

# What you can do to improve adult immunization rates

Easy-to-implement electronic or paper prompts and the system-based interventions outlined here can make a difference.

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## PRACTICE RECOMMENDATIONS

➤ *Recommend immunization to patients routinely. Most adults believe vaccines are important and are likely to get them if recommended by their health care professionals.* **C**

➤ *Consider implementing standing orders that authorize nurses, pharmacists, or other trained health care personnel to assess a patient's immunization status and administer vaccinations according to a protocol.* **C**

➤ *Explore the use of Web-based patient portals or other new-media communication formats to engage patients.* **C**

### Strength of recommendation (SOR)

- A** Good-quality patient-oriented evidence
- B** Inconsistent or limited-quality patient-oriented evidence
- C** Consensus, usual practice, opinion, disease-oriented evidence, case series

Vaccines have been proven effective in preventing disease and are one of the most cost-effective and successful public health initiatives of the 20th century. Nevertheless, adult vaccination rates in the United States for vaccine-preventable diseases are low for most routinely recommended vaccines.<sup>1</sup> In 2013 alone, there were an estimated 3700 deaths in the United States (95% of which were adults) from pneumococcal infections—a vaccine-preventable disorder.<sup>2</sup>

**■ Consider the threat posed by the flu.** Annually, most people who die of influenza and its complications are adults, with estimates ranging from a low of 3000 to a high of 49,000 based on Centers for Disease Control and Prevention (CDC) data from the 1976-1977 flu season to the 2006-2007 season.<sup>3</sup> Vaccination during the 2013-2014 season resulted in an estimated 7.2 million fewer cases of influenza, 90,000 fewer hospitalizations, and 3.1 million fewer medically attended cases than would have been expected without vaccination.<sup>4</sup> If vaccination levels had reached the *Healthy People 2020* target of 70%, an additional 5.9 million illnesses, 2.3 million medically attended illnesses, and 42,000 hospitalizations might have been averted.<sup>4</sup>

**■ How are we doing with other vaccines?** Based on the 2013 National Health Interview Survey, the CDC assessed vaccination coverage among adults ages ≥19 years for selected vaccines: pneumococcal vaccine, tetanus toxoid-containing vaccines (tetanus and diphtheria vaccine [Td] or tetanus and diphtheria with acellular pertussis vaccine [Tdap]), and vaccines for hepatitis A, hepatitis B, herpes zoster, and human papillomavirus (HPV). (With the exception of influenza vaccination, which is recommended annually for all adults, other vaccinations are directed at specific populations based on age, health conditions, behavioral risk factors, occupation, or travel conditions.)

Overall, coverage rates for hepatitis A and B, pneumococcal, Td, and human papillomavirus (HPV) for all adults did not

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**Using your state's immunization information system can help ensure accurate tracking of patients' immunization status.**

improve from 2012 to 2013; rates increased only modestly for Tdap among adults  $\geq 19$  years, for herpes zoster among adults  $\geq 60$  years, and for HPV among men ages 19 to 26. Furthermore, racial and ethnic gaps in coverage are seen in all vaccines, and these gaps widened since 2012 for Tdap, herpes zoster, and HPV vaccination.<sup>1</sup>

■ **Commonly cited barriers to improved vaccine uptake** in adults include lack of regular assessment of vaccine status; lack of physician and other health care provider knowledge on current vaccine recommendations; cost; insufficient stocking of some vaccines; financial disincentives for vaccination in the primary care setting; limited use of electronic records, tools, and immunization registries; missed opportunities; and patient hesitancy and vaccine refusal.<sup>5</sup>

■ **Removing barriers to immunization.** Several recommendations on ways to improve adult vaccination rates are made by many federal organizations as well as by The Community Preventive Services Task Force (Task Force), an independent, nonfederal, unpaid panel of public health and prevention experts. The Task Force—which makes recommendations based on systematic reviews of the evidence of effectiveness, the applicability of the evidence, economic evaluations, and barriers to implementation of interventions<sup>6</sup>—advocates a 3-pronged approach to improve adult vaccination rates: 1) enhance access to vaccination services; 2) increase community demand for vaccinations; and 3) incorporate physician- or system-based interventions into practice.<sup>7</sup>

The CDC and other groups such as the National Vaccine Advisory Committee (NVAC) recommend that every routine adult office visit include a vaccination needs assessment, recommendation, and offer of vaccination.<sup>8</sup> Additionally, the Task Force recommends 3 means of enhancing adult access to vaccination services: make home visits, reduce patient costs, and offer vaccination programs in the community.<sup>7</sup>

This article describes a number of simple steps physicians can take to increase the likelihood that adults will get their vaccines and reviews the literature on using new media such as smartphones and other Internet-based tools to improve immunization coverage.<sup>9</sup>

## **Increasing community demand for vaccinations**

Physicians and other healthcare providers can increase community demand for vaccinations by improving their own knowledge on the subject, recommending vaccination to patients, and increasing their community and political involvement to strengthen or change laws to better support immunization uptake.

