eschewing authority over families*

One invitational strategy that emerged from the data involved making space for families to utilize their own authority and critical thinking in the decision-making process. Provider F articulated this perspective during their interview:

Validating. Validation. Listening, repeating back, "This is what I hear you're worried about," asking if I can share my thoughts instead of lecturing at them, . . . coming at it from a place of humility, . . . giving them permission to bring up their worries and fears, . . . opening that door and making them feel comfortable and normalizing the experience can be really powerful.

In one of the transcripts (Family #82), we identified this example of Provider C inviting the parents to critically evaluate the provider's recommendations:

Provider C: I think there should always be a healthy level of, you know, "Give me a reason why you do things."

Parent #1: Skepticism.

Provider C: Yeah, skepticism. Healthy skepticism is important.

Parent #2: Yeah.

Provider C: I would never want people to feel like they just need to blindly follow what I tell them to do for no reason.

Parent #1: Sure, sure.

Provider C: I would always expect you to ask me why.

Family #82 reported both an increase in trust (from a 4 or "Moderately trusting" on the pre-visit survey to a top box 5 or

"Very trusting" after the visit) and an increase in their vaccination plans (from "Unsure" to "All").

In the interaction with Family #99, we found two notable examples of invitational communication. In the first example, Provider D expressed uncertainty to the family:

I don't have great answers about the aluminum and the blood brain barrier. I mean, I just spent an obscene amount of time over the break trying to figure stuff out, and I— it's really difficult to find information on it. . . . But again, I just don't think we have— I don't have the answers.

Later in that encounter, Provider D encouraged the parents to take their time deciding: "I'm also happy if you guys just wanna take some time and talk, that's fine. But I really—I'd prefer that you have enough time to feel really good about your decision."

Encouraging critical thinking sometimes involved assuring families they could change their minds about their vaccination schedule in the future, and affirming and sympathizing with the difficulty of the decision-making process. For example, in their interaction with Family #86, Provider C and a parent had this exchange:

Provider C: You can always change your mind. This doesn't have to be— next time you come, if you're like, "I read about it and I'm not sure," you wanna talk more about it, or you say, "I just wanna go to the CDC schedule and do it that way," you can always do it that way. You can change. . . . When you're making a decision for another human, you feel responsible for those decisions.

Parent: As we should.

Provider C: Yeah, as you should. And that's why we'll continue to have the conversation. That's why we're here to talk you through it too.

Family #86 reported an increase in both trust (from a 4 or "Moderately trusting" on the pre-visit survey to a top box 5 or "Very trusting" after the visit) and vaccines (from "Unsure" to "Some"). The data suggest encouraging critical thinking and viewing parents as an additional authority on their children's lives may improve the provider-family relationship and increase vaccine uptake.

3.2.2. *Honoring autonomy and accepting decisions without judgment*

Another invitational technique that emerged from the data involved making space for any and all decisions without judgment. Provider A offered this during their interview: "I do want to be a proponent of vaccines, but I don't see it as my job to change their mind. I think more my job is to create trust."

One family (#18) who selected top box scores of 5 in their post-visit survey for safety, respect, freedom, persuasion, and trust remarked that "[Provider F] is gentle and soft-spoken, I feel she listened to our concerns and provided adequate feedback." Another family (#80) who also selected top box scores across the board wrote, "[Provider F] was very nice and provided lots of good information." A third family (#99) with the same top box rankings remarked, "We trust [Provider D]." All three of those families chose to administer more vaccines after the encounter. Furthermore, Family #99's post-visit rankings reflected an increase in trust, from a 4 or "Moderately trusting" in the pre-visit survey, to a 5 or "Very trusting" after the visit (the other two families maintained top box trust scores from before the visit to after).

Other instances of invitational communication involved providers affirming and respecting families' autonomy in the vaccine decision-making process. For example, in their interaction with Family #40, Provider F communicated their pro-vaccine perspective but then proceeded to affirm the family's autonomy, both of which constitute particularly apt invitational techniques:

So we still feel like the amount of antigen they're getting is safe, even the amount at one time. With all that being said, if you're going to feel most comfortable going home with your child at the end of the day spreading them out, then we'll support you in that.

