



School-located immunization programs: Do parental preferences predict behavior?☆

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ABSTRACT

Background: Little is known about parental attitudes regarding school-located immunization programs and their effect on program participation behaviors.

Objective: To determine the relationship between attitudes of middle school parents regarding school-located immunization programs and subsequent consent behaviors when such a program becomes available.

Methods: Primarily Hispanic, middle school parents completed questionnaires about school-located immunization programs. After questionnaire collection, immunization consent/refusal packets (English/Spanish) for a program providing Tdap and MCV4 vaccines were distributed at five Houston middle schools in low-income, urban areas. Responses regarding demographics, enrollment in a medical home, immunization location preferences, and knowledge of immunization recommendations were analyzed from questionnaires returned by those who later returned consent or refusal forms for school-located program participation. Frequency and chi square statistics were calculated using SPSS 18.0.

Results: Of 475 parents who completed the questionnaire and later sent a consent or refusal form, 289 (61%) consented to ≥ 1 vaccines for their child. Among those who consented: 71% were enrolled in a medical home; 42% had previously indicated that they did NOT prefer school as an immunization location; 32% had stated that they wanted to be present for their child's shots. Of those who sent refusal forms indicating they would access the vaccines from their own providers, 70% stated they wanted to be present for their child's vaccination.

Conclusions: A significant proportion of Hispanic, low-income middle school parents participating in a school-located immunization program had previously indicated that schools were not a preferred immunization site. Despite the availability of a medical home, a lack of preference for schools as a site, and the desire to be present during their child's injections when asked prior to program availability, these parents participated in the program when it was made available. Preferences noted in pre-program questionnaires may not predict parental consent behaviors for school-located immunizations.

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1. Introduction

Prior to 2005, healthy adolescents were expected to receive a tetanus, diphtheria (Td) vaccination booster at age 11–12 years and be up to date on the hepatitis B vaccination (HBV) series. In 2005, the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices recommended the meningococcal conjugate vaccine (MCV4) for all 11–12 year olds, 15 year olds,

and 18 year olds planning to live in a college dormitory [1]. This recommendation has been followed by recommendations for adolescents to receive the tetanus, diphtheria, and acellular pertussis vaccine (Tdap to replace the Td booster) [2], the human papillomavirus (HPV) vaccination series [3], a second varicella vaccine for those who had only received one dose previously [4], annual influenza vaccination [5], as well as updated MCV4 recommendations for vaccination at age 11–12 years with a booster dose at age 16 years [6].

Accessing adolescents to administer vaccines is an ongoing challenge. National Immunization Survey-Teen data from 2009 indicate that immunization rates among 13–17 year olds are improving yet still inadequate, ranging from 27% completion rates for the HPV vaccination series and 90% completion rates for the HBV series [7]. Health care utilization patterns differ significantly for adolescents compared to young children; although data indicate that approxi-

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mately 80% of adolescents access healthcare providers in the course of 12 months [8], the type of healthcare visit is less often a comprehensive preventive health care visit [9]. While ideally all providers screen patients for immunization status regardless of the presenting complaint, this is not always practical in a bustling practice with many competing healthcare initiatives in place.

Given the busy lives and schedules of both adolescents and their parents, the use of alternative immunization sites could potentially significantly improve immunization completion rates among this population. Schools are particularly important sites to utilize; most adolescents can be found at school, at least through age 16–18 years when dropping out of school becomes a legal option in most states [10]. In addition, the majority of providers in medical homes support the idea of school-located immunization [11], especially when considering annual influenza immunization [12].

Previous studies indicate that parents also support the idea of having their children immunized at school, even if they have little experience with such programs [13–15], and parents are even more likely to indicate willingness if they have had prior experience with a school-located program [14,16]. However, no studies to date have investigated whether parents' reported intentions or willingness to have their children immunized using school-located programs translates into actual consent for participation in such programs. The true impact of parents' attitudes is unknown.

The purpose of this study is to assess the association between parents' reported willingness to utilize a school-located immunization program and their subsequent consent for immunization when a school-located immunization program is made available to their middle school children.

