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Improving Immunization Rates at an Urban Charter School



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A midwestern children's hospital operates a school-based clinic in an urban charter school. The clinic provides the expertise and knowledge of an advanced practice registered nurse (APRN) and offers a structure permitting care coordination and continuity. The APRN created a systematic process for immunization record maintenance. This process identifies students needing recommended vaccines for their age group and provides opportunities for students to update their record or receive immunizations. This initiative demonstrated that improved vaccination compliance can be sustained through systematic methods to identify immunization gaps and support the administration of necessary vaccines.

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MAINTAINING ACCURATE IMMUNIZATION records for school aged children is important, but is often complicated by many factors. These factors may vary, but often parents are not aware of their child's immunization status or may have their child receive vaccines at various clinics. School nurses and/or school-based health centers can play a pivotal role in promoting immunizations and maintaining records. The purpose of this article was to describe one collaborative intervention at an urban charter school that both improved record keeping and student immunization rates. This initiative demonstrated that improved vaccination compliance can be sustained through systematic methods to identify immunization gaps and support the administration of necessary vaccines.

Literature Review

Vaccination has been proven to be one of the most significant and effective public health interventions in the past century (Ehreth, 2003). There are substantial data published by the Centers for Disease Control and Prevention

(CDC) on the benefits of immunizations and the federal Vaccines for Children (VFC) program (Centers for Disease Control and Prevention, 2014a). The VFC program was created 20 years ago and has been instrumental in ensuring that the inability to pay for vaccines would not result in children contracting vaccine-preventable diseases. Among the 78.6 million children born between 1994 and 2013, routine childhood immunization was estimated to have prevented 322 million illnesses, 21 million hospitalizations, and 732,000 premature deaths (Whitney, Zhou, Singleton, & Schuchat, 2014).

Some diseases like polio and diphtheria are rare in the United States today, but any vaccine-preventable disease has the potential to reemerge if immunization rates falter. This has been demonstrated repeatedly over the years with outbreaks of pertussis and measles (U.S. Food and Drug Administration, 2015).

Federal Initiatives

Healthy People 2020 was initiated by the U.S. Department of Health and Human Services and included 10-year national objectives, each representing an important public health focus (U.S. Department of Health and Human Services, 2015a). Increasing immunization rates and reducing infectious diseases was one of the Healthy People 2020

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goals (U.S. Department of Health and Human Services, 2015b, Goal section, para. 1). The immunization goal had 33 separate objectives, such as increasing and maintaining vaccination coverage among children from kindergarten through adolescence (objectives IID-10 and IID-11). The target for kindergarteners was 95% or greater vaccination coverage for the following diseases: measles, mumps, rubella, diphtheria, tetanus, pertussis, polio, hepatitis B, and varicella (U.S. Department of Health and Human Services, 2015b). The national target for adolescents (age 13–15 years) was 80% vaccination coverage with tetanus, diphtheria, pertussis (Tdap); meningococcal; and a complete series for human papillomavirus (HPV) (among females and males). There was an additional goal of 90% coverage for the varicella series (U.S. Department of Health and Human Services, 2015b).

Adolescent Immunizations

Immunizing adolescents, in particular, has been perplexing for some time. Recent research has formulated a number of potential barriers, such as missed vaccine opportunities at well child and acute care visits; lack of immunization registries that include adolescents; limited parental, provider, and public awareness of vaccine recommendations; false impression regarding vaccine safety; limited health care provider support for some vaccines; and a lack of understanding about the significance of immunizations and their health advantage (Brabin et al., 2008).

HPV infection is common, with prevalence peaking among young adults (Dunne et al., 2011). Most HPV infections resolve within 1 to 2 years, but persistent infections can progress to precancer or cancer (Holman et al., 2014). The HPV vaccine series of three shots over 6 months could prevent many of these infections, and it is recommended for both males and females at ages 11 or 12 years. Nationally, compliance with actual completion of the series is low at 37.6% for females and 13.9% for males aged 13 to 17 years (Elam-Evans et al., 2014).

State Legislation

Individual states enact laws or regulations that require children to receive certain vaccines before they enter child care facilities and/or school. The state in which this project occurred requires children to be fully vaccinated with diphtheria, tetanus, and pertussis (DTaP); hepatitis B; measles, mumps, rubella (MMR); and varicella for kindergarten entrance. Furthermore, the state requires one dose of Tdap for entrance to eighth grade. In addition to these required immunizations, there are also recommended vaccine series that the CDC and the Advisory Committee on Immunization Practice (ACIP) encourage all children to receive: two doses of hepatitis A, two doses of meningococcal, three doses of HPV, and two doses of varicella for older grades (Centers for Disease Control and Prevention, 2014b).

Tracking Vaccine Compliance

In order to help track compliance, states conduct the annual school assessment to validate the reports that schools submit at the beginning of each school year. This assessment gathers immunization data from random public and private schools, and the information is then used to evaluate vaccination coverage for certain schools or communities (Rodewald et al., 1993).

The CDC also conducts an annual survey, the National Immunization Survey-Teen (NIS-Teen), to evaluate vaccination coverage among adolescents age 13 to 17 years (Centers for Disease Control and Prevention, 2014c). In 2013, national estimates were based on 18,264 adolescents, and the survey revealed a wide variation among states in coverage. Depending on the vaccine, the percentage of adolescents who were compliant with the recommended doses may be well below 50% in some states, while other states were over 90% compliant (Elam-Evans et al., 2014).

Barriers to Immunization Records

One of the most significant barriers to compiling accurate immunization records is the lack of a comprehensive database for childhood immunizations. Immunization information systems (IIS) are confidential, population-based systems that aim to gather vaccination information (Abramson, Kaushal, & Vest, 2014). IIS are beneficial, as they allow records to be combined if vaccines are given by multiple providers in a community setting. Each state has its own database, and while some states require institutions to download immunizations given, not all states enforce or require this to occur.

One study found that only 31 jurisdictions mandated at least some form of reporting, while 22 had no mandate to report immunizations. This study included 49 states (at the time New Hampshire did not have an IIS and was excluded), three municipalities (New York City, Philadelphia, and San Antonio, which operated an IIS independent of its respective state), and the District of Columbia (Martin, Lowery, Brand, Gold, & Horlick, 2013). To add to the complexity of IIS, not all vaccines or age groups were required to be downloaded. Furthermore, not all states required pharmacies to report, and some states differentiated between private providers and/or VFC vaccines (Martin et al., 2013). Additionally, IIS are not without opposition, with some people feeling they compromise privacy. Legislation and policies continue to pursue and debate the most beneficial and profitable means to achieve immunization recording.

Methods Setting

A 265-bed midwestern children's hospital has operated a school-based clinic in an urban charter school since 2005. The "Wellness Center" provides professional school-based health care services to the students that are enrolled. The hospital employs the clinic staff, including an advanced

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