



## *Adolescent Immunization: Understanding Challenges and Framing Solutions for Healthcare Providers*

### Call to Action

Despite encouraging increases in recent years, adolescent immunization rates in the United States fall short of Healthy People 2020 goals for several routinely recommended vaccines and millions of teens remain susceptible to vaccine-preventable diseases.

In November 2016, Unity Consortium (“Unity”) convened a Roundtable panel to discuss the adolescent immunization landscape, probe barriers to successful implementation and highlight potential solutions to help reach important immunization targets for this population. This whitepaper summarizes those proceedings, supplemented in several areas with supporting information, and puts forth a **Call to Action** to guide healthcare providers in their efforts to increase adolescent immunization coverage.



**UNITY**

United for adolescent vaccination

## About Unity

Unity Consortium (“Unity”) is a non-profit 501(c)(3) organization that brings together diverse groups that share a common and passionate interest in adolescent and young adult health with a focus on prevention and immunization. Our members represent public and private organizations, industry, academia, healthcare providers, retailers, and advocacy groups. As one strong voice, Unity addresses the unique challenges surrounding adolescent and young adult health, prevention and immunization. The Unity Consortium is supported by contributions that include vaccine manufacturers.

## Contributors

*Adolescent Immunization: Understanding Challenges and Framing Solutions for Healthcare Providers* was developed as a collaboration of members of Unity, its liaisons and a panel of experts. Unity gratefully acknowledges the contributions of these committed leaders whose expertise informed the content and conclusions of the paper and who support our mission of improving adolescent health through a focus on prevention and immunization.

**Tracy Bieber\***, RN

*Enterprise Immunization Manager  
Sanford Health*

**Marla Dalton\***, PE, CAE

*Executive Director  
National Foundation of Infectious Diseases*

**Claire Hannan\***, MPH

*Executive Director  
Association of Immunization Managers*

**David Kaplan, MD, MPH/MSPH**

*Head, Adolescent Medicine,  
Chief Medical Information Officer  
University of Colorado,  
Children’s Hospital Colorado*

**Judy Klein\***

*President  
UNITY Consortium*

**Amy Middleman, MD, MEd, MPH**

*Professor of Pediatrics,  
Chief of Adolescent Medicine  
University of Oklahoma Health  
Sciences Center*

**Mark Ritter, MHA**

*Senior Public Health Advisor  
Texas Department of State Health Services,  
Immunization Branch*

**Mitchel Rothholz\***, RPh, MBA

*Chief Strategy Officer  
American Pharmacists Association*

**Jason Rubin\***, RPh

*Sr. Manager, Immunization Services  
Walgreens*

**Shannon Stokley\***, DrPH

*Associate Director for Science  
Immunization Services Division, CDC*

**Litjen (L.J) Tan\***, MS, PhD

*Chief Strategy Officer  
Immunization Action Coalition*

**Gregory Zimet\***, PhD

*Professor, Section of Adolescent Medicine  
Indiana University School of Medicine  
Immediate Past President of Society for  
Adolescent Health and Medicine*

\*Member or Liaison of Unity Consortium

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## Introduction

On any given day, countless teenagers across the country walk into, and out of, various healthcare settings without getting vaccinated or even having their immunization needs assessed. This is a troubling phenomenon given both the resounding benefits of immunization and the millions of adolescents who are not fully vaccinated.

Prior to the 1990s, immunization programs in the United States were primarily focused on infant and early childhood vaccines. In 1996, the Centers for Disease Control and Prevention (CDC) took an important step toward reaching adolescents by establishing an immunization platform at 11-12 years of age. As additional vaccines for adolescents were introduced, the need to further expand adolescent immunization efforts became even more apparent. Despite progress, adolescent vaccination rates of some recommended vaccines remain low and underscore the need for more work and greater focus on protecting our nation's adolescents and young adults from serious and potentially deadly diseases.

