Understanding reasons for participating in a school-based influenza vaccination program and decision-making dynamics among adolescents and parents

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Abstract

Influenza remains a significant cause of morbidity and mortality in the United States. Vaccinating school-aged children has been demonstrated to be beneficial to the child and in reducing viral transmission to vulnerable groups such as the elderly. This qualitative study sought to identify reasons parents and students participated in a school-based influenza vaccination clinic and to characterize the decision-making process for vaccination. Eight focus groups were conducted with parents and students. Parents and students who participated in the influenza vaccination clinic stated the educational brochure mailed to their home influenced participation in the program. Parents of non-participating students mentioned barriers, such as the lengthy and complicated consent process and suspicions about the vaccine clinic, as contributing to their decision not to vaccinate their child. Vaccinated students reported initiating influenza vaccine discussion with their parents. Parental attitudes and the educational material influenced parents’ decision to allow their child to receive influenza vaccine. This novel study explored reasons for participating in a school-based vaccination clinic and the decision-making process between parents and child(ren). Persons running future school-based vaccination clinics may consider hosting an ‘information session with a question and answer session’ to address parental concerns and assist with the consent process.

Introduction

Influenza remains an important public health problem in the United States. It is a significant source of morbidity and mortality with 5–20% of the population contracting influenza and more than 200 000 hospitalizations due to influenza complications annually [1–3]. In February 2008, the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices recommended that all children aged 6 months through 18 years receive seasonal influenza vaccination [4]. Children and adolescents are primary transmitters of influenza in communities although they are not considered at high risk for developing severe disease or complications compared with the elderly and adults aged 18–65 years with medical complications [5–7]. Children and adolescents shed the virus...
for longer periods than adults and are disproportionately affected by the disease [8, 9]. Research has shown that vaccinating school-aged children can have a significant benefit to the individual as well as reduce transmission of the virus to high-risk groups such as the elderly and infants [10, 11]. Vaccination rates among adolescents remain low with only 15.3% of those 13–18 years getting vaccinated against seasonal influenza in 2009–2010 [10].

With nearly all children in the United States attending school on a daily basis and average attendance ranging from 92.0% to 98.2% among students aged 10–18 years, school-based influenza clinics can be effective in increasing immunization coverage of school-aged children and indirectly protect high-risk groups such as the elderly and infants [12–14]. More importantly, these clinics are an important component of a strategy to serve minority, rural and low-income school children, who may otherwise have limited access to influenza vaccination [15]. Generally, many adolescents do not have primary care physicians, and rural areas have higher poverty rates than urban or metro areas, which can pose as barriers to influenza vaccination [16, 17]. Some studies have shown that barriers to participating in school-based influenza clinics among parents of elementary school-aged children include concerns about adverse effects, lack of physician recommendations for vaccine receipt, vaccine cost, child having asthma or other illnesses and not receiving any vaccinations [18, 19].

There are relatively few qualitative data available for school-based influenza vaccination programs. Our group showed that school-based influenza vaccination programs increased coverage over provider-based vaccination [20, 21]. A multicomponent school-based influenza vaccination program conducted in middle and high schools in rural Georgia found that parents who received an informational brochure about influenza reported higher influenza vaccination rates among students relative to those students who did not receive the brochure [15, 20, 21]. Although this study demonstrated that school-based influenza vaccination interventions are useful in improving influenza vaccination rates among students, quantitative studies do not capture the reasoning behind both parent and student decision-making regarding vaccination in the school-based clinics, nor do they elicit information about the decision-making dynamics between parents and children regarding vaccination.

The purpose of this article is to present the qualitative findings from parents and students who participated in the previously mentioned school-based influenza vaccination clinic located in a low-income rural county in Georgia. The ‘Influenza Vaccine Delivery to Adolescents: Two Multi-Component Interventions’ program was designed to enhance influenza vaccination coverage among predominantly African-American middle and high school students in three counties in rural Georgia [22]. The study consisted of a three armed controlled design implemented over a 3-year period. Specifically we sought to: (i) understand what factors contributed to parents and students participating in the program, (ii) understand the decision-making processes between parent and child and (iii) solicit feedback on how to improve a school-based vaccination clinic. This qualitative study will focus on County 1, which consisted of a multicomponent school-based influenza vaccination intervention. The multicomponent intervention consisted of a structural component (the provision of free influenza vaccine in the school-based clinic) and an educational component (a brochure mailed home to parents and an informational skit performed in school for students). A detailed description of the intervention is published elsewhere [15].

