



<b>Body System: Hematologic-Immune</b>		
<b>Session Topic: Immunization Update</b>		
<b>Educational Format</b>		<b>Faculty Expertise Required</b>
<b>REQUIRED</b>	Interactive Lecture	Expertise in the field of study. Experience teaching in the field of study is desired. Preferred experience with audience response systems (ARS). Utilizing polling questions and engaging the learners in Q&A during the final 15 minutes of the session are required.
<b>OPTIONAL</b>	Problem-Based Learning (PBL)	Expertise teaching highly interactive, small group learning environments. Case-based, with experience developing and teaching case scenarios for simulation labs preferred. Other workshop-oriented designs may be accommodated. A typical PBL room is set for 50-100 participants, with 7-8 each per round table. <u>Please describe your interest and plan for teaching a PBL on your proposal form.</u>
<b>Professional Practice Gap</b>	<b>Learning Objective(s) that will close the gap and meet the need</b>	<b>Outcome Being Measured</b>
<ul style="list-style-type: none"> <li>• Knowledge gaps in keeping up to date on current immunization schedules and alerts</li> <li>• Knowledge and performance gaps in utilizing standing orders, standardized protocols to screen for immunizations during patient encounters, and adopting a systematic approach to vaccine administration</li> <li>• Knowledge and performance gaps in using available patient education resources to counsel patients about vaccine safety and efficacy</li> <li>• Knowledge and performance gaps related to participation in available childhood immunization programs, including having effective and efficient vaccine administration strategies</li> <li>• There are numerous barriers</li> </ul>	<ol style="list-style-type: none"> <li>1. Identify available vaccine administration strategies and resources, available patient education resources or programs, vaccine alert systems, current immunization schedules, for adult, child, and adolescent patients.</li> <li>2. Use evidence-based recommendations and guidelines to establish standardized vaccine administration procedures, including standardized protocols to screen for immunizations during adult, child, and adolescent patient encounters.</li> <li>3. Counsel adult patients, and parents of children and adolescents, using available patient education resources and motivational interviewing about vaccine safety and efficacy.</li> <li>4. Participate in available childhood immunization programs, and administer using a standardized process.</li> </ol>	Learners will submit written commitment to change statements on the session evaluation, indicating how they plan to implement presented practice recommendations.



<p>to achieving optimal vaccination rates, including low patient health literacy and understanding of vaccine safety and efficacy; organizational barriers such as cost, insurance coverage; and operational barriers such as not stocking all recommended vaccinations and lack of standing orders</p>		
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**ACGME Core Competencies Addressed** (select all that apply)

X	Medical Knowledge		Patient Care
X	Interpersonal and Communication Skills		Practice-Based Learning and Improvement
	Professionalism		Systems-Based Practice

**Faculty Instructional Goals**

Faculty play a vital role in assisting the AAFP to achieve its mission by providing high-quality, innovative education for physicians, residents and medical students that will encompass the art, science, evidence and socio-economics of family medicine and to support the pursuit of lifelong learning. By achieving the instructional goals provided, faculty will facilitate the application of new knowledge and skills gained by learners to practice, so that they may optimize care provided to their patients.

- Provide up to 3 evidence-based recommended practice changes that can be immediately implemented, at the conclusion of the session; including SORT taxonomy & reference citations
- Facilitate learner engagement during the session
- Address related practice barriers to foster optimal patient management
- Provide recommended journal resources and tools, during the session, from the American Family Physician (AFP), Family Practice Management (FPM), and Familydoctor.org patient resources; those listed in the References section below are a good place to start
  - Visit <http://www.aafp.org/journals> for additional resources
  - Visit <http://familydoctor.org> for patient education and resources
- Provide evidence-based recommendations and guidelines for optimal vaccine administration and office protocols (adult, child, & adolescent patients)
- Provide examples of available resources to keep physicians up to date on current immunization schedules, alerts, and available childhood immunization programs (adult, child, & adolescent patients)
- Provide specific examples to assist physician-learners in optimally managing their participation in childhood immunization programs (adult, child, & adolescent patients)
- Provide specific strategies and resources to assist physician-learners to counsel patients, and parents of children, using available patient education resources and motivational interviewing about vaccine safety and efficacy (adult, child, & adolescent patients)
- Provide specific strategies to assist physician-learners on how to manage and advise travelers on vaccine and medication preventable diseases, including performing appropriate risk assessments for travel-related illnesses (adult, child, & adolescent patients)



- Provide recommendations regarding guidelines for Medicare reimbursement.
- Provide recommendations to maximize office efficiency and guideline adherence to current immunization schedules and recommendations.
- Provide an overview of newly available treatments, including efficacy, safety, contraindications, and cost/benefit relative to existing treatments.

