

## Commentary

**Title:** Improving Adolescent Immunization Coverage: The Time to Act is Now

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All authors contributed to the conceptualization and writing of this commentary.

### **Acknowledgements:**

The authors acknowledge the support of the Unity Consortium, 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. The whitepaper discussed in this commentary was developed as a collaboration of members of Unity Consortium, its liaisons and a panel of experts who convened a roundtable panel in November 2016. Funding for the roundtable and whitepaper was provided by Sanofi Pasteur, a member of Unity Consortium.

### **Conflicts of Interest:**

Judy Klein received consulting fees from Pfizer in the past year.  
L.J. Tan received honoraria from Sanofi Pasteur and Pfizer Vaccines in the past year, which were donated to the Immunization Action Coalition.  
Gregory Zimet has no conflicts of interest to report.

### **Abbreviations:**

Centers for Disease Control and Prevention (CDC)  
National Immunization Survey-Teen (NIS-Teen)  
Advisory Committee on Immunization Practices (ACIP)  
Human Papillomavirus (HPV)  
Tetanus, Diphtheria and Pertussis (Tdap)  
Influenza (Flu)  
Meningococcal Meningitis Vaccine (MenACWY)  
Meningococcal B (MenB)  
Electronic Health Records (EHR)  
Immunization Information Systems (IIS)

**Keywords:** vaccines; adolescent health; meningococcal vaccine; diphtheria-tetanus-pertussis vaccine; papillomavirus vaccines, influenza vaccines

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This is the author's manuscript of the article published in final edited form as:

Klein, J., Tan, L. (L. J.), & Zimet, G. D. (2017). Improving Adolescent Immunization Coverage: The Time to Act Is Now. *Journal of Adolescent Health*, 61(5), 541–543. <https://doi.org/10.1016/j.jadohealth.2017.08.020>

