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Original article

## Trust and a School-Located Immunization Program



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### ABSTRACT

**Purpose:** To determine variables associated with parental trust in a school-located immunization program (SLIP) and the effect of trust-building interventions on trust and participation in SLIPs.

**Methods:** Parents among eight schools randomized to a trust-building intervention or a control condition (four schools each) completed a five-item trust survey before SLIP implementation both in year 1 (fall 2012) and in year 2 (fall 2013). Mean trust scores were calculated. Associations between baseline demographic and experiential variables and mean trust scores were analyzed. Mean trust scores in intervention and control schools were compared before SLIP in years 1 and 2, and SLIP participation rates were noted.

**Results:** From year 1, 1,608 parent surveys were analyzed. Baseline mean trust score across schools was 3.59 of 5 (5 = highest trust). In a multiple linear regression model, annual household income, survey language version, participation in a previous SLIP, child's health insurance status, and perceived vaccine importance were significantly associated with parental trust in SLIPs ( $R^2 = .06$ ,  $p < .001$ ). There was no difference in mean trust scores between intervention and control schools ( $p = .8$ ). In year 2, 844 surveys were analyzed, and a modest difference was observed between intervention and control schools (mean trust score = 3.66 and 3.57, respectively,  $p = .07$ ). SLIP participation rates appeared higher in intervention (7.7%) versus control schools (4.3%) in year 1.

**Conclusions:** Baseline trust in SLIPs among a low-income, largely Hispanic group of parents in Texas was moderately high. Factors associated with trust included demographic and experiential variables, and interventions aimed at increasing parents' perception of vaccine importance and participation in SLIPs may be effective in increasing parental trust in SLIPs.

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### IMPLICATIONS AND CONTRIBUTION

Baseline trust in school-located immunization programs (SLIPs) among low-income, primarily Hispanic, middle school parents is moderately high. Variables predicting greater trust in SLIPs include lower income, completing the survey in Spanish, prior SLIP participation, self-pay health insurance status, and greater perceived vaccine importance. Participation rates were relatively higher in schools receiving a trust-building intervention versus control schools.

Since 2005, vaccine recommendations for adolescents by the Advisory Committee on Immunization Practices have expanded to include the tetanus toxoid, diphtheria toxoid, acellular

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pertussis vaccine (Tdap); meningococcal conjugate vaccine (MCV4); human papillomavirus vaccine (HPV); and annual influenza vaccine. Immunization rates for adolescents have steadily increased but remain below rates achieved for younger children. Coverage for Tdap and MCV4 is closer to the *Healthy People 2020* target (of 80%) at 85% and 74%, respectively, but the coverage gap between Tdap and HPV (84.6% for Tdap vs. 53.8% for at least one HPV dose among females in 2012) suggests missed opportunities to fully vaccinate adolescents [1]. There are multiple challenges to achieve high rates of vaccination among adolescents, which requires identifying more effective venues for

immunization [2]. School-located immunization programs (SLIPs) provide immunizations to students and represent a convenient alternative site. Multiple organizations have acknowledged SLIPs as a way to efficiently access the adolescent population for immunization [3,4]. Their efficacy in reaching adolescents has also been recognized in countries such as the United Kingdom, where a school-based program achieved an HPV vaccination rate of 76.4% for the first dose of HPV in 2009–2010 [5].

Implementing SLIPs in the United States presents several challenges beyond the complex reimbursement issues. A review of influenza-only SLIPs conducted between 2003 and 2010 demonstrated a vaccination rate ranging from 7% to 58%, with higher rates among elementary compared with middle and high school students [6]. Another study confirmed this trend and documented mean immunization rates of 21.5% among elementary school children compared with 10.3% and 5.8% among middle and high school students, respectively [7]. Many variables influence whether parents use SLIPs, including the program's ability to retrieve consent forms from parents, the use of incentives, parental education and follow-up [8]. Not surprisingly, concerns about vaccine safety also affect parents' decisions to vaccinate their children [9,10]. A recent qualitative study indicated that parental trust may be another factor in parents' decisions to use an SLIP [11]. Challenges related to parents'/adolescents' trust of vaccine providers may also influence adolescent participation in SLIPs. Although the concept of trust relates to factors such as satisfaction, competency, privacy, and communication, previous research has supported its definition as "the optimistic acceptance of a vulnerable situation in which the truster (i.e., patient) believes the trustee (i.e., provider) will care for the truster's interests" [12]. The importance of trust in any provider–patient relationship is well recognized and has implications for patient care ranging from adherence to efficacy of treatment [13]. However, it is not known the degree to which parents trust SLIPs, what factors are correlated with trust in SLIPs, and whether interventions aimed at increasing trust could increase parental trust in SLIPs.