To increase awareness and education, keep abreast of the Advisory Committee on Immunization Practices (ACIP) recommendations and guidelines, which are updated annually and reported on in this journal's Practice Alert column. Consider taking advantage of free immunization apps that are available from the CDC ("CDC Vaccine Schedules" <http://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html>), the Society of Teachers of Family Medicine (STFM; "Shots Immunizations" <http://www.immunizationed.org/Shots-Mobile-App>), and the American College of Physicians ("ACP Immunization Advisor" <http://immunization.acponline.org/app/>).

■ **Take steps to put guidelines into practice.** Despite wide promulgation, clinical practice guidelines alone have had limited effect on changing physician behavior and improving patient outcomes. Interactive techniques are more effective than guidelines and didactic presentations alone at changing physician care and patient outcomes. Such techniques include audit/feedback (the reporting of an individual clinician's vaccination rates compared with desired or target rates, for example), academic detailing/outreach, and reminders by way of electronic or other alerts.<sup>10,11</sup>

■ **Promote immunization to patients.** Physicians are highly influential in determining a patient's decision to vaccinate, and it is well documented that a strong recommendation about the importance of immunizations makes a difference to patients.<sup>12,13</sup>

■ **What you say and how you say it matters.** A halfhearted recommendation for vaccination may result in the patient remaining unvaccinated.<sup>14</sup> For example, "If you want, you can get your pneumonia shot today" is much less persuasive than, "I recom-

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**At the time of a visit, chart reminders—electronic or paper—can keep the need for immunization visible amid competing priorities.**

mend you get your pneumonia vaccine today to prevent a potentially serious disease that affects thousands of adults each year.” Most adults believe that vaccines are important and are likely to get them if recommended by their health care professionals.<sup>15</sup>

The CDC recommends that physicians encourage patients to make an informed decision about vaccination by sharing critical information highlighting the importance of vaccinations and reminding patients what vaccines protect against while addressing their concerns ([www.cdc.gov/vaccines/adultstandards](http://www.cdc.gov/vaccines/adultstandards)). Free educational materials for patients can be found at [www.cdc.gov/vaccines/AdultPatientEd](http://www.cdc.gov/vaccines/AdultPatientEd).

■ **Draw on community resources.** Laws and policies that require vaccinations as a prerequisite for attending childcare, school, or college increase coverage. Community and faith-based organizations are likely to play an important role in reducing racial and ethnic disparities in adult immunizations because they can deliver education that is culturally sensitive and tailored to specific subpopulations.<sup>16,17</sup> Physicians and other health care providers can get involved with community and faith-based groups and local and federal legislative efforts to improve immunization rates.

### Consider implementing these system-based interventions

The following 6 system-based interventions can help improve adult immunization rates:

**1 | Develop a practice team.** The practice team, based on the Patient-Centered Medical Home (PCMH), includes physicians, midlevel providers, nurses, medical assistants, pharmacists, social workers, and other staff. The PCMH team model can facilitate a shift of responsibilities among individuals to better orient the practice toward patients’ health and preventive services.<sup>18,19</sup> While physicians have traditionally held all of the responsibility for patient care, including screening for disease and prevention, shifting the responsibility of vaccine screening to nurses or medical assistants can free up time for longer physician/patient interactions.<sup>18</sup>

The creation of a practice champion

within the PCMH team—a physician, mid-level provider, or nurse—to oversee quality improvement for vaccine rates and work to generate support and cooperation from coworkers has also been shown to improve vaccination rates.<sup>20</sup> The vaccine champion should keep abreast of new vaccine recommendations and relay that information to the practice through regular staff meetings, announcements, and office postings. The champion can also supervise pre-visit planning for immunizations.<sup>19</sup>

**2 | Use electronic immunization information systems (IIS).** All states except New Hampshire have an IIS.<sup>21</sup> Accurate tracking of adult immunizations in a registry provides a complete record and is essential to improving adult immunization rates,<sup>22</sup> as does the use of chart notes, computerized alerts, checklists, and other tools that remind health care providers when patients are due for vaccinations.<sup>18</sup> NVAC recommends that all physicians use their state IIS and create a process in their practice to include its use.