The issues surrounding adolescent immunization are complex. While much work is being done to improve health policies, our aim is to address and support healthcare providers (HCPs) in their efforts to improve adolescent immunization within their practice settings and provider organizations. We will lay out the challenges and opportunities that exist, and provide actions to help providers strengthen their adolescent immunization programs.

## The State of Immunity

The CDC's Advisory Committee on Immunization Practices (ACIP) currently recommends that adolescents receive four vaccines:

- Tdap (tetanus, diphtheria, and acellular pertussis)
- Human Papillomavirus (HPV)
- Meningococcal Serogroup A,C,W,Y (MenACWY)
- Influenza

Meningococcal B vaccine (MenB) may also be administered based upon individual clinical decision-making and consultation with the patient/parent. (*Figure 1*)



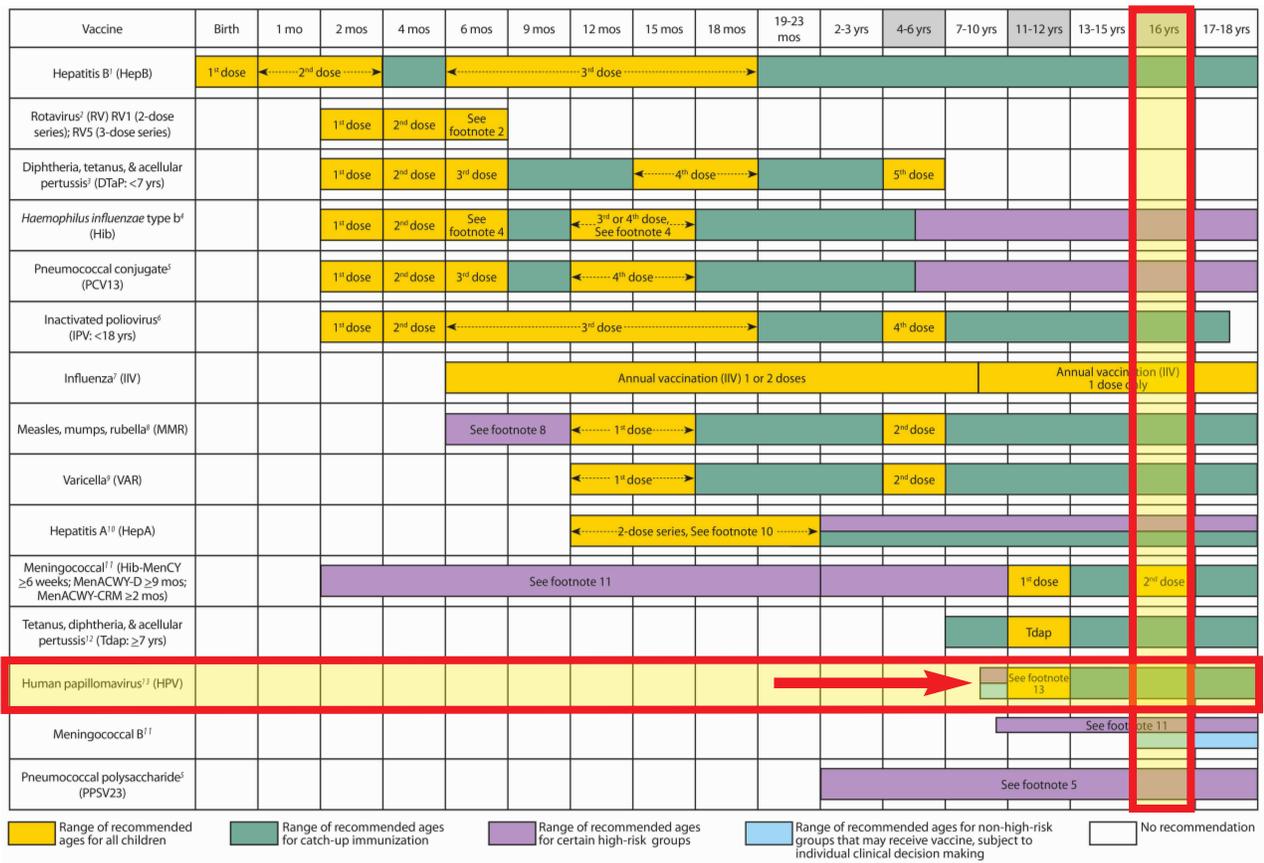
## Advancing Adolescent Immunization Policy