This study evaluated the baseline level of parental trust in SLIPs and participation rates in years 1 and 2 of an SLIP among a low-income, largely Hispanic population of middle school students. In addition, this study assessed whether basic demographic variables, perceptions of vaccine importance, and history of SLIP experience were associated with middle school parents' trust in SLIPs before any intervention in year 1, and whether trust in SLIPs was greater in year 2 among parents from schools that had received a simple trust-building intervention in year 1 compared with schools not receiving a trust-building intervention.

## Methods

### *School selection and school-located immunization program time line*

Schools in a large, urban school district with >90% participation in the free lunch program were offered the opportunity to participate in a multivisit SLIP that administered Vaccines for Children (VFC) Program vaccinations without cost to all VFC eligible students. Eight middle schools (grades 6–8) with enrollment varying from 600 to 1,500 students (total of approximately 8,750 in year 1) accepted the invitation to participate in the SLIP project initiated in fall 2012. The eight schools were randomized into four control and four intervention schools.

### *Distribution of parent surveys with trust measure*

A packet containing a two-page questionnaire and a cover letter explaining the study was distributed to all students in all eight schools to take home to parents and return to teachers or school nurses before the initiation of the SLIP in fall 2012, after SLIP in the spring 2013, and again before the SLIP in fall 2013. The questionnaire contained a five-item trust survey and several demographic items and was provided to each family in both English and Spanish. Completed questionnaires were retrieved from schools by a member of the research team approximately 3 weeks after distribution. Each survey was labeled with a unique number to identify the school and prevent duplication of data entry. When returning the survey, parents could write their child's name on the cover letter for the chance to win an MP3 player. Cover letters with identifying information were removed from the surveys on receipt and retained separately to ensure confidentiality of the survey responses.

### *Survey content and measurement*

Demographic items included age, race, ethnicity, highest level of education achieved, primary language spoken at home, annual household income, child's health insurance status, and child's participation in a medical home. History of participation in SLIPs and the perceived importance of vaccination were assessed. In addition, another variable noted was whether the participants completed the survey using the English or Spanish version.

Parental trust in SLIPs was evaluated by adapting a five-item scale developed by Dugan et al. [14] shown to be valid for use in assessing patient trust in physicians, health insurers, and the medical profession as a whole (Figure 1). Parents completed the five-item survey using a five-point Likert scale (ranging from 1= strongly disagree to 5= strongly agree). One of the five statements was negatively worded and was therefore reverse scored for data analyses. Cronbach alpha measuring internal consistency reliability for the present sample was .71 [15].

### *Parent/student education*

During full school student assemblies or successive lunch periods, study personnel visited all eight schools in the program and spoke briefly to students about the importance of adolescent immunizations and the availability of the SLIP. All information was provided using a standard script.

*Description of intervention.* The four intervention schools received an additional, simple trust-building intervention to address parental trust. Research staff visited intervention schools during parent open houses or other parent meetings at the schools. These meetings introduced the SLIP and program personnel to parents in English and Spanish. A standard script described the project (vaccinating students using a mobile unit), the importance of vaccines (to keep their children and the community healthy), information regarding when the vaccinations would take place, and where to get more information about the program. School personnel introduced a representative from the research team who introduced the immunizing team (who spoke in both English and Spanish) and notified parents that the team would be available for questions and answers at the end of the parent meeting/open house. At the end of the parent meetings, members of the team were available for face-to-face

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