**Needs Assessment:**

\*Note – the intention of this session is to provide a general immunization update across all age groups.

Immunizations are critical to maintaining health and the prevention of disease for everyone in the U.S. Vaccinations are recommended throughout life to prevent vaccine-preventable diseases and their sequela. Adult vaccination coverage, however, remains low for most routinely recommended vaccines and well below Healthy People 2020 targets.<sup>1</sup> For example, immunization rates for influenza and pneumococcal vaccines among the elderly (especially minority elderly) are below desired levels.<sup>2</sup> Data from the 2011 CDC National Health Interview Survey indicates that only 45.3% of children 6 months to 17 years had received an influenza vaccination during the past 12 months; only 27.2% of adults 18-49 years had received an influenza vaccination during the past 12 months; and only 42.7% of adults 50-64 years had received an influenza vaccination during the past 12 months.<sup>3</sup> There are more than 49 thousand deaths annually from pneumonia, yet only 62.3% of adults 65 years and over have ever received a pneumococcal vaccination.<sup>4</sup> Vaccination rates for  $\geq 1$  dose of MenACWY,  $\geq 3$  doses of HPV (among females), and  $\geq 2$  doses of varicella vaccine are below the *Health People 2020* targets.<sup>5</sup>

In 2010, primary care physicians provided preventive care during more than 207 million office visits; including more than 22 million influenza vaccinations.<sup>6</sup> Eighty-seven percent of active American Academy of Family Physician (AAFP) members provide immunizations in their practices.<sup>7</sup> However, data from the 2012 AAFP CME Needs Assessment Survey indicates that family physicians have statistically significant and meaningful gaps in knowledge and skill to provide optimal immunization management.<sup>8</sup> More specifically, CME outcomes data from the 2012 AAFP Scientific Assembly: *Child and Adolescent Immunizations*, and 2014 AAFP Assembly: *Immunization Update: Improving Immunizations in 2014*, and 2015 AAFP FMX (formerly Assembly) *2015 Pediatric and Adolescent Immunization Update* sessions indicate that physician have knowledge and practice gaps regarding immunization alerts; standing protocols to screen for immunizations at every visit; the utilization of EHR reminder systems; being aware of new vaccines; providing adequate patient education regarding vaccine safety and efficacy; remaining up to date on new immunization schedules for various age groups; effectively utilizing appropriate coding/billing practices for proper reimbursement; and participation in childhood immunization programs.<sup>9-11</sup>

There are numerous barriers to achieving optimal vaccination rates, including low patient health literacy and understanding of vaccine safety and efficacy; organizational barriers such as cost, insurance coverage; and operational barriers such as not stocking all recommended vaccinations and lack of standing orders.<sup>2,12-16</sup> The 2012 AAFP Immunization Survey indicates that the most commonly-cited patient barriers to immunization were safety concerns (58%), personal or



religious beliefs (53%) and cost (51%); the most commonly-cited practice-level barriers to immunization were cost (51%), patient acceptance (33%), and supply of vaccine (30%); sixty-five percent of respondents indicated that at least one parent refused vaccinations for their child; fifty-seven percent of respondents indicated participation in the Vaccines for Children program, and among those who did not indicate participation, respondents indicated that it was too burdensome (36%), difficulties associated with keeping vaccines separated (34%), difficulty of record-keeping (32%), and they don't care for children (28%).<sup>7</sup> Despite universal childhood vaccine programs in the U.S., recent studies indicate that between 2000 and 2015, nearly 60% of measles cases occurred in people who were not vaccinated against measles.<sup>17</sup> Among those who were unvaccinated, 71% refused it for nonmedical reasons. Nonmedical exemptions also were prevalent among unvaccinated cases of pertussis (ranging from 59 to 93 percent in eight outbreaks). These findings confirm that nonmedical exemptions increase the risk of vaccine-preventable illness in the unvaccinated individual and, by reducing overall community immunity, increase the risk of illness in children too young to be vaccinated, people with medical contraindications to vaccination, and vaccinated people with waning immunity.<sup>18</sup>

Physicians should also be kept up to date on vaccines, changes to therapies, or warnings associated with existing therapies. Provide recommendations regarding new FDA approved vaccines for various conditions; including safety, efficacy, tolerance, and cost considerations relative to currently available options. Recent examples include, but are not limited to:<sup>19</sup>