**3 | Incorporate physician feedback.** Many health care systems and payers are using benchmarking and incentives to provide physician feedback on vaccination performance.<sup>23</sup> Using achievable benchmarks enhances the effectiveness of physician performance feedback.<sup>24</sup> The Task Force conducted a systematic review of the evidence on the effectiveness of health care provider assessment and feedback for increasing coverage rates and found that this strategy remains an effective means to increase vaccination rates.<sup>25</sup>

**4 | Use reminders/alerts.** Even though you may intend to routinely recommend immunizations, remembering to do so at the time of each visit can be difficult when there are so many other issues to address. Reminders at the time of the visit can help. Some electronic records have reminder prompts, or “best practice alerts” (BPAs), programmed into their systems.<sup>26</sup> These BPAs will prompt for needed immunizations whether the patient is being seen for a well, acute, or routine follow-up visit. These reminder/recall activities can be greatly simplified by participation in a population-based IIS.

Practices that don't have an electronic health record can still improve vaccination rates by conveying the reminder with a brightly colored paper form attached to the front of a patient's chart during the check-in process. One recent study showed that this approach increased rates of influenza vaccination in an urban practice by 12 percentage points.<sup>27</sup>

Furthermore, simply reminding patients to vaccinate increases the vaccination rate.<sup>28</sup> Patient reminder/recall systems using telephone calls or mailings (phone calls are more effective than mailings) improve both childhood and adult vaccinations in all medical settings. More intensive systems using multiple reminders appear to be more effective than single reminders, and while costly, the benefits of increasing preventive visits/services and vaccine uptake help offset this cost.<sup>28</sup>

**5 | Implement standing orders.** Standing orders—which allow nurses and other appropriately trained health care personnel to assess immunization status and administer vaccinations according to protocol—help improve immunization rates.<sup>29</sup> ACIP advises that standing order programs be used in long-term care facilities under the supervision of a medical director to ensure the administration of recommended vaccinations for adults, and in inpatient and outpatient facilities. Because of the societal burden of influenza and pneumococcal disease, implementation of standing orders programs to improve adult vaccination coverage for these diseases is considered a national public health priority.<sup>30</sup>

**6 | Develop an encouraging communication style.** Studies show that *how* one communicates with patients is just as important as *what* one communicates. Certain communication styles and techniques may be more or less effective when discussing vaccination needs with some patients, especially those with vaccine hesitancy or low confidence in vaccine safety or effectiveness. For example, styles that are “directing” are usually unhelpful in addressing concerns about vaccination. These styles typically use information and persuasion to achieve change and may be perceived as con-

frontational. This approach can lead to cues being missed, jargon being used, and vaccine safety being overstated.

Styles shown to be helpful are those that elicit patient concerns, ask permission to discuss, acknowledge/listen/empathize, determine readiness to change, inform about benefits and risks, and give appropriate resources. These helpful forms of communication are more of a “May I help you?” style vs a “This is what you should do” style of communication.<sup>31</sup>

Assure patients that recommendations are based on the best interest of their health and on the best available science. Listen to a patient's concerns and acknowledge them in a nonconfrontational manner, allowing patients to express their concerns and thereby increase their willingness to listen.<sup>32</sup> Saying that there is “absolutely no need to worry—vaccines are safe and you are silly not to get yours” is not as effective as saying, “What are your concerns regarding vaccines? Let's talk about them.”

For the vaccine-hesitant group, building trust is essential through a respectful, nonjudgmental approach that aims to elicit and address specific concerns. For those who refuse vaccines, keep the consultation brief, keep the door open for further discussion, and provide appropriate resources if the patient wants them.<sup>33</sup>

### Increase use of new media

Mass communication through smartphones and other Internet-based tools such as Facebook and Twitter brings a new dimension to health care, allowing patients and health professionals to communicate about health issues and possibly improve health outcomes.<sup>34</sup> The number of people using social media increased by almost 570% worldwide between 2000 and 2012 and surpassed 2.75 billion in 2013.<sup>35</sup>

Sixty-one percent of adults in the United States look online for health information.<sup>36</sup> In a survey conducted in September 2014, the Pew Research Center found that Facebook is the most popular social media site in the United States. Seventy-one percent of online-knowledgeable adults use Facebook,



Telling a patient that vaccines are safe and, “You are silly not to get yours” is not as effective as saying, “What are your concerns about vaccines? Let's talk about them.”

➤ One RCT showed that patient access to a personalized Web-based portal increased influenza vaccination rates.

and multiplatform use is on the rise: 52% of adult Internet users now use 2 or more social media sites, a significant increase from 2013, when it stood at 42%. (Other platforms such as Twitter, Instagram, Pinterest, and LinkedIn saw significant increases over the past year in the proportion of online adults who use them).<sup>37</sup>

Health information provided by social media can answer medical questions and concerns and enhance health promotion and education.<sup>35</sup> A recent review of 98 research studies provided evidence that social media can create a space to share, comment, and discuss health information.<sup>34</sup> Compared with traditional communication methods, the widespread availability of social media makes health information more accessible, broadening access to various population groups, regardless of age, education, race, ethnicity, and locale.