Both the Society for Adolescent Health and Medicine's (SAHM) recent position statement, **Establishing an Immunization Platform for 16 Year-Olds in the United States**<sup>1</sup> and the National Foundation for Infectious Diseases' (NFID) March 2016 **Call to Action: Addressing New and Ongoing Adolescent Vaccination Challenges**<sup>2</sup> support the establishment of a 16-year-old immunization platform to ensure completion of all recommended vaccines.

Changes to the CDC's 2017 **Child and Adolescent Immunization Schedule** include separation of the 16-year age column from the 17-18-year age column to highlight the need for a meningococcal conjugate vaccine booster dose at age 16 years.<sup>3</sup>

The National Committee for Quality Assurance (NCQA) has introduced a single **Immunizations for Adolescents (IMA)** measure for 2017 that reports receipt of all recommended vaccines (Tdap, HPV, meningococcal) for female and male adolescents at age 13.<sup>4</sup>

**Figure 1. Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger—United States, 2017.**



**NOTE: All recommendations must be read along with the footnotes of this schedule. Please visit [www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html](http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html)**

Substantial gaps exist in adolescent vaccine rates. Healthy People 2020 targets – 80% coverage among adolescents aged 13-15 years – were met for Tdap (87.1%) and MenACWY (80.1%) in 2015. However, the same 80% target for the HPV vaccine series for females was just 37.1%, well below the Healthy People 2020 goal.<sup>5</sup>

Immunization coverage for adolescents aged 13-17 years from the CDC’s 2015 National Immunization Survey-Teen<sup>5</sup> (NIS-Teen) broadens our view and highlights low HPV series completion for both males and females and influenza rates below 50% coverage<sup>6</sup> (Figure 2). The booster for MenACWY, recommended at age 16, is estimated at just 33%. Note Meningococcal B vaccine is not currently measured in NIS-Teen.

Fortunately, recent updates by ACIP are poised to positively affect implementation of adolescent immunization recommendations (Figure 1). These changes include the addition of a 16-year old column on the child and adolescent immunization schedule to highlight the need for a meningococcal conjugate vaccine booster dose at age 16, and may also provide an opportunity for catch-up or series completion of other adolescent vaccinations. The recommendation for a simplified two-dose HPV regimen for younger adolescents initiating the series before age 15 is also notable.

These updates will likely have a positive impact, but do not fully solve the underlying and persistent challenges surrounding adolescent immunization.

Previous research has grouped barriers that affect vaccine uptake among adolescents into three categories: those impacting the healthcare providers, the systems in which they operate, and the adolescents they care for in partnership with parents and other caregivers. The Roundtable panel provided insights into these barriers through discussion of the following questions:

- **Why are we missing opportunities to vaccinate adolescents and how can we make it easier for adolescents to receive needed vaccines?**
- **How successful are current communication efforts in reaching parents and older adolescents?**
- **Which processes and systems around adolescent immunization are most important?**

## Missed Opportunities to Vaccinate Adolescents

While recent data suggests that adolescents are seeing HCPs more often than previously reported,<sup>7, 8</sup> the expectation of preventive care, particularly for older adolescents, is low. Parents who diligently took their newborns and toddlers to regularly scheduled wellness visits are less aware and vigilant about preventive care as their children get older.<sup>9</sup> In a recent Unity survey of healthcare providers, parents and teens on adolescent health, 4 out of 10 parents of adolescents said that their child should only see a doctor or HCP when he/she is sick.<sup>10</sup>