### Methods

**Study population**

Two years after the school-based clinic was implemented in County 1, focus groups were conducted with parents and students enrolled in the middle and high school during the two intervention years to gather information about their thoughts on the clinic, their decision to participate (or not) in the clinic and their thoughts on how to improve these types of school-based vaccination programs in the future. The study participants were eligible to
participate if they were enrolled or had a child enrolled in the intervention middle and high school (County 1) during the 3-year period. Purposive sampling was used to identify parents who were then invited to the focus groups by a community liaison. The community liaison identified participants through a list of students who were enrolled in the middle and high school during the time that the school-based influenza clinics occurred. The parents of these students were invited to participate in the focus groups. Parents also brought their children, who were in attendance at the middle and high school during the intervention years, to the focus groups. Data during the time the program was implemented show that 95% of students were African-American and 95% of students were eligible to receive free or reduced cost lunch [23].

Data collection

Eight focus groups were conducted at a community location, each lasting approximately 60 min. The number of focus groups was determined ahead of time by the researchers in an effort to reach theoretical saturation. Four focus groups were conducted with parents: two focus groups consisted of parents of students who participated in the school-based influenza clinic (participating) and two groups consisted of parents who did not allow their child to participate in the school-based influenza clinic or opted to have their child receive the vaccine at another location, i.e. physician’s office (non-participating). The remaining four focus groups were conducted with students enrolled in the middle or high school when the school-based influenza clinics were implemented: two groups consisted of students who participated in school influenza vaccine clinics and two groups consisted of non-participating students. To participate in the focus group sessions, parents signed consent forms and students provided assent. Study protocols were approved by the institutional review board at Emory University.

Students and parents were divided into separate focus groups to encourage open discussion about what made participating parents and students want to receive influenza vaccine through the school-based clinic versus reasons that steered parents and students away from participating in the program. One staff member from the research project facilitated the group discussions. A second team member was present during the group discussions to take notes. A focus group guide was used to lead the discussion in which participants were asked their impressions of the school-based influenza clinic, reasons for allowing their child to get vaccinated or not be vaccinated, the decision-making process about vaccination between parent and child as well as ways to improve the school-based clinic. Participants received $30 gift cards as compensation for their time.

Analysis

Focus groups were recorded and transcribed verbatim by an independent transcription company. Content analysis was performed using NVivo9 qualitative analysis software. The analysis included line-by-line coding of statements and responses from two independent researchers [22]. At a later date, researchers met to review the codes and evaluate their meaning. The coded data were organized to identify themes and understand the behavior and attitudes among the participants. The themes were cross-referenced among the coders and percent agreement was determined. Disagreements about themes were discussed and resolved among coders until 100% agreement on themes was achieved. The included quotations were selected because they characterize the opinions and capture revealing issues among participants. The themes that emerged are presented in the findings.

Results

Participants

We conducted two focus groups with parents of participating students (n = 18), two focus groups with participating students (n = 21), two with parents of non-participating students (n = 23) and two groups with non-participating students (n = 23) in County 1. Multiple unique themes emerged from the focus groups with students and parents who
participated and those who did not participate in the school-based influenza clinic.

**Attitudes about the school-based influenza clinic**

Attitudes toward the school-based influenza clinic varied among the different groups. Parents and students in the intervention county heard about the influenza clinic through multiple channels including various teachers, their peers and through the mailings. Parents of students who were vaccinated through the program generally had positive feedback about the clinic. As one student participant stated, ‘I think they were good because they were at school. You know how it still spreads around the school. They cannot do anything about it so this is pretty nice’. Other students appreciated the convenience of receiving the vaccine at school, ‘I think it [the program] was good because...they could get it at school’. Some parents also expressed their satisfaction with the clinic because they wanted to get their child vaccinated and it would eliminate the need to take their child out of school to get the vaccine.

