IMMUNIZATIONS NEWSLETTER

PROVIDING GSA MEMBERS WITH UPDATES ON ADULT IMMUNIZATIONS

DECEMBER 2017

Developed by The Gerontological Society of America

FEATURES

News

- GSA, in partnership with the American College of Physicians and American Pharmacists Association, has released a publication on vaccines and immunity in older adults. It provides information on age-related declines in immunity, how vaccines address the decline, and practical tips for getting patients vaccinated.

- On November 7, GSA sponsored a briefing featuring three programs that have successfully raised adult immunization rates in health systems and communities. Access the online slide presentations from Betty Chewning, PhD, University of Wisconsin School of Pharmacy; April Green, PharmD, Ochsner Health System; and Michael Wofford, PharmD, California Medi-Cal Pharmacy Benefits Division.

Resources

- The “Care for Older Adults? Care About Flu!” toolkit contains educational materials as well as customizable resources that can be used to remind patients about the importance of annual flu vaccination. The infographic on the next page (Figure 1) and other supportive materials are available on the website of the National Foundation for Infectious Diseases.
Care For Older Adults?
Care About Flu!

**Adults 65+ Are At Higher Risk**

- **50%-70%** of flu-related HOSPITALIZATIONS
- **UP TO 85%** of flu-related DEATHS

**Increase** in the risk of HEART ATTACK AND STROKE – even weeks after recovery.

**Decline** in general health and abilities MAY BE PERMANENT.

**Annual Vaccination Is Essential To Protect Adults 65+ Against Flu**

**Boost Immune Response**

Immune systems weaken with age, however SPECIFICALLY-DESIGNED VACCINES help PROTECT OLDER ADULTS against flu by creating a stronger immune response.

**Talk To Your Patients**

**RECOMMEND VACCINATION**

Older adults are much more likely to get a flu shot when it is offered or recommended by a healthcare professional.

**DISCUSS OPTIONS**

Talk to patients 65+ about the importance of annual flu vaccination and specific vaccines most beneficial for them.

*FIGURE 1*
With the addition of the new herpes zoster subunit vaccine to the adult immunization schedule, the Centers for Disease Control and Prevention (CDC) now recommends two doses of vaccines that prevent shingles and pneumococcal disease. Letting patients know which vaccines they need and at what time is critical to ensuring that patients receive optimal protection as provided by the two-dose series for each of these vaccines. A reminder-recall system can sound overwhelming for a busy office, but it doesn’t have to be.

Two important components of a reminder–recall system are method and timing. Methods can be as simple and inexpensive as a postcard reminder (HIPAA-compliant, of course) that a patient fills out upon receiving the first dose, automated phone calls or texts, and/or use of the state immunization information system. All of these methods are recommended by The Community Guide for increasing rates.

Timing is also important so that your practice is not overwhelmed. Consider pulling a list of patients whose vaccines are due (or overdue) from your electronic medical record or registry once a month or once every few months and sending out reminders in a staged approach—send 20, 50, or 100 at a time, depending on your capacity. Start by sending reminders during your least busy month. The CDC offers online advice on implementing a reminder–recall system.

When looking at effectiveness figures for vaccines against difficult diseases, members of the Advisory Committee on Immunization Practices (ACIP) are not accustomed to seeing figures above 90%. When advising the CDC on what to include in the adult immunization schedule, ACIP members are hesitant to express a preference for one product over another—particularly when considering a new vaccine with indications similar to an older product with the advantages of real-world data.