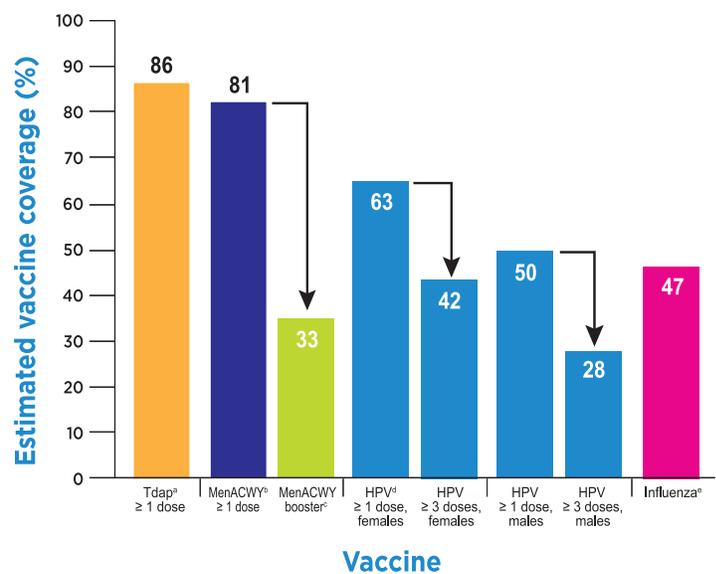
Similarly, healthcare providers who routinely structure newborn and toddler wellness visits based on the ACIP recommended immunization schedule, become less diligent about scheduling and reminding parents about adolescent wellness visits and less likely to identify and remediate missed vaccinations. In the same Unity survey, conducted by Nielsen in Fall 2016, less than half of physicians (44%) reported sending reminders to adolescent patients (or their parents) about missed vaccinations.<sup>10</sup>

Payment for immunization, often cited as a concern prior to the Affordable Care Act (ACA), may be an issue for some healthcare providers as potential changes to U.S. healthcare policy are considered in the future. State regulations, insurance coverage and payment policies for community vaccinators outside

of physician practices and integrated health systems are additional considerations for some vaccination providers.

Unity panelists further discussed issues that may face many parents and adolescents – overall convenience, time-constraints, transportation and teens’ emerging independence may shift adolescent health care to a more fragmented, reactive state where care is sought as needed and in alternate care settings such as convenient care or urgent/walk-in clinics.

**Figure 2** Estimated vaccination coverage with selected vaccines and doses among adolescents aged 13–17 years – National Immunization Survey-Teen, United States, 2015



\* Tdap = tetanus, diphtheria, acellular pertussis; † MenACWY = meningococcal conjugate vaccine; \*Booster-dose rate based on 17-year-olds; †HPV = human papillomavirus; \*2015-2016 influenza season

## Communicating to Parents/Caregivers and Adolescents

Some have observed that vaccines are the victim of their own success. As childhood immunizations have been extremely effective in eliminating or greatly reducing disease, vaccine safety concerns receive more attention than vaccine success, leaving some parents and caregivers vulnerable to misinformation and misguided fears.

Even among parents who do not share those safety concerns, immunization still faces a prioritization hurdle. Although numerous studies have shown that parents believe immunizations are important to their children's health, lagging immunization rates suggests that belief is not necessarily translating to behavior.

Fewer teens consider vaccination *as important to maintaining their health* as most other aspects of healthcare.



MAINTAINING GOOD ORAL HYGIENE **88%**



EATING HEALTHY **80%**



GETTING RECOMMENDED VACCINES **65%**

Adolescents also fail to prioritize immunization. According to the Unity survey, teens want to take ownership of appearance-related aspects of healthcare (e.g., skin and oral care) more so than preventive health measures (e.g., wellness visits and vaccination), which they assume are their parents' responsibility—a developmentally appropriate attitude for teens. They also consider vaccinations as less important to maintaining their health than most other aspects of healthcare. Teens age 16-18 believe that maintaining good oral health and eating well is very or extremely important to staying healthy. In contrast, only 65% believe the same about getting all recommended vaccines.<sup>10</sup>

## IMMUNIZING OLDER ADOLESCENTS

Success in immunizing younger adolescents does not automatically extend to older teens. The barriers for older teens may be more like those of adults than of young children when it comes to preventive healthcare.