Parents of students who did not participate in the school-based influenza clinic were skeptical about the program. Several expressed sentiments such as ‘my kids will be like guinea pigs. That is how I felt about it’. Their concerns about the school-based clinic led to several parents taking their children to other providers such as their primary care physicians or local pharmacies to get the influenza vaccine. However, some parents were skeptical about the influenza vaccine and the side effects, ‘I remember everybody saying that I was getting a flu vaccine, and you are going to get sick, really sick. We were scared’.

**Impact of educational materials on the decision-making process**

Opinions on how the educational materials influenced the decision-making process for parents and students were discussed in the groups. As part of the educational component of the intervention, parents received a brochure with facts about influenza and influenza vaccines and common myths about both. Students attended an assembly at school where peers performed a skit about influenza and influenza vaccination. Overall, parents of participating and non-participating students acknowledged receiving and reading some of the brochure. Parents of students who participated in the program found the brochure to be informative and helped with the decision-making process, ‘There was a concern because sometimes they say when you take the vaccine, the flu shot, it makes you sick. At first, I had said no but, I mean, I went on ahead and had it done anyway because they [their child] were not afraid of the shot’. Students who participated in the school-based clinic had mixed opinions about the brochure; some of the students enjoyed it and others felt that it was, ‘Too much to read’. However, the brochure did have an impact on the decision-making process involving vaccination as one student recalls, ‘I read the brochure and I signed [the assent form]’. The informational material assisted with concerns and increased knowledge about influenza and the influenza vaccine.

Some parents of non-participating students also read the brochure but were suspicious of the program as one mother stated, ‘I went through it [the brochure]. But like I said, I felt like my child is being used as a guinea pig’. These sentiments were expressed several times among parents of non-participating students. Some of these parents also said the brochure contained too much information. One parent stated, ‘I am probably not going to sit down and read all this’ as she reflected back on the brochure. In some instances, parents were supportive of their children receiving the influenza vaccine, but the child was against it, ‘It [the brochure] may convince me, but it did not convince my son’.

Another part of the educational component was a skit or presentation conducted by students in the school. Students in the middle and high school helped develop and perform the skit for their peers, teachers and staff at the schools. Participating and non-participating students reacted to the educational skit in a positive manner and had positive remarks about the content. Both groups of students remembered general elements of the skit and other
materials such as hand sanitizers and t-shirts that were distributed on the same day. Some students who participated in the clinic mentioned that viewing the skit contributed to their decision to receive the influenza vaccine, ‘I got it [influenza vaccine] from watching [the skit]’ and ‘they got the message by watching us do it’. Viewing their peers’ acceptance of influenza vaccination influenced others to receive vaccination at the school-based clinic.

**Decision-making about the influenza vaccine**

From the focus groups, we found that vaccination decisions vary by individual families and are influenced by numerous factors. During all the focus groups, parents and students were asked to share how the decision to receive (or not) the influenza vaccine at the school-based clinic was made. Parents stated that they collected the information sent home and their own personal experiences with the influenza vaccine and discussed vaccination with their child(ren). A guardian shared her conversation about receiving the vaccine: ‘My granddaughter and I, we discussed it. She was curious about the spray as well as the shot’. Some parents also shared that they let their child make the decision about vaccination, ‘he does not like to be sick so he said he wanted it’. Students who participated in the vaccine clinic also acknowledged that the informational brochure that was sent home influenced their decision to get vaccinated. Several students stated ‘I had the brochure’ and ‘The brochure that I brought to my parents’ helped them in the decision-making process. Influences from peers also contributed to some students participating in the school-based clinic. Students mentioned that they encouraged their friends to receive the vaccine, ‘I convinced the ones that didn’t want to get it [influenza vaccine] to get it, and I went right away’.

Parents of non-participating students stated that they were skeptical about the influenza vaccine and school-based clinic and also shared their own negative experiences with receiving the influenza vaccine, ‘I explained to him all the experience that I know about and that I have heard about and just convinced him to come to my side’. One student learned about the influenza vaccine from the school skit previously described and tried to initiate discussion with his mother, ‘He [her son] knew what it [the flu vaccine] was about, and he wanted to take it. It was just me. I was a little skeptical about it’. Generally parents of non-participating students expressed that it was solely their decision to not have their child vaccinated. When asked by the moderator, the majority of participants across these focus groups stated that there was little discussion about receiving the influenza vaccine. One parent of a non-participating student stated, ‘When it comes to his health, I really have to ask him, but I will be the one making decisions’.