Family #40 reported an increase in both trust (from a 4 or "Moderately trusting" on the pre-visit survey to a top box 5 or "Very trusting" after the visit) and vaccinations (from "No vaccines" to "Alternative schedule"). Provider F expressed similar views on family autonomy during their interview: "It is their child, so whatever decision they make is what will stand." The independent coder also noted invitational phrases throughout the encounter, culminating in strong data that suggest the benefit of invitation.

In an interaction with another family (#101), Provider C similarly affirmed the family's autonomy in the decision-making process: "No, it's a big decision, and there's a lot of information out there. I want you to be comfortable with your decision, I don't want you to feel like it's all pressure." Although they did not change their vaccination plans, Family #101 reported a significant increase in trust in their provider, from a 2 or "Slightly trusting" on the pre-visit survey to a top box 5 or "Very trusting" after the visit. In their post-visit survey, they wrote, "The conversation/visit was honest, didn't feel pressured and know we can change our mind, go a different route, or stick with our original decision of no vaccines." There may be longer-term benefits in this provider-family relationship that invitational rhetoric spurred.

3.3. Emergent communicative tensions

During our individual interviews with the providers to explore how they approached communication with VHPs, all six articulated a tension between wanting to establish trusting relationships with families and feeling pressure from the medical community to use traditional strategies to persuade families to vaccinate. For example, Provider D explained:

As a provider, in being on a number of email distributions from all sorts of medical places, they talk about motivational interviewing. And while some of it I agree with, I think the tactic is sneaky, and I think a lot of our patients know about it. . . . I don't want them to distrust me. Because at the end of the day, I see them and their family a lot. And if they feel like they were almost bullied into it, it's just a really really bad relationship.

In addition to feeling pressure to persuade from the medical community, providers expressed a tension between their training and their real-world experience: They know the public health science and best practices that advocate for high vaccination rates while also understanding that asserting their authority over families might alienate VHPs. Provider A explained it this way:

You really have to have that humble understanding that you know, you think you're right in this situation and it's okay to do that based on all your knowledge and research that you've done. But if you don't even have the inkling of the realization that there's a chance you could be wrong, it's gonna come across, no matter what words you say, it's gonna come across as being talked down to basically. Because this person who's an expert knows what they're talking about and. . . [might] leave feeling like "They just think I don't know what I'm talking about, but I do. I'm really worried, and this is why I'm worried."

Some providers expressed more comfort than others about using an invitational approach and mentioned the need to let go of a particular outcome in interactions with VHPs. For example, Provider B explained:

I used to be pushy. My entire feeling on how a visit went with a family was tied to whether or not they chose to vaccinate after I tried to give them my very convincing speech. So I would feel like the visit was a failure if they walked out of there unvaccinated, . . . and I would feel like it wasn't a good interaction. And then I just found that to be alienating. That style was alienating for a lot of families. . . . So I try not to be too stressed about whether or not they're going to vaccinate; that's their choice, and I want to not get too wrapped up in whether or not they do that, because I think it can impact the way the rest of the visit goes if I'm super disappointed about what they told me or about the choice they made.

The data revealed many communicative tensions, including a desire to increase vaccination rates without alienating hesitant or anti-vaccination families; invitation may help accomplish both.

3.4. Synthesized summary of results

Throughout the survey results, transcribed interactions, and provider interview data, we found evidence the providers at this practice prefer and use more invitational approaches in discussions with vaccine-hesitant families. We also found those families who engaged with providers in these more invitational encounters sometimes chose to administer more vaccines to their children than they planned to before the visit. Thirteen of the 35 people from the VH subgroup (37%) increased their vaccine uptake compared to their pre-visit plans, choosing to administer more vaccines than initially indicated in the pre-visit survey; 80% selected top box scores for trust of their providers; and 85% of those VHPs who chose to increase their vaccine uptake also selected top box trust scores. Across all 105 participants at the practice, all but two of them (98%) reported a similar level or increased sense of trust from pre- to post-visit survey, regardless of their immunization plans.