- Drugs Approved in 2016
  - Vaxchora (Cholera Vaccine, Live, Oral); PaxVax; For active immunization against Cholera, Approved June 2016
- Drugs Approved in 2015
  - Bexsero (Meningococcal Group B Vaccine); Novartis; For the treatment of invasive meningococcal disease caused by serogroup B, Approved January 2015
- Drugs Approved in 2013
  - Flublok (seasonal influenza vaccine); Protein Sciences; For the active immunization against influenza virus subtypes A and type B, Approved January 2013
  - VariZIG, Varicella Zoster Immune Globulin (Human); Cangene; For the post-exposure prophylaxis of varicella zoster (chickenpox), Approved January 2013
- Drugs Approved in 2012
  - Flucelvax, Influenza Virus Vaccine; Novartis; For the treatment of influenza virus subtypes A and type B, Approved November 2012
  - Horizant (gabapentin enacarbil); GlaxoSmithKline; For the treatment of postherpetic neuralgia, Approved June 2012
- Drugs Approved in 2011
  - Horizant (gabapentin enacarbil); GlaxoSmithKline; For the treatment of restless legs syndrome, Approved April 2011
- Drugs Approved in 2010
  - Menveo (meningitis vaccine); Novartis; For the active immunization to prevent invasive meningococcal disease, Approved February 2010
  - Prevnar 13 (Pneumococcal 13-valent Conjugate Vaccine); Wyeth; For the active immunization for the prevention of invasive disease caused by Streptococcus pneumoniae, Approved February 2010



- Teflaro (ceftaroline fosamil); Cerexa; For the treatment of bacterial skin infections and bacterial pneumonia, November 2010
- Drugs Approved in 2009
  - Hiberix (Haemophilus b Conjugate Vaccine; Tetanus Toxoid Conjugate); GlaxoSmithKline; For the prevention of invasive disease caused by Haemophilus influenzae type b., August of 2009

Family physicians should remain up to date on current AAFP immunization schedules, and receive continuing education aimed at helping physicians overcome common barriers to immunization management.<sup>20</sup> Family physicians may consider the following evidence-based recommendations for immunization management:<sup>21-24</sup>

- The quadrivalent human papillomavirus vaccine may be considered in males and females nine to 26 years of age to prevent genital warts and cervical and anal cancers.
- Vaccination against herpes zoster is most effective when given as early as possible after 60 years of age.
- Vaccinating adults against pertussis, especially those in high-risk groups (e.g., health care professionals, persons who have close contact with infants younger than 12 months of age), reduces the risk of disease outbreaks.
- Annual influenza vaccination is recommended for all persons older than six months.
- Immunization of children and adolescents is highly cost-effective and clinically effective.
- DTaP, IPV, MMR, Hib, HepB, and varicella vaccine should be given as recommended.
- Pneumococcal vaccine has been shown to significantly decrease the number of cases of invasive pneumococcal disease in children as well as increase herd immunity in the population.
- Tdap (Adacel, Boostrix) has a safety profile comparable to Td and has an excellent immunologic response in adolescents.
- Use of HepB and immune globulin effectively prevents transfer of hepatitis B from mother to infant.
- Rotavirus vaccine has been shown to significantly decrease the severity and number of hospitalizations for acute gastroenteritis in young infants.
- Use of a patient reminder and recall system is helpful in increasing immunization rates in developed countries.
- Vaccines should be administered before planned immunosuppression, with live vaccines given four weeks in advance and inactivated vaccines given two weeks in advance.
- Immunocompetent persons who live with an immunocompromised patient can safely receive inactivated vaccines.
- Varicella and zoster vaccines should not be administered to highly immunocompromised patients.
- Annual vaccination with inactivated influenza vaccine is recommended for immunocompromised patients six months and older, except those who are unlikely to respond.
- Children with a history of sexual assault should be vaccinated against HPV starting at nine years of age.
- Persons 16 to 23 years of age may be vaccinated to provide short-term protection against most strains of meningococcal B disease.



- There is no contraindication to giving the meningococcal B and quadrivalent meningococcal conjugate vaccines on the same day as long as different administration sites are used.
- Unlike the HPV vaccine series, which may be completed with any available vaccine preparation, meningococcal vaccines are not interchangeable.
- Physicians should explain to parents that vaccines—including the measles, mumps, and rubella vaccine—are beneficial, safe, and effective.
- Physicians should reassure parents that there is no evidence that vaccines cause autism or neurologic problems.
- Physicians should inform parents that the risk of intussusception with the rotavirus vaccine is minimal compared with the decrease in morbidity and mortality associated with rotavirus diarrheal disease.
- Live attenuated influenza vaccine and inactivated influenza vaccine are both appropriate options in healthy children two to eight years of age who have no contraindications. Either vaccine is appropriate in older children and in adults up to 49 years of age.
- The tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine should be administered to pregnant women at 27 to 36 weeks' gestation to provide passive immunity for their infants.
- Human papillomavirus vaccine should be administered to adolescent females and males.

