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What Parents and Adolescent Boys Want in School Vaccination Programs in the United States

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A B S T R A C T

Purpose: Schools are increasingly a part of vaccine provision, because of laws mandating provision of information by schools about vaccination, school entry requirements, and mass vaccination campaigns. We examined preferences for programmatic aspects of voluntary school mass vaccination programs (i.e., "vaccination days").
Methods: We analyzed data from a national sample of United States parents of adolescent males ages 11–19 years (n = 308) and their sons (n = 216), who completed an online survey in November 2011.
Results: Sons believed that adolescents should be able to get vaccinated without parental consent at a younger age than parents did ($p < .001$) and were more willing to participate in vaccination days without a parent present ($p = .04$). Parents perceived school vaccination days to be a more convenient way to get their sons recommended vaccines if they were younger parents, had older adolescent sons, supported laws letting schools share vaccination records with health care providers, or had sons who were previously immunized at school (all $p < .05$). Parents of older sons were less likely to want their sons' vaccination records sent home (odds ratio [OR] = .47; 95% confidence interval [CI], .29–.77) or to their sons' physicians (OR = .61; 95% CI, .37–.98) compared with parents of younger sons, but more likely to prefer their sons' records be entered in an immunization registry (OR = 1.66; 95% CI, 1.05–2.63).
Conclusions: Sons' age had an important role in support for vaccination days and preferences for sharing vaccination information with health care professionals. Parents and sons had similar beliefs about vaccination in schools, but the sons' responses suggested an interest in greater autonomy.

IMPLICATIONS AND CONTRIBUTION

This study provides evidence supporting implementing mass vaccination programs at schools. Programs should adopt flexible approaches to address the desires of parents and the changing needs of adolescents as they mature.

National guidelines for the United States (US) recommend routine vaccination against meningococcus; tetanus, diphtheria, and pertussis (Tdap); and human papillomavirus (HPV) among adolescents ages 11–12 years [1–4]. Healthy People 2020 has set national health targets for immunization coverage of at least 80% among all adolescents for meningococcal and Tdap vaccines and

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for HPV vaccine among females [5]. Although Healthy People 2020 objectives do not yet reflect the newer national guidelines for HPV vaccination of boys [4], leading authorities in pediatric health encourage routine inoculation of adolescent boys similar to their female counterparts [6,7]. In addition, even though Tdap has reached the national coverage goal and meningococcal soon will, rates vary substantially for these two vaccines by state, ranging from as low as 28% to up to 95% [8]. In contrast, HPV vaccine coverage lags far behind; only 35% of adolescent girls and around 1% of adolescent boys had completed the series in 2011 [8].

Reasons for low vaccine uptake in the US are complex, but include adolescents having fewer preventative care visit than other age groups [9], health care providers not recommending the vaccine [8,10], and missing opportunities for concomitant vaccination [10]. Furthermore, health care use among adolescents differs by sex, with boys seeking fewer preventative care visits as they get older, compared with girls [11]. Because most adolescents attend school [12], providing immunizations in this setting has the potential to increase overall vaccine coverage [13]. Although school health centers have had an important role in providing immunization services across the country, only around 2,000 school health centers exist nationally, providing services to around 6% of all schools [14] and only a fraction of school-going adolescents [15].

As an alternative, mass vaccination programs at schools may be more viable than school health centers, and they had substantial successes in the US and other countries [16–18]. For example, the Centers for Disease Control and Prevention identifies schools as an ideal location to supply catch-up doses to adolescents for hepatitis B. Demonstration projects in California, Louisiana, and Oregon achieved 65% to 78% completion rates for hepatitis B vaccination, a three-dose series to the current dosing schedule for HPV vaccine, among adolescents whose parents gave consent [16]. In the United Kingdom and Australia, school immunization programs achieved 70% to 80% HPV vaccine initiation among adolescent girls [17,18], substantially higher than current HPV vaccine initiation rates in the US.

A growing body of research has found support for schools as a potential site to administer adolescent immunizations among health care professionals [19] and parents [19,20]. Leading professional and government organizations support providing vaccines in alternative settings [13,21], which has the potential to increase vaccination, particularly for those who are at risk of not receiving vaccines through the traditional medical home [22,23]. Most research has focused on provider preferences, barriers to program implementation, or correlates of acceptability [20]. To our knowledge, limited research has explicitly explored parents' and their adolescent children's preferences for implementing and conducting these vaccination days. The purposes of our study were to describe parents' and their adolescent sons' attitudes toward and preferences for programmatic features of school-located vaccination days and to assess differences in these perceptions between parents and their sons. We also examined parents' perceived convenience of having their sons receive adolescent vaccines during a school vaccination day.

Methods

Participants

The HPV Immunization in Sons (HIS) study is a longitudinal study of attitudes and health beliefs about HPV vaccination for adolescent males. We provide further detail about the HIS study design and procedures elsewhere [24,25] and briefly here. Parents were members of an existing, online national panel constructed using list-assisted, random-digit dialing, and address-based sampling of US households [26]. In exchange for participation, parents received points from the survey company that they could later redeem for small cash payments. Households without existing Internet access received laptops with Internet service. We obtained parents' consent for their sons to complete a survey; sons provided assent before participating. The Institutional Review Board at the University of North Carolina at Chapel Hill approved the study.

Parents and their adolescent sons completed baseline surveys online in August and September 2010. In November 2011, the survey company sent e-mails inviting parents (n = 421) who participated in the study at baseline to complete a follow-up survey. Of those, 327 parents (78%) and 228 of their sons (54%) completed follow-up surveys. Data for the present study came from the follow-up survey. We excluded participants from analysis if sons were home schooled (parents, n = 16; sons, n = 9) or parents did not indicate the type of school their sons attended (parents, n = 3; sons, n = 3), which resulted in an analytic sample of 308 parents and 216 sons. Slightly over half of parents who participated in the follow-up survey were female, were <45 years of age, and had at least some college education (Table 1). About half of the sons were ages 11–15 years. Most sons had seen a health care provider for a preventive visit in the past year. Parents who completed follow-up surveys were more likely to have at least some college education and to report a household income of at least $60,000 than were non-respondents (both $p < .05$) but did not differ on other assessed demographic characteristics [25]. Sons who participated at follow-up were more likely to attend public schools than were sons who did not complete the follow-up survey ($p < .05$), but participants and non-participants did not differ on any of the other demographic variables examined.

Measures

The parent and son surveys (accessible at http://www.unc.edu/~ntbrewer/hpv.htm) contained items drawn from the literature and our own previous vaccine research [24,27–29]. Before questions about school-located vaccination and programmatic features of these days, the parent/son survey presented the following scenario: "Imagine that [son's name/your] school hosts vaccination days several times a year. On these days, a health care provider gives recommended vaccines to students. For some students, the vaccines are free, while for others there may be a cost."

The parent survey assessed how parents preferred to receive information about adolescent vaccines (e.g., Tdap, meningococcal, and HPV vaccines) and to consent for their sons to get a vaccine at school, as well as their preferences for days and times to attend a school vaccination day, and methods for having their sons' medical records updated with vaccines given. For these questions, parents were asked to indicate all answers that applied. Additional items asked parents how much they agree with the statements: "Vaccination days at [son's name]'s school would be a convenient way for him to get vaccines," and "Vaccination days would help students get vaccines who may not get them otherwise." The 5-point response scale ranged from "strongly disagree" (1) to "strongly agree" (5).