- Preventive visits and prioritization of immunization drop off as older adolescents access alternate care settings and begin to “age out” of pediatric healthcare settings
- Healthcare becomes more fragmented
- Often there is a loss of continuity of care; poor transition to a new, “adult” primary care provider
- Family practice provider settings may be oriented toward older patients
- Adolescent specialists may not be accessible in many communities and generalist providers perhaps less comfortable with various aspects of adolescent development

For both parents and adolescents, there is also confusion about the difference between recommended and required vaccines. Anecdotally, HCPs report that, all too often, parents and teens ask “is it required for school?” indicating a disconnect between what is required by law and what is recommended. Consequently, HCP recommendations are critical to parental and adolescent agreement to vaccinate.

A new Unity initiative, *Pursuit of the 3Cs, Confident, Concise, and Consistent Healthcare Provider Recommendations for Adolescent Vaccines* is helping healthcare providers improve their recommendations for all ACIP-recommended adolescent vaccines. Resources including a demonstration video, sample recommendation language, FAQs, and motivational interviewing techniques for use with truly hesitant parents are available at [unity4teenvax.org/unity-projects](http://unity4teenvax.org/unity-projects).

Panelists placed significant value on robust, high quality communication to parents and adolescents to inform, educate, dispel misinformation and raise the priority level of immunization. They also recognized that effective communication on this topic may vary in both messages and media among adolescents and their parents at different stages of their journey through adolescence.

## *Systems-Based Challenges and Opportunities for Vaccination Providers*

In many, if not most pediatric healthcare settings, readily-available administration and tracking systems for adolescent immunization are not integrated or consistently available, standing orders often are not implemented for adolescent vaccination, and reminder/recall notifications are infrequently used for adolescents. Inconsistencies in Immunization Information Systems (IIS), often known as vaccine registries, are also a factor. While many public health agencies continue important initiatives to address IIS utilization and functionality, registry completeness and processes vary geographically and information often does not transfer easily across states. Reporting requirements to enter information into IIS systems again, vary by state and may not apply to all vaccinating HCP types (e.g., pharmacists). IIS are a key to increasing and maintaining immunization levels and



benefit patients and everyone involved in vaccination efforts.<sup>11</sup>

Poorly integrated immunization records among HCPs may lead providers to believe they are doing better with immunization than they really are. Several studies have shown that, while supportive of immunizations, many healthcare providers do not have an accurate perception of the immunization rate within their own practice.<sup>11</sup> System-based improvements are needed to help providers readily assess and track the vaccination status of their patients. As integrated healthcare delivery networks become more common, it will become increasingly important that these systems recognize the value of immunization and put procedures into place to facilitate vaccination.

A lack of emphasis on preventive care as patients progress through their adolescent years is also noted in the absence of an accredited quality measure for immunization of the older adolescent. No older adolescent immunization benchmarks are defined in HEDIS (The Healthcare Effectiveness Data and Information Set) or ACO (Accountable Care Organizations) measures that support systemic implementation.

Given these challenges, it's not surprising that many healthcare interactions fail to systematically include an active assessment of needed vaccines.

## Highlights of Successful Adolescent Immunization Practices and Processes

Fortunately, great work is being done every day to address the challenges of adolescent immunization. As part of the Roundtable discussion, panel members highlighted successful immunization practices and processes and identified common elements among them. These elements, which provide overarching guidance for what should be included in effective solution programs, include:

- Maximizing opportunities for vaccination
- Developing healthcare providers as advocates who make confident, concise recommendations for all ACIP-recommended adolescent vaccines
- Establishing and empowering immunization champions
- Improving knowledge about provider and practice progress on meeting adolescent immunization goals and ensuring it is widely disseminated (e.g. benchmarking, immunization performance reports)
- Leveraging interaction with public health programs/offerings
- Advancing technology and computerized immunization information systems
- Implementing standing orders and other tools that improve efficiencies
- Educating parents and teens “on their turf” to elevate vaccine relevance and prioritization

Panelists highlighted examples of successful adolescent immunization practices from both the public and private sector that included one or more of these elements.