■ **New media platforms are proving effective.** The first systematic assessment of available evidence on the use of new media to increase vaccine uptake and immuniza-

tion coverage (a review of 7 randomized controlled trials [RCTs], 5 non-RCTs, 3 cross-sectional studies, one case-control study and 3 operational research studies published between 2000-2013) found that text messaging, accessing immunization campaign Web sites, using patient-held Web-based portals, computerized reminders, and standing orders increased immunization coverage rates.<sup>35</sup> However, evidence was insufficient in this regard on the value of social networks, email communication, and smartphone applications.

One RCT showed that having access to a personalized Web-based portal where patients could manage health records as well as interact with both health care providers and other members of the community through social forums and messaging tools increased influenza vaccination rates.<sup>35</sup>

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CONTINUED

## ZECUITY® (sumatriptan iontophoretic transdermal system)

Table 1: Adverse Reactions Reported by at least 2% of Patients in Study 1

Adverse Reaction	Percent of Subjects Reporting	
	ZECUITY (n = 234)	Control (n = 235)
Application site pain	26%	17%
Application site paresthesia	9%	16%
Application site pruritus	8%	7%
Application site warmth	6%	3%
Application site discomfort	6%	6%
Application site irritation	4%	2%
Application site discoloration	3%	1%

The incidence of "atypical sensations" adverse events (paresthesia, sensation warm/cold) and "pain and other pressure sensations" (chest pain/tightness/pressure/heaviness or neck/throat/jaw pain, tightness, pressure or heaviness) was 2% each in ZECUITY-treated patients, vs. 0% in the control group. Application site bruising was reported in 2 ZECUITY-treated patients (0.9%) vs. no patient in the control group. Subgroup analyses of age ( $\leq 41$  years,  $> 41$  years), race (Caucasian, non-Caucasian) and body mass index (BMI) ( $\leq 25.7$  mg/kg<sup>2</sup>,  $> 25.7$  mg/kg<sup>2</sup>) showed no difference between subgroups for adverse events.

**Skin Irritation Examination**

In Study 1, patients performed their own examination of the TDS application site at 4, 12, and 24 hours post TDS activation, and daily thereafter until resolution. The median time to "no redness" was 2.6 days for ZECUITY compared with 0.3 day in the control group.

**Application site reactions across clinical studies (Controlled single dose acute migraine study and long term safety studies)**

In the controlled and uncontrolled clinical studies combined (n = 796 unique ZECUITY-treated subjects), the frequency of application site reactions of clinical interest was: discoloration (5%), contact dermatitis (4%), irritation (4%), vesicles (3%), bruising (2%), and erosion (0.4%).

**DRUG INTERACTIONS****Ergot-Containing Drugs**

Ergot-containing drugs have been reported to cause prolonged vasospastic reactions. Because these effects may be additive, use of ergotamine-containing or ergot-type medications (like dihydroergotamine or methysergide) and ZECUITY within 24 hours of each other is contraindicated [see Contraindications].

**Monoamine Oxidase-A Inhibitors**

MAO-A inhibitors increase systemic exposure by 2-fold. Therefore, the use of ZECUITY in patients receiving MAO-A inhibitors is contraindicated [see Contraindications].

**Other 5-HT<sub>1</sub> Agonists**

Because their vasospastic effects may be additive, coadministration of ZECUITY and other 5-HT<sub>1</sub> agonists (e.g., triptans) within 24 hours of each other is contraindicated.

**Selective Serotonin Reuptake Inhibitors/Serotonin Norepinephrine Reuptake Inhibitors and Serotonin Syndrome**

Cases of serotonin syndrome have been reported during coadministration of triptans and SSRIs or SNRIs, SNRIs, TCAs, and MAO inhibitors [see Warnings and Precautions].

**USE IN SPECIFIC POPULATIONS****Pregnancy**

**Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. ZECUITY should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**

It is not known whether sumatriptan is excreted in human milk following transdermal administration. Because many drugs are excreted in human milk, and because of the potential for serious adverse reactions in nursing infants from ZECUITY, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

**Pediatric Use**

Safety and effectiveness in pediatric patients have not been established. Since clinical data to determine the frequency of serious adverse reactions in pediatric patients who might receive subcutaneous, oral, or intranasal sumatriptan are not presently available, the use of ZECUITY in patients under 18 years of age is not recommended.

**Geriatric Use**

Clinical trials of ZECUITY did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of concomitant disease or other drug therapy. A cardiovascular evaluation is recommended for geriatric patients who have other cardiovascular risk factors prior to using ZECUITY [see Warnings and Precautions].

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Brief Summary of ZECUITY Prescribing Information ZEC-001

ZEC-40059 September 2014



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