4. Discussion

The most significant finding from our study is that invitational rhetoric does seem to be a valuable alternative to persuasion, potentially maintaining or even increasing trust, possibly increasing vaccination uptake, and almost certainly reducing feelings of alienation and dissatisfaction for both families and providers.

Notably, three families (#18, #80, and #99) who specifically remarked on the invitational style of their providers (selecting top box scores for safety, respect, freedom, persuasion, and trust on their post-visit surveys) also increased their vaccination uptake. Invitational rhetoric seems to offer substantial benefits in conversations with vaccine-hesitant parents, and survey and interview data suggest providers and families tend to feel positively about invitational interactions.

We discovered that while the providers used invitational language with VHPs, to some degree they still relied on traditionally persuasive techniques to encourage families to vaccinate fully according to the recommended CDC schedule. This may be because the providers did not feel comfortable with or knowledgeable about alternatives to traditional persuasion. In instances where the family felt the provider was trying to persuade them to vaccinate fully according to the CDC schedule, the data suggest trust and vaccine uptake may be negatively impacted. Those providers who were newer to the practice and/or to the field of medicine seemed to rely on persuasion more than those who had been at the practice or in medicine longer, and those with more experience seemed less concerned about the final outcome of a family's vaccination plans.

Persuasion has been the de facto strategy for changing people's minds for centuries and has seen a recent resurgence since the

advent of COVID-19 vaccines. But some practitioners and researchers have felt a tension in the inherently paternalistic nature of conventional persuasion, an ethos that flies in the face of modern bioethics writ large. For example, we found it notable that multiple providers mentioned concerns about the persuasive nature of motivational interviewing (MI). Invitational rhetoric is different from MI, however, as the intention of invitational rhetoric is not to change behavior, but to foster trust and mutual understanding. Practitioners of MI might find invitational rhetoric honors and even extends the application of some of the basic tenets of MI; indeed, future research could explore the relationship between invitational and motivational styles.

Because all the providers expressed an internal struggle with using persuasion, we suggest further research on the use of invitational rhetoric exclusively, perhaps after specific training on how to incorporate invitation into the clinical setting. Training in and familiarity with invitational rhetoric as an alternative to traditional persuasion could not only help establish trust and potentially increase vaccine uptake, but focused training could also help providers navigate their felt tensions around communication with vaccine-hesitant families.

4.1. Study limitations

The case study approach to this research meant we could not gather a representative sample of the population, and the families at this particular practice self-selected to participate. The pre- and post-visit surveys were written in English only and may have introduced response bias or confusion since the responses were self-reported. We did not video record the visits, so we could not analyze non-verbal cues. The neutral, independent coder did not know about the study aims but still brought necessarily subjective interpretations of the data. We only coded interactions with families in the VH subgroup, though we used all participants' trust rankings in our statistical analysis.

4.2. Study strengths

To date, no study has considered the effect of invitational rhetoric on conversations between healthcare providers and vaccine-hesitant parents, despite the promise of invitation and possible detriments of persuasion. This mixed methods case study offers promising results about incorporating invitational elements into communication with VHPs, and suggests the value of future studies focusing on invitational rhetoric alone (without the use of any persuasion) that may increase trust and improve vaccine uptake even more. This study is also particularly timely as COVID-19 vaccinations become available (and even mandated) for pediatric patients.

5. Conclusions

In their 25-year anniversary update to their groundbreaking work on invitational rhetoric, Foss & Griffin discuss a revision to their original conception that change may not result from rational communicative interactions: The authors now believe that change "always happens in every exchange" [25]. If change is inevitable (and even quite welcome), we offer that invitational interactions between healthcare providers and vaccine-hesitant parents may result in a change to a family's vaccination plans or their level of trust, or both. Providers and families engaging in invitational dialogue might expect a satisfying change to their relationship, regardless of their specific vaccination plans. Additionally, the deep political and social divide between those choosing to vaccinate against COVID-19 and those who do not may be repaired or

improved upon by extending the application of our research in other contexts outside the medical setting [31].