At Denver Health, the integration of advanced data systems including electronic medical records (EMR) and standing orders helped providers identify needed vaccinations for the adolescents they see.

“The process for achieving high vaccination rates in our health system includes *‘bundling’ of vaccines, offering vaccines at every visit, and standard orders...*”

Through low cost, system-wide standard procedures, Denver Health achieved adolescent vaccination rates well above national coverage rates.”<sup>12</sup>

In another integrated health system, Sanford Health, in partnership with the South Dakota Comprehensive Cancer Control Program (SDCCCP), increased HPV vaccination rates using system changes and evidence-based interventions. The program included immunization champions focused on staff training and education, flagging missed opportunities, implementing client reminder systems and standing orders for adolescent vaccination along with individual provider-level results and reporting.<sup>13</sup>

Similarly, providers that incorporate the CDC’s AFIX (Assessment, Feedback, Incentives, eXchange) quality improvement program can raise adolescent vaccination coverage by focusing on many of these same elements, benefiting from the program’s advanced technology, personal interaction and emphasis on outcomes.<sup>11</sup>

To capture these and other promising practices, Unity is developing a web-based platform for healthcare providers focused on improving adolescent health. ***The Promising Practices and Solutions Center*** gives healthcare providers access to well-vetted tools, techniques and best practices for improving vaccination processes and outcomes. More information about the Solutions Center can be found at [unity4teenvax.org](http://unity4teenvax.org).

## Call to Action – The **INSPECT** Imperatives

Adolescent immunization rates are not satisfactory and true improvement will require changes in both policy and practice. While policy change has, and will continue to be addressed elsewhere, healthcare providers can and should do their part to improve coverage. The following **INSPECT** imperatives take into account the challenges outlined in this paper along with the solution-based elements identified by the Unity Roundtable panel. Healthcare providers should **INSPECT** themselves and their organizations against these immunization solution imperatives:

### Increase access, expand and integrate the **IMMUNIZATION NEIGHBORHOOD**

*We need to meet teenagers where they are and maximize all opportunities to immunize older teens who are already ‘showing up’ in various healthcare settings including schools, public health venues, acute and urgent care settings, flu clinics and pharmacies. Integrated care between physicians and other healthcare providers can help ensure that these opportunities for vaccination are not missed. Vaccination assessments should also become routine in wellness visits, school physicals, sick visits and ongoing care for chronic conditions and injuries. Expanded evening and weekend hours will also help increase access for the millions of teens who juggle school, sports, jobs and extra-curricular activities.*

### Leverage technology and improve information **SHARING**

*Technology offers new and emerging tools to improve vaccination tracking and screening. It can also improve efficiencies and help integrate information within the immunization neighborhood. Utilization of tools such as EMRs, standing orders, and reminder/recall notifications should become standards of practice at both the individual provider level as well as throughout integrated health systems and networks of care. Use of IIS should be universal and utilized for both accessing records prior to vaccination and reporting after vaccination to improve tracking and integrated care.*

### Establish an immunization **PLATFORM** for older adolescents at age 16

*Inclusion of a new 16 year old column on the ACIP Childhood Immunization Schedule will highlight the need for routine and booster vaccines, but a column alone is not enough. Providers should establish a routine 16 year old preventive visit, creating an opportunity for immunization and discussion of health care topics uniquely relevant to older teens and young adults.*

### **EDUCATE** parents and teens to raise the priority for immunization

*We cannot expect parents and teens to make immunization a priority if we are not effectively communicating to them the reason why they should do so. Careful examination and/or research on what approaches, channels and messages are most effective in reaching older adolescents is necessary. Pilot communication programs using new media and technology should be implemented. Healthcare providers must also recognize the importance of their confident, concise and consistent recommendation to parents and adolescents for all the vaccines recommended during adolescence and young adulthood.*