Some non-participating parents did not want their child to receive the influenza vaccine at the school-based influenza clinic because they were suspicious about a university offering the vaccine. Some parents believed that influenza vaccination is important but preferred to take their child(ren) to another provider (i.e. private physician). One mother believed that the influenza vaccine was important but opted out of the school-based vaccine clinic, ‘I mean they need the vaccine. You know you do not have a choice. It is not open for discussion, you know. It is not their decision, but it is solely on me, but you know, they can say all they want to say, so if you need it you are going to get it [influenza vaccine]’. The non-participating students felt that the decision was jointly made between parent and child. One non-participating student described the decision between herself and her mother, ‘I say me because sometimes I have my own responsibilities, and I say my mom because she is mostly open. She is supposed to help me make my decision a little bit’.

Additionally, when asked, both parents and students who participated and did not participate in the clinics agreed that the student initiated the conversation about the influenza vaccine. After attending the assembly and skit, students mentioned that they approached their parents to discuss the options of receiving the influenza shot or the nasal mist spray because they did not want to be infected with influenza. One student recalls the beginning of the conversation with their parent and said,
‘Mom, can I get the flu shot. I do not want the flu’ as an example of how the discussion started between parent and child. Other students mentioned that their parents expressed concerns about the influenza vaccine and consulted their family physicians or referred to the brochures mailed to their homes, ‘I mean he did not initially say something about it’. He was like “Mom this got my name on it and you need to look at it and fill it out” and I was like okay, so I kind of decided to call [the doctor’s office]’. The concern about the influenza vaccine being offered in the school turned into a barrier for some parents who were skeptical about the vaccine.

Barriers to participation in the school-based influenza vaccination clinic

Parents of non-participating students stated several barriers to participation in the program. One major barrier was the consent process. Consent packets were mailed home to the parents so that their child could receive the influenza vaccine. The consent forms were lengthy because parents had to consent for their child to receive the vaccine and also have their medical information released to researchers as a means for follow-up. Researchers used colored flags to indicate where parents should sign and where the students should sign. However, parents mentioned the length and complexity of the consent form as a deterrent from participating in the school-based clinic. One of the mothers described her initial reaction to the consent form and how it influenced her decision, ‘So you know, that is the first thing we do. Throw it in the trash. Throw it to the side’ and ‘Like I said you know reading all of that. Like I said, I got through it. I read some of it. This is a legal paper. It is kind of legal so it kind of makes everybody back off’. Additionally, parents had to indicate if their child had medical conditions such as asthma that would prevent them from receiving the influenza nasal mist spray versus the shot.

Another barrier that emerged from the focus groups that prevented parents from enrolling their children was the health information that was collected during the study. Parents were contacted via telephone to consent to a chart review of their child to see if influenza vaccination was received prior to the intervention. Some parents were reluctant to consent to the review of their child’s medical record because of the uncertainty of how the health information would be used. The perception of the research being conducted was another barrier mentioned by a parent.

She states that, ‘My child was a guinea pig because it is a university and studies. You know what I am saying. Research’ as a reason why she did not want her child to participate in the influenza clinic. The negative feelings toward research prevented some parents from vaccinating their children through the school-based clinic. Parents who did not participate also acknowledged that the presence of ‘outsiders’ was another concern.

First, we do not have a nurse in the school. We do not have like an in-staff where somebody is secured, you know, where we can leave medication for our kids and everything, so we are more reluctant about outsiders coming in and doing it.

Barriers to influenza vaccination

The perception that the influenza shot will make you sick was another barrier that was mentioned during the parent focus groups, ‘The one reason is they say is when you get the flu shot, you inject into your system the flu’. Finally, the inconvenience of travelling to the physician’s office to receive the vaccine as one parent explains, ‘It is not required and so it is difficult to understand for parents to get to physician’s office at that age’ and ‘A lot of parents work, and it is hard to get an appointment’ were also mentioned as a barriers. Transportation to the clinic, taking time off from work to get an appointment during the day and the child missing classes are barriers that hindered some parents from taking their child to receive seasonal influenza vaccine.

