



Review

Coordinating the delivery of vaccinations and other preventive health care recommendations for adolescents

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ABSTRACT

Although recommendations for annual preventive care for adolescents have been in place for decades, the need to bring adolescents to the medical setting for newly recommended vaccines has placed this issue in the public health spotlight. Aggressive efforts have been ongoing to increase adolescent adherence to new vaccine recommendations – a measured outcome variable, and the hope has been that enhanced adherence to comprehensive health care visits will follow. Evidence indicates that the implementation of more comprehensive preventive health care elements among adolescents may be improving; however, a passive approach to bringing more adolescents to preventive health visits using vaccine as an incentive may not be effective for all youth. This paper reviews the history of recommendations for new vaccines as well as comprehensive health care visit recommendations for adolescents, how these recommendations may synergistically improve preventive care for adolescents, and how we may need to continue to think creatively to further access all youth for preventive health care using vaccination implementation as a model for reaching out beyond the providers' office walls.

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The need for immunizations during infancy and childhood has helped create a structure of preventive care visits that allow for provider–patient interaction that is critical for the provision of anticipatory guidance for young patients. Young patients are seen at least 3–4 times during the first 6 months of life, and it is clear that the need for 2, 4, and 6 month immunizations drives at least a portion of the successful adherence to these visits. The diphtheria toxoid, tetanus toxoid, and pertussis vaccine (DPT) has been administered to infants using this dosing schedule since the 1940s, and vaccines are provided at nearly every childhood visit through approximately 15–18 months of age. Immunization rates among the infant population

are also quite high ([Centers for Disease Control and Prevention, 2010a](http://www.cdc.gov)), ([Fig. 1](#)) helped along by the implementation of the Vaccines for Children Program entitlement program in 1994 that funds over 40% of vaccines administered to those under 19 years of age in the United States.

The history of vaccine recommendations for adolescents

Until recently, immunizations were an intervention directed primarily to younger children. In the first immunization schedule published in 1983 by the Advisory Committee on Immunization Practices, only one vaccine – the Td booster at age 14 years – was noted on the schedule for people over the age of 5 years (<http://www.cdc.gov/vaccines/pubs/images/schedule1983s.jpg>). In fact, the last schedule published in 1994 prior to harmonization with the

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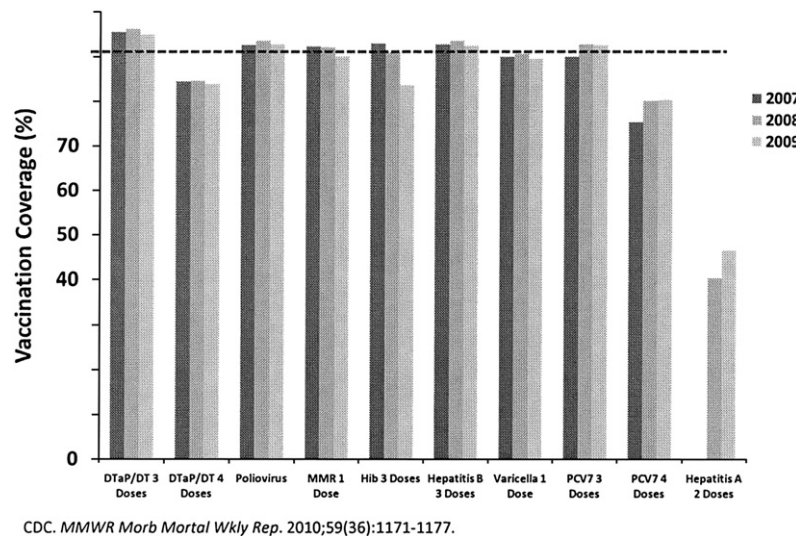


Fig. 1. Vaccination coverage children 19–35 months, United States, National Immunization Survey.

American Academy of Pediatrics (AAP) and the American Academy of Family Physicians (AAFP), deleted mention of adolescents altogether (<http://www.cdc.gov/vaccines/pubs/images/schedule1994s.jpg>)!