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4 Improving Adolescent Immunization Coverage: The Time to Act is Now  
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7 **Abstract**  
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9 Adolescent immunization rates continue to lag far behind infant immunization rates and  
10 millions of adolescents remain unprotected from serious and potentially deadly diseases.  
11 *Adolescent Immunization: Understanding Challenges and Framing Solutions for*  
12 *Healthcare Providers*, a whitepaper issued by the UNITY Consortium identifies best  
13 practices and common elements among successful adolescent immunization initiatives.  
14 The whitepaper, a collaboration of the group’s members, liaisons and invited experts,  
15 outlines the INSPECT(Immunization Neighborhood, Sharing, Platform, Educate,  
16 Champions and Talk) Imperatives, a call to action urging healthcare providers to increase  
17 adolescent immunization coverage rates by improving in one or more of the following  
18 areas: (1) Access -maximize opportunities for vaccination and avoid missed opportunities;  
19 (2) Education - educate parents and teens to further understanding of vaccines and to  
20 elevate prioritization; (3) Advocacy – guide healthcare providers to make confident,  
21 concise recommendations for all CDC-recommended adolescent vaccines, along with  
22 developing immunization champions who advocate for adolescent immunization within  
23 their practice or network; (4) Systems - advance technology, including the use of  
24 electronic immunization information systems (IIS), implement standing orders and other  
25 tools that improve efficiencies; and (5) Measurement - improve knowledge (and  
26 dissemination) of provider and practice progress on meeting adolescent immunization goals  
27 (e.g. benchmarking, performance reports).  
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4 Data from the Centers for Disease Control and Prevention’s (CDC) 2016 National  
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6 Immunization Survey-Teen (NIS-Teen) was recently released and, once again, adolescent  
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8 immunization rates for some vaccines recommended by the Advisory Committee on  
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10 Immunization Practices (ACIP) are disappointingly low [1]. The CDC recommends adolescents  
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12 receive four immunizations – two of which are administered as multi-dose series – to help  
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14 protect against meningococcal meningitis; human papillomavirus (HPV); tetanus, diphtheria  
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16 and pertussis (whooping cough) (Tdap); and influenza (flu). Despite these recommendations, in  
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18 2016 only 39 percent of 13 through 17 year olds who received the first dose of meningococcal  
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20 meningitis vaccine (MenACWY) received the recommended second dose, and only 43 percent  
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22 of girls and 32 percent of boys completed the HPV vaccine series [1]. While the majority (88  
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24 percent) of teens received the Tdap booster, there is still room for improvement. Furthermore,  
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26 less than half of teens 13 through 17 years of age were vaccinated against the flu during the  
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28 2015-2016 influenza season [2].  
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36 The recent addition of a 16-year old column on the CDC’s Child and Adolescent  
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38 Immunization Schedule [3], is an important step in the right direction with respect to the  
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40 MenACWY booster and consideration for administration of meningococcal B (MenB) vaccine,  
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42 but we need to promote a more action-oriented approach among healthcare providers. Invasive  
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44 meningococcal disease caused by bacterial meningitis has significant financial, medical, and  
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46 psychosocial consequences [4]. The two available vaccines in the U.S., MenACWY and MenB,  
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48 have been shown to be effective for prevention of the A, B, C, W, and Y serogroups [5].  
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51 However, confusion about the Category B ACIP MenB recommendation, in particular, may  
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53 have resulted in underutilization, though the American Academy of Pediatrics clearly  
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55 encourages pediatricians to discuss this vaccine with parents and families [6,7].  
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4 The Unity Consortium recently issued a whitepaper titled *Adolescent Immunization:*  
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6 *Understanding Challenges and Framing Solutions for Healthcare Providers* [8]. It summarizes  
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8 the current immunization landscape, including barriers to successful implementation, and  
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10 highlights potential solutions to help reach important immunization targets for this population.  
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12 The whitepaper was developed following a November 2016 roundtable (see Table 1) where the  
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14 group’s members, liaisons and invited experts shared their knowledge and experience and looked  
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16 for common elements among successful adolescent immunization initiatives. It concludes that  
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18 best practices in adolescent immunization include improvements in one or more of the following  
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20 areas: access, education, advocacy, systems and measurement.  
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26 The whitepaper also puts forth a call to action called the INSPECT (Immunization  
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28 Neighborhood, Sharing, Platform, Educate, Champions and Talk) Imperatives, which take into  
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30 account both the obstacles to adolescent immunization and the solution-based elements identified  
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32 by the Unity Roundtable. The INSPECT Imperatives provide overarching guidance for  
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34 healthcare providers and urge providers, provider organizations, and healthcare systems, to take  
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36 a look at their current adolescent immunization practices, and consider how they could improve  
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38 vaccination coverage among their patients. For those ready to take action, it provides a solid  
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40 blueprint.  
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45 First and foremost, we must increase access for adolescents by expanding and integrating  
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47 the immunization neighborhood. If teenagers are not showing up for routine well visits, we need  
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49 to meet them where they are, including at schools, public health venues, acute and urgent care  
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51 settings, flu clinics and pharmacies [9]. Integrated care between physicians and other  
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53 complementary healthcare providers is necessary to ensure that these opportunities for  
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55 vaccination are not missed [10]. Vaccination assessments should also become routine in school  
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4 physicals, sick visits and ongoing care for chronic conditions and injuries [11]. Expanded  
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6 evening and weekend hours should also be considered to help increase access for time-strapped  
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8 teens who juggle school, sports, jobs and extra-curricular activities.  
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11 We also need to do a better of job of leveraging technology and improving information  
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13 sharing. Technology offers new and emerging tools to improve vaccination tracking and  
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15 screening. It can also improve efficiencies and help integrate information within the  
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17 immunization neighborhood. Utilization of tools such as Electronic Health Records (EHRs),  
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19 standing orders, and reminder/recall notifications should become standards of practice at both the  
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21 individual provider level as well as throughout integrated health systems and networks of care.  
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23 Use of immunization information systems (IIS, formerly known as registries) should be universal  
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25 and utilized for both accessing records prior to vaccination and reporting after vaccination to  
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27 improve tracking and integrated care. Well populated IISs and EHRs will increase the efficiency  
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29 for assessing vaccination needs of patients [12-16].  
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36 The INSPECT Imperatives also call for the establishment of an immunization platform for older  
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38 adolescents at age 16. As outlined in the Society for Adolescent Health and Medicine's (SAHM)  
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40 recent position statement, *Establishing an Immunization Platform for 16 Year-Olds in the United*  
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42 *States* [17], and the Adolescent Immunization Initiative whitepaper, *Rationale for an*  
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44 *Immunization Platform at 16 years of Age*, [18] providers should establish a routine 16 year old  
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46 preventive visit, creating an opportunity for immunization and discussion of health care topics  
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48 uniquely relevant to older teens and young adults.  
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53 There is also a need for continued education of parents and teens to increase  
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55 understanding of vaccines and to raise the priority for immunization [19, 20]. A recent Unity-  
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57 sponsored Harris poll conducted from September-October, 2016, found that nearly 1 in 4 parents  
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4 and teens do not know how being vaccinated helps teens [21]. We cannot expect parents and  
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7 teens to make immunization a priority if we are not effectively communicating to them the  
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9 reasons why they should do so. Careful examination and/or research on what approaches,  
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11 channels and messages are most effective in reaching older adolescents are necessary. Pilot  
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13 communication programs using new media and technology should be implemented. Healthcare  
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15 providers must also give confident, concise and consistent recommendations to parents and  
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17 adolescents for all recommended vaccines, as provider recommendation is a strong determinant  
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19 in parent and adolescent agreement to vaccinate [9].  
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24 Finally, we must develop and empower immunization champions and emphasize  
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26 the need to talk about quality improvement. Immunization champions or advocates have  
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28 the potential to significantly improve adolescent immunization coverage [22]. Within a  
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30 practice, immunization champions often become passionate drivers for setting action plans,  
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32 establishing and ensuring processes and accountability, providing ongoing communications  
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34 and feedback, and training and motivating staff. Advocates can also help establish greater  
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36 transparency and dissemination of practice- and provider-level immunization performance  
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38 measurement to staff.  
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44 Lagging adolescent immunization rates should not be ignored or minimized. It is time to  
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46 take action to solve the problem and offer greater protection to our adolescent and young adult  
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48 population. The INSPECT Imperatives can help healthcare providers improve immunization  
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50 coverage and preventive care for our youth. There is no one-size-fits-all solution, and not all  
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52 healthcare providers can realistically take action on each imperative, but if individual providers,  
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54 provider organizations, and healthcare systems take action, the results would follow.  
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**Table 1.** Unity Roundtable Participants

<b>Name</b>	<b>Affiliation</b>
Tracy Bieber*	Sanford Health
Marla Dalton*	National Foundation for Infectious Diseases
Claire Hannan*	Association of Immunization Managers
David Kaplan	University of Colorado, Children's Hospital
Judy Klein*	UNITY Consortium
Amy Middleman	University of Oklahoma Health Sciences Center
Mark Ritter	Texas Department of State Health Services, Immunization Branch
Mitchel Rothholz*	American Pharmacists Association
Jason Rubin	Walgreens
Shannon Stokley*	CDC
Litjen (L.J.) Tan*	Immunization Action Coalition
Gregory Zimet*	Indiana University School of Medicine

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