Additionally, physicians should be familiar with changes between the 2015 and 2016 adult immunization schedules, including:<sup>20</sup>

- updates to the recommendations for pneumococcal vaccine;
- serogroup B meningococcal (MenB) vaccine, and human papillomavirus (HPV) vaccine.
- The interval between administration of the 23-valent pneumococcal polysaccharide (PPSV23) and the 13-valent pneumococcal conjugate (PCV13) vaccines has been changed from '6 to 12 months' to 'at least one year' for immunocompetent adults aged  $\geq 65$  years.
- The MenB vaccine series should be administered to individuals age  $\geq 10$  years who are at increased risk for serogroup B meningococcal disease.
- The nine-valent HPV vaccine has been added to the schedule as an option for routine HPV vaccination for females and males.

Despite many patient and physician barriers to adult vaccinations, rates can be improved, often with simple interventions such as patient reminders and recalls, standing orders, and patient education. As our health systems become increasingly automated, CDS systems can help make vaccination more efficient and reliable.<sup>25</sup> There are numerous barriers to achieving optimal vaccination rates, including low patient health literacy and understanding of vaccine safety and efficacy; organizational barriers such as cost, insurance coverage; and operational barriers such as not stocking all recommended vaccinations and lack of standing orders.<sup>2,12-16</sup> Physicians can often improve immunization rates by simply making the recommendation to their patients.<sup>26</sup> Physicians can minimize costs and maximize reimbursement by systematic comparison pricing, looking for ordering discounts, and using appropriate coding/billing practices.<sup>27</sup> Additionally, physicians can help low-income patients receive free vaccines through the Federal *Vaccines for Children (VFC)* program.<sup>27,28</sup>



Family physicians should adopt a systematic approach to vaccine administration that includes educating patients and office staff and using reliable sources of information, standing protocols during patient encounters, and widely accepted practice management resources.<sup>22</sup> Additionally, physicians need to be kept up to date on new recommendations from the CDC's Advisory Committee on Immunization Practices (ACIP), such as the new recommendations for MenB vaccination during its June 24-25 meeting, summarized as:<sup>29</sup>

- (ACIP) adopted a Category B recommendation for use of the two serogroup B meningococcal vaccines in patients ages 16-23 for short-term protection against the disease.
- For children ages 6 months to 9 years, the ACIP recommended that if a child has previously received two or more total doses of trivalent or quadrivalent influenza vaccine, the child only needs one dose in the 2015-2016 season.
- The ACIP voted to recommend that for patients 65 and older, the interval between administration of 13-valent pneumococcal conjugate vaccine and pneumococcal polysaccharide vaccine be one year regardless of which vaccine was given first.

The AAFP joins with other organizations to urge physicians to strongly recommend and administer the second (booster) dose of meningococcal vaccine at age 16.<sup>20</sup>

Advising travelers on vaccine- and medication-preventable diseases is increasingly becoming the responsibility of primary care physicians. The approach to travel health recommendations should be based on an assessment of the risks for travel-related illnesses, the time available before trip departure, and the current epidemiology of preventable diseases. Physicians should take into account the adverse events and contraindications associated with each vaccine and medication.<sup>30</sup>

Resources: Evidence-Based Practice Recommendations/Guidelines/Performance Measures

- AAFP Immunization Schedules<sup>20</sup>
- AAFP Medicare Part B Vaccine Coverage<sup>31</sup>
- Update on immunizations in children and adolescents<sup>23</sup>
- Update on immunizations in adults<sup>22</sup>
- Improving adult immunization rates: overcoming barriers<sup>25</sup>
- Travel immunizations<sup>30</sup>
- Vaccine administration: making the process more efficient in your practice<sup>32</sup>
- Achieving sustainable increases in childhood immunization rates<sup>33</sup>
- Coding for Vaccine Administration<sup>34</sup>
- ACP Immunization Advisor<sup>35</sup>
- CDC Vaccines for Children Program (VFC)<sup>28</sup>
- Resolving patients' vaccination uncertainty: going from "no thanks!" to "of course!"<sup>26</sup>
- Engaging Patients in Collaborative Care Plans<sup>36</sup>
- Clinical decision support: using technology to identify patients' unmet needs<sup>37</sup>
- Documenting and coding preventive visits: a physicians' perspective<sup>38</sup>
- Immunizations: how to protect patients and the bottom line<sup>27</sup>
- Encouraging patients to change unhealthy behaviors with motivational interviewing<sup>39</sup>
- CDC Vaccines & Immunizations: Patient Education<sup>40</sup>
- FamilyDoctor.org. Immunization Schedules (patient resource)<sup>41</sup>



- FamilyDoctor.org. Vaccines ( many patient resource)<sup>42</sup>
- FamilyDoctor.org. International Travel: Tips for Staying Healthy (patient resource)<sup>43</sup>

### References

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