As Adam Grant wrote about vaccine hesitancy, "When we succeed in changing someone's mind, we shouldn't only ask whether we're proud of what we've achieved. We should also ask whether we're proud of how we've achieved it" [32]. Invitational rhetoric offers a unique style of communication that providers can be proud of using: one that privileges connection, bridge-building, and understanding over authority, control, and domination, potentially "improving communication, patient engagement with the health-care system, and better health outcomes for communities" [12]. We do not know what may come of a shift toward an invitational ethos in conversations about vaccines, but we expect the results may be exceedingly positive for patients, families, providers, and the larger medical community, should they accept the invitation.

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.

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Appendix A

Informed Consent and Pre-Visit Survey

Thank you for considering participating in this research study about communication between families/caregivers and healthcare providers. Please read this section completely which outlines the risks, benefits, and alternatives to participating.

You do not have to participate, and your decision either way will not impact your care. Your information will remain confidential and anonymous in the published paper, and the findings from the study will not include any identifying information.

Risks: There are no risks to your participation in this study. Your care from the provider and all the staff will remain the same. The researchers are the only people who will see your answers, and they will not share them with anyone at the practice. The total time to complete two questionnaires (this one before your visit and one after) should not exceed 20 min. Your visit with the provider will be audio recorded with a small, digital recorder that is started and stopped by one of the Front Desk staff. If at any time you are not comfortable being recorded, you can ask the provider or Front Desk staff to stop the recording. The recording may be transcribed by a secure, professional service. No one else will be able to access the recording. All recordings, information, and materials will be destroyed at the end of the study.

Benefits: This study may help healthcare providers talk with patients and families in a more meaningful way. For agreeing to participate, you will receive a \$10 gift card from Amazon or Starbucks.

Alternatives: You can choose not to participate, and your care will not be impacted in any way.

If you have questions at any time, please feel free to reach out by email, phone, or text message. Thank You.

1. To acknowledge you have reviewed the information above and are comfortable participating in this study, please select "I have read the consent above, and I agree to participate in this study" and continue answering questions. If you do not want to participate, do not complete the survey and close your browser window.

- A. I have read the consent above, and I agree to participate in this study.
- B. I do not want to participate. (Close your browser now)

- 2. What is your child's birthday?
- 3. What are your child's initials (first and last)?
- 4. What are your plans regarding vaccination of your child?

Choose one:

- A. All CDC recommended vaccines
- B. Some but not all recommended CDC vaccines
- C. Alternative schedule (e.g. Dr. Sears schedule; more time between doses; customized schedule as discussed with my child's provider; etc)
- D. No vaccines
- E. Unsure/I will decide after talking with my child's provider
- F. Other (please specify)

- 5. Why have you chosen that particular plan?
- 6. Do you have any concerns, hesitations, or fears about the plan you chose?

- A. No.
- B. Yes. (Please specify what concerns, hesitations, or fears you have about that plan)

7. How trusting are you of your child's doctor/healthcare provider? (If you have never met the provider, please mark N/A)

5-Very trusting	4-Moderately trusting	3-Somewhat trusting	2-Slightly trusting	1-Not trusting	N/A
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8. In general, what makes a healthcare provider trustworthy to you?
 Thank you for participating in this study. Please make sure to complete the post-survey after your visit to ensure you receive your gift card incentive.

Appendix B

Post-Visit Survey

1. Please tell us the following (and make sure to include all three)

- A. Your child's **birthday**
- B. Your child's **initials** (first and last)
- C. The name of the **provider** your child saw at this visit

- 2. What vaccination plan did you choose?
 - A. All CDC recommended vaccines
 - B. Some but not all recommended CDC vaccines
 - C. Alternative schedule (for example: Dr. Sears schedule, more time between doses, customized schedule as discussed with my child's provider, etc)
 - D. No vaccines
 - E. Still unsure/I will decide at another time
 - F. Other (please specify)

3. If your vaccination plans changed as a result of this visit with your provider, what made them change? (If your plans remained the same, type N/A)

4. How safe did you feel to discuss your concerns or questions about any topic with this provider?

5-Very safe	4-Moderately safe	3-Somewhat safe	2-Slightly safe	1-Not safe
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5. How respectful was the provider?