### Develop and empower immunization **CHAMPIONS** and **TALK** about quality performance

*Immunization champions or advocates have the potential to dramatically improve adolescent immunization coverage. Immunization champions often become passionate drivers for setting action plans, establishing and ensuring processes and accountability, providing ongoing communications and feedback and training and motivating staff. Advocates can also help establish greater transparency and dissemination of practice- and provider-level immunization performance measurement.*

It is our hope that these imperatives will guide healthcare providers in their efforts to improve adolescent immunization coverage, while further establishing immunization as a central component of preventive adolescent care and a conduit to adult health. Unity welcomes your thoughts on the **INSPECT** imperatives.

## References

1. Society of Adolescent Health and Medicine. Establishing an Immunization Platform for 16-Year-Olds in the United States (Position Statement). *Journal of Adolescent Health*, Volume 60, Issue 4, 475 – 476.
2. National Foundation for Infectious Diseases. Call to Action: Addressing New and Ongoing Adolescent Vaccination Challenges. March 2016. <http://www.adolescentvaccination.org/resources/call-to-action-adolescent-vaccination-challenges.pdf>. Accessed February 10, 2017.
3. Robinson CL, Romero JR, Kempe A, Pellegrini C. Advisory Committee on Immunization Practices Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger — United States, 2017. *MMWR Morb Mortal Wkly Rep*. ePub: 7 February 2017. DOI: <http://dx.doi.org/10.15585/mmwr.mm6605e1>.
4. NCQA Updates Quality Measures For HEDIS® 2017, Changes to Existing Measures. <http://www.ncqa.org/newsroom/details/ncqa-updates-quality-measures-for-hedis174-2017?ArtMID=11280&ArticleID=45&tabid=2659>. Accessed February 10, 2017.
5. Reagan-Steiner S, Yankey D, Jeyarajah J, et al. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13–17 Years — United States, 2015. *MMWR Morb Mortal Wkly Rep* 2016;65:850–858. DOI: <http://dx.doi.org/10.15585/mmwr.mm6533a4>.
6. Flu Vaccination Coverage, United States, 2015-16 Influenza Season, National Immunization Survey-Flu (NIS-Flu) and Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/flu/pdf/fluview/2015-16/nfid-coverage-2015-16-final.pdf>. Accessed February 10, 2017.
7. National Health Interview Survey (NHIS). CDC, National Center for Health Statistics website. [www.cdc.gov/nchs/nhis.htm](http://www.cdc.gov/nchs/nhis.htm). Updated March 4, 2015. Accessed March 16, 2015.
8. National Center for Health Statistics. 2011 National Health Interview Survey (NHIS) public use data release. Hyattsville, Maryland: CDC, National Center for Health Statistics, 2012. [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Dataset\\_Documentation/NHIS/2011/srvydesc.pdf](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2011/srvydesc.pdf)
9. Gowda C, Schaffer SE, Dombkowski KJ, Dempsey AF. Understanding attitudes toward adolescent vaccination and the decision-making dynamic among adolescents, parents and providers. *BMC Public Health*. 2012;12:509.
10. UNITY Consortium data on file.
11. Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases. Hamborsky J, Kroger A, Wolfe S, eds. 13th ed. Washington D.C. Public Health Foundation, 2015. Chapter 3. Immunization Strategies for Healthcare Practices and Providers
12. Achieving High Adolescent HPV Vaccination Coverage. Farmer AM, Love-Osborne K, Chichester K, Breslin K, Bronkan K, Hambidge SJ. *Pediatrics*. 2016 Nov;138(5). pii: e20152653. Epub 2016 Oct 5.
13. Data on file. Successful Partnership Increases South Dakota HPV Vaccination Rates, Sarah Quail, Cancer Programs Coordinator, South Dakota Department of Health.