Ways to improve the school-based influenza clinic

Parents who participated in the school-based influenza clinic suggested ways to improve the program
and increase the number of vaccinated students. Several parents mentioned more advertising as a way to raise awareness about the program and increase the number of students who participate. Researchers did make announcements in the schools and ran ads in the local newspaper but as one parent stated, ‘How about commercials, advertise. That would be … I think a lot of people watch TV. It will get attention, pay attention’. Television commercials may be a more effective way to reach parents and remind students to get their influenza vaccine at the school. One parent proposed utilizing peer influence to spread the importance of influenza vaccination, ‘Maybe we can talk to the kids and then they will talk to other kids and let it be known to the parents how important it is’.

One parent who did not participate suggested establishing a strong relationship with the community as a way to increase the number of students who were vaccinated at the school. Several non-participating parents were wary of ‘outsiders’ conducting research on their children and entering the schools. Building stronger partnerships and having a larger presence in the community could potentially make parents more trusting of the researchers as one non-participating parent expressed, ‘I think if they just build a good relationship with the community’. Question and answer sessions were suggested as a way to address parental concerns and foster relationships with the school and parent community, as one parent states ‘because a lot of people have a lot of questions and they do not want to be the first to ask’.

Additionally, with a greater presence in the community some of the barriers to participation in the program, such as the skepticism of parents and questions about reviewing medical records of students, could be addressed. More work with the parents was suggested as a way to increase participation. Several parents stated, ‘You have to work on the parents’.

Students had several suggestions on how to improve the educational component during the school assembly. Ways to improve the educational skit were to make it longer and incorporate songs and more comedy. Overall, students were pleased with the shirts, hand sanitizers and other gifts they received after the assembly as a way to increase awareness about getting the influenza vaccine.

**Discussion**

This is a novel study that explored the reasoning behind participating in a school-based influenza clinic and parent–adolescent decision-making processes. The findings show that there are many reasons why parents consented to allow their children to participate in the school-based influenza clinic. We found that the parental attitudes about influenza vaccination and the educational materials provided were primary factors in the decision to vaccinate their child. Also, students were more likely to initiate the discussion about influenza vaccination with their parents after the school assembly that showed peers discussing influenza vaccination. These findings can be used to plan and improve upon future vaccination clinics held in a school location.

Parental attitudes about influenza vaccination appeared to be an influential factor in the decision to participate or not in the school-based clinic. Personal experience from receiving the vaccine or anecdotal evidence from friends and family seemed to be the most important of these beliefs. This finding is supported by several studies exploring reasons for different vaccine uptake or non-uptake among youth [24, 25]. Griffioen et al. [24] found that a mother’s decision to vaccinate her daughter for HPV was influenced by their health beliefs and interactions with friends, family members and clinicians. Sampson et al. [25] noted the influence of anecdotal evidence over factual evidence when it comes to influenza vaccination decision-making among parents with children. These personal stories were also presented during our parental discussions.

During the focus groups with parents who allowed their child to participate in the influenza clinic, several parents shared stories about their own beliefs on why the influenza vaccine was a positive thing. Parents who did not allow their child to participate shared negative stories of their
own experiences with receiving the influenza vaccine and stories they had heard from friends and family members who became ill after receiving the vaccine.

The educational brochure that was mailed to students’ homes was also mentioned as a factor in the decision-making process for parents and students. Previous studies show that vaccine-related educational materials are helpful in vaccine decision making for parents as it allows adequate time to review the information [26, 27]. Students in the schools also received important educational materials via a skit performed in the school by classmates. Students who participated and did not participate in the school-based clinic were able to recall the skit but most importantly students who were vaccinated through the program mentioned seeing the skit and then initiating conversation about vaccination with their parents or other peers. The skit acted as a prompt for some students to start the discussion about influenza vaccination with their parents and peers.