5-Very respectful	4-Moderately respectful	3-Somewhat respectful	2-Slightly respectful	1-Not respectful
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6. Specific to your interaction with this provider, how much freedom did you have to make decisions that felt right for you and your child?

5-Lots of freedom	4-A moderate amount of freedom	3-Some freedom	2-Very little freedom	1-No freedom
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7. How much did the provider try to persuade you (to do anything related to any topic)?

5-Did not try to persuade me at all	4-Tried to persuade me very little	3-Tried to persuade me somewhat	2-Tried to persuade me a moderate amount	1-Tried to persuade me a very hard to persuade me
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8. After this visit, how trusting are you of your child's healthcare provider?

5-Very trusting	4-Moderately trusting	3-Somewhat trusting	2-Slightly trusting	1-Not trusting
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9. Why did you choose that rating (question #8)?
 10. Thank you for your participation. Please tell us the following in the space below (Be sure to click SUBMIT or your survey will not be counted and you will not receive your gift card).

- 1. Your preference: either a \$10 Amazon gift card or \$10 Starbucks gift card
- 2. Your mailing address for where the gift card should be sent. If you prefer we leave the gift card at [the practice], please indicate that.

If you have questions at any time, please feel free to reach out by email, phone, or text message. Thank You.

Appendix C

Coding Dictionary

Examples of Traditional Rhetoric/Non-Invitation:

- Patriarchal/paternalistic
- Persuasive (conscious or unconscious intent to change others)
- Power over

- Domination
- Control
- Coercive
- Influencing
- “Adopt my viewpoint”
- Authority (demonstrations of superior knowledge, skills, or qualifications)
- Devaluing
- Expression of inadequacy or inappropriateness
- “Let me help you”
- “Let me enlighten you”
- “Let me show you the way”
- Infringe on rights of caregiver to believe or act as they choose
- Correcting inadequacy
- Competitive
- Alienation
- Dehumanizing
- Worth needs to be earned, acquired, or proven
- Violation of another’s lifeworld
- Excluding/exclusive
- Judging/denigrating
- Anticipating resistance
- Feelings of inadequacy, insecurity, pain, humiliation, guilt, embarrassment, or anger
- Distancing
- Depersonalizing
- Interrupting (even to offer comfort)

Examples of Invitational Rhetoric:

- Recognition of uniqueness
- Inherent/immanent value
- Self-determination
- Equality
- Elimination of dominance
- Elimination of elitism
- Intimacy
- Mutuality
- Camaraderie
- “You have value”
- Eschewal of attempts to change others (perspectives, actions, etc)
- Respect
- “You are the authority/expert on your own life”
- “You are capable of and have the right to constitute your world as you choose”
- “I trust that you’re doing the best you can”
- Unconditional acceptance
- Including/inclusive
- Invitation to understanding
- Appreciation
- Validation
- Non-judgmental
- Non-hierarchical
- Non-adversarial
- Refusal to impose perspectives
- Identify, minimize, and neutralize impediments to understanding
- Discovery/questioning
- Affirm beliefs
- Gratitude
- Offering perspectives
- Creating external conditions that allow for the sharing of perspectives
- Inviting careful consideration
- Giving presence

- Offering (narrative, perspective, etc)
- Opening
- Presenting their vision of the world and show how it looks for them
- Willingness to yield (turning toward the other)
- Self-risk (giving up yourself or your perspective)
- Caregiver asking questions to learn more
- Re-sourcement (drawing energy from a new source)
- Safety (security, freedom from danger, working with not against)
- Value (acknowledgement of intrinsic/immanent worth)
- Freedom
- Reversibility of perspectives (put yourself in another’s shoes)
- Egalitarian reciprocity (everyone has equal right to speak up, speak out)
- Provider allows caregiver to determine own options

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