The Centers for Disease Control and Prevention (CDC) were aware, however, that the need for appropriate immunizations for adolescents was becoming an increasingly important public health concern. In 1996, the CDC published an article outlining the need for immunizations among adolescents and emphasizing that the context for these immunizations should be within a visit addressing other comprehensive health care concerns for this specific age group (Centers for Disease Control and Prevention, 1996). The article alluded to recommendations in place since the early 1990s and before from organizations including the AAP, AAFP, American Medical Association (AMA), and the United States Preventive Services Task Force (USPSTF) for comprehensive preventive health care visits among this age group. This article marked the beginning of the CDC's efforts to establish a solid, 11–12 year visit for comprehensive health care that clearly and notably was expected to include previously recommended comprehensive health care initiatives as well as immunization against all vaccine-preventable diseases. The recommendation for the Td booster — changed from 14 years of age to 11–12 years of age by 1996, and the additional recommendation for catch-up hepatitis B vaccination for all adolescents created the foundation for the new 11–12 year immunization platform. Catch-up vaccination for all other missing immunizations was also noted at that time as an important component of the 11–12 year health visit.

A lot has changed since 1996; vaccine recommendations for the adolescent population have multiplied. In 2005, ACIP further bolstered the 11–12 year immunization platform by recommending the meningococcal conjugate vaccine for this age group (Centers for Disease Control and Prevention, 2005). This was the first new vaccination recommendation for adolescents since the 1990s. Industry had developed a conjugate vaccine against meningococcal disease with the potential to have an improved duration of protection compared to the polysaccharide vaccine; because the incidence of meningococcal disease increases during the adolescent years and the disease moves so quickly that the best way to survive it is to prevent it, the vaccine recommendation was made. The recommendation for the tetanus toxoid, diphtheria toxoid and acellular pertussis vaccine (Tdap) to replace the Td booster for adolescents followed quickly. The incidence of pertussis was becoming epidemic, especially among adolescents whose immunity to the disease had waned more than 5–8 years after the last childhood immunization (Centers for Disease Control and Prevention, 2006). Recommendations for the human papillomavirus (HPV) vac-

nation series (Centers for Disease Control and Prevention, 2007a), second varicella vaccine (Centers for Disease Control and Prevention, 2007b), universal influenza vaccination for adolescents (Centers for Disease Control and Prevention, 2008) (and then all adults (Centers for Disease Control and Prevention, 2010b) quickly followed to further protect the health of youth. HPV vaccine solidified the 11–12 year immunization platform; the vaccine is only effective if administered prior to exposure to the virus through sexual contact, and delivery of the vaccine at this age supports this goal. After epidemiologic studies indicated that the implementation of one-dose varicella vaccination was not completely eliminating disease outbreaks, a two-dose series was recommended, affecting all adolescents who had only received one vaccine as a child. Clearly an effective strategy, the success of this recent change in recommendation was noted at a recent ACIP meeting (Bialek, 2011); since its implementation, varicella case rates have dropped an additional 50–90%, with the greatest drop in incidence noted among the 5–14 year age group.

The history of comprehensive health care recommendations for adolescents

Meanwhile, the need for comprehensive health care for adolescents outlined by the CDC in 1996 has remained the same. The efficacy and importance of preventing disease among adolescents with immunization are irrefutable; however, the top three causes of death among those age 15–24 years of age, for example, are motor vehicle accidents, homicide, and suicide (Centers for Disease Control and Prevention, 2010c). All three represent preventable risk behaviors about which adolescents must be counseled during comprehensive preventive health care visits. The AMA's Guidelines for Adolescent Preventive Services published in the early 1990s (The American Medical Association) and, most recently, the collaboratively developed third edition of the Maternal Child Health Bureau and AAP's Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents (Bright Futures Guidelines for Health Supervision of Infants, Children and Adolescents) outline multiple risk prevention strategies targeting the early, middle, and late adolescent age groups.

Despite multiple recommendations for preventive health care visits for this age group, much of the data collected indicates that adolescents do not access comprehensive health care visits very often. Rand et al. (2007) determined that only 9% of all adolescent (11–21 years of age) visits noted in the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey between 1994 and 2003 were for preventive care. In addition, early

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