The importance of eliminating barriers for parents to vaccinate their children is another important theme that emerged from our findings. The need for an appointment at the doctor’s office has previously been cited as a barrier to vaccination; thus school-based influenza clinics are an alternative venue that can decrease or eliminate that barrier. However, these school-based clinics present unique barriers as well [25]. The consent process was a burden for several of the parents who did not participate in the vaccine clinic. Despite being written at an eighth-grade reading level and colored tabs being used to highlight where parent and student signatures were needed, the length and technical language of the consent forms deterred some parents from participating. Another barrier included parents’ perception of the research being performed. Some parents thought that their child would be receiving an experimental vaccine. Working closer with parent groups such as the Parent-Teacher Association (PTA) and hosting parent question and answer sessions were suggested by both participating and non-participating parents as a way to help alleviate this problem.

This information is useful for planning future vaccine clinics for adolescents. There were several lessons learned from completing this research that would be useful for future school vaccination clinics. First, working with schools to have program staff more involved and present is important. Parents mentioned that they felt like strangers were coming into their schools to vaccinate their children. Hosting parent nights to answer questions about the research and talk through the consent process may help ease those parental concerns. Additionally, parents would have the opportunity to see and talk with the program staff members. Second, gaining more support from private physicians is important. Parents may be more likely to allow their children to get vaccinated through these types of programs if private physicians endorse such programs. Having physicians endorse these programs would allow partnerships to develop between schools, the community and medical providers. Third, the development of unique ways to make the consenting process for vaccination easier on the parents is critical. Often, parents may not receive the consent form or fail to return it. Utilizing social media to remind students and parents about consent forms may be another way to capture the consent of more parents rather than mass mailing or sending consent forms home with the child, which can easily be lost or misplaced.

The goals of this qualitative research were to better understand the decision-making process between parent and child when deciding on influenza vaccination; ascertain why some parents allowed their students to receive influenza vaccination in the school-based clinic and for researchers to receive feedback on how to improve the school-based influenza clinic. The open discussion format of the focus groups allowed students and parents to express their opinions about successful aspects and areas that need improvement. Overall parents who consented to allowing their child to be vaccinated at the school clinic were more receptive to the information sent home from researchers and more likely to have discussed influenza vaccination with their child. Parents who did not allow their child to
receive influenza vaccination at school were skeptical about the program and opted either to take their children to a private provider to receive the vaccination or forgo influenza vaccination. Useful information was obtained about how to make the program more appealing to all parents, including working more closely with the community and parents in particular so that a degree of trust and familiarity could be established.

Limitations
There were several limitations to this research. Due to the nature of qualitative research and the use of purposive sampling of parents and students in rural Georgia, the results are specific to the sample and are not generalizable to all school-based influenza clinics, especially those located outside of rural areas. The focus groups were conducted more than 2 years after the school-based influenza clinic was implemented. During the discussions, it was challenging for some of the students and parents to recall various elements of the program. Details of the school play and consent process were difficult to remember at times, which may have affected the feedback they shared during the discussions. We did not collect any demographic or other socioeconomic indicator data that could have influenced parents’ decision to consent to influenza vaccination.

Implications
There are several implications for future school-based influenza clinics. The use of a school assembly is a good way to deliver information to a majority of middle and high school-aged children at the same time. This study suggested that it made the subject memorable and it provided the opportunity for students to initiate discussion about influenza vaccination with their parent(s). Incorporating student leaders and teachers is one way to relay the message that adolescents and adults need to influence their decision to receive seasonal influenza vaccine. Finally, establishing partnerships with parent groups such as the PTA and other key figures is important for encouraging parental cooperation and participation in the program.

Conclusions
This is one of the few qualitative studies that explored both parental and student attitudes regarding a school-based influenza clinic in a rural area. The utilization of focus groups ensures that the findings were grounded in the experiences and opinions of the participants. The themes highlighted in this article emerged from the discussions of parents and students who chose to participate or not in the school-based influenza clinic. School-based vaccination clinics provide an effective method for vaccinating large numbers of children [28]. Engaging the entire school community including teachers, staff and students as well as parents is critical to increasing participation in future vaccination clinics.

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Conflict of interest statement
None declared.

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