2. Methods

This study involved 2 phases: distribution of a questionnaire regarding parents' perspectives on school-located immunization programs and the subsequent implementation of a school-located immunization program for Tdap and meningococcal conjugate vaccines. This study was implemented one year before the establishment of a state mandate to immunize all students with Tdap and meningococcal vaccine prior to entry into the 7th grade. The project was approved by the Institutional Review Boards of both Baylor College of Medicine and the Houston Independent School District.

2.1. Study population

Five Houston Independent School District (HISD) middle schools were randomly chosen from schools with at least 94% student participation in the free lunch program and were offered participation in the immunization program. Three of the five schools had school-based clinics located on the school campus that were available to serve the student population (if enrolled in the clinic by a parent) and others living in the neighborhood.

2.2. Questionnaire

In October 2008, a questionnaire was distributed to approximately 4200 middle school students at the five participating schools. Items elicited parental responses regarding immunization behaviors and preferences, especially regarding the potential use of school-located immunization programs. Questionnaires were provided to each homeroom class; students were instructed to take the questionnaires home to their parents and return completed questionnaires to either the homeroom teacher or the school nurse within approximately 3 weeks. Questionnaires were in both English and Spanish; the reading level of the document was approximately

3rd grade. The return of the questionnaires qualified the parent to be entered into a raffle for multiple iPod shuffles [14].

Data collected from the questionnaire included responses to demographic items including race/ethnicity, primary language spoken at home, and whether students were enrolled in a medical home (defined as a regular place to go for medical check-ups and vaccinations where there is a medical record for the child). Vaccination-related items included where students received their last immunization, immunization location preferences and knowledge of immunization recommendations pertaining to 11–12 year old youth. The immunization location preference item requested parents to "check all that apply" regarding where they would be willing to have their child immunized. The choices included, "medical home," "school-based program," "city or county clinic," "pharmacy," "emergency room," "mobile clinic," or "other." For those not choosing "school-based program," a further question asked them to note why they were not choosing that item; choices included, "it is not the school's business," "it is not safe to get shots at school", "I want to be present when my child gets shots," and "other" with a space for further response.

2.3. School-located immunization program

From November 2008 through January 2009, students at the five middle schools were offered participation in a school-located immunization program offering free Tdap and meningococcal vaccination. Consent/refusal packets were sent home with students; packets contained consent forms that included screening questions for VFC eligibility, refusal forms, vaccine information sheets for both vaccines, a cover letter explaining the program and information sheets specific to each school that enumerated neighborhood clinics within the area of each school where adolescents could go for primary care in the event they did not have a primary care provider. All information in the packet was provided in both English and Spanish. Refusal forms included options for parents to check or fill in the reason for refusal of each vaccine; options included that the child had already received the vaccination, the child will receive the vaccination at a doctor's office/clinic, or "other" with space to fill in the blank.

The immunizations occurred during school hours and were provided either in the school-based clinic on site by clinic personnel (one school), in the school nurse's office or school cafeteria by personnel from the school-based clinic's parent organization (two schools), or on the school grounds by the mobile medical unit from Texas Children's Hospital (two schools). Immunizations were administered at times determined by the schools to minimize missed classroom time; parents were not specifically invited to be present as the time their children would be vaccinated was not predetermined. Participating students were immunized between December 2008 and February 2009 over 2–7 noncontiguous days, depending upon demand for vaccination and scheduling constraints.

2.4. Analysis

Participants in this study included parents who had both completed the pre-program questionnaire ($n = 1377$ of approximately 4200) and participated in the school-located immunization program by returning either a consent or refusal form ($n = 777$). Of note, "true refusers" of school-located vaccination were defined as those who returned refusal forms *and* indicated on the form that the child had not previously been immunized and would be immunized by his/her provider. If a student did not participate in the program and did not provide a refusal form, it is possible the child had already been immunized and was not specifically refusing to participate in the school-located program. Given the objectives of

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