The recently approved herpes zoster subunit vaccine (HZ/su; Shingrix, GlaxoSmithKline [GSK]) bent those tendencies at ACIP’s October meeting. Convening in Atlanta to consider recommendations for the new shingles vaccine, members dealt with three motions that incorporated the issues discussed in the August issue of the NAVP Immunizations Newsletter:

- Should ACIP recommend HZ/su for vaccination of immunocompetent adults 50 years of age or older?
- Should ACIP recommend HZ/su for individuals previously vaccinated with zoster vaccine live (ZVL; Zostavax, Merck)?
- Should ACIP recommend a preference for HZ/su over ZVL?
All three questions were answered affirmatively, the first two in near-unanimous votes but the last by the slimiest of margins, 8–7. To produce the impressive folio for the HZ/su vaccine that led to this ACIP support, GSK used a 21st century approach to vaccine design that portends dramatic improvements in vaccine effectiveness even against diseases such as malaria and HIV and reductions in the time needed to bring safe and effective products to market.

Let's look at the technology backstory on HZ/su and some of the challenges it faces as it moves into widespread clinical use in the United States.

**BIOLOGICAL SCIENCES**

For basic scientists, the moral of the HZ/su vaccine story is that technology works. Researchers built this vaccine using recombinant methodology for the antigen and evidence-based design for the adjuvants; the result is a highly effective, safe, and cost-effective vaccine for preventing shingles whose use has now been endorsed broadly by the world’s foremost panel of immunization experts.

Vaccine effectiveness is particularly noteworthy for the HZ/su vaccine when it is used in people in their 80s. In this group, age-related immunosenescence is a particular concern, and vaccine effectiveness of ZVL has been quite low in those aged 80 years or older.

Rapid rates of waning immunity have also been a concern with the current vaccine. As explained in the August issue, ACIP’s recommendation to delay use of ZVL until 60 years of age was based on waning of immunity by year 4 following vaccination. Because HZ/su is more effective and has more durable immunity, ACIP was able to recommend its use at age 50 years—a distinct advantage since 1 in 5 cases of shingles in older adults occurs during this decade of life.

A recent article in *Current Opinion in Immunology* provides insights into how HZ/su was developed. An optimal combination of antigen and one or more adjuvants “can be more evidence based and can speed up the clinical development program for new adjuvanted vaccines,” the GSK authors wrote. Nobel Prize–winning research into receptors on innate immunologic cells is being combined with new knowledge of immune system control and regulation in developing products for testing in preclinical systems and early clinical trials.

Some of the new adjuvants go far beyond the general effects of aluminum salts (alum), which remain the benchmark by which other approaches are measured. The adjuvants used in formulation of the HZ/su product are liposomes (AS01), which are dispersed lipid vesicles containing toll-like receptor-4 ligand (monophosphoryl lipid A) and saponin QS-21. AS01 presents the antigen to immunologic memory cells more effectively, leading to an enhanced antibody response among both T- and B-cells.

**HEALTH SCIENCES**

For health professionals, the shift toward HZ/su as the primary option for shingles prevention has several potential pluses. The product is refrigerator stable (ZVL requires storage in a freezer, which many health settings do not have available for storing biological products). Cost-effectiveness figures are solid, with an average of approximately $31,000 per quality-adjusted life–year and no problems identified on sensitivity analysis.
Two challenges are evident. One is that grade 3 reactions are common with the two-dose intramuscular series needed for HZ/su vaccine (17% of those in one HZ/su efficacy trial reported grade 3 symptoms, compared with 3.2% of those receiving placebo; in another trial of older adults, nearly 80% of patients reported injection site or systemic reactions with HZ/su, compared with 29.5% in the placebo group). The other is the problem of adherence/recall with two doses of the HZ/su vaccine; providers (including pharmacists) will need effective means of getting patients to return to complete the regimen 2 to 6 months after the initial dose.

An additional concern for clinicians is how to handle revaccination of those who previously received ZVL. The ACIP said to allow 8 weeks to elapse before beginning the HZ/su series. This leaves it up to providers to decide when HZ/su vaccine is advisable for a specific patient. For patients in their 60s who received ZVL, most clinicians would likely wait a few years; for patients in their 80s, in whom shingles is more common and waning of immunity can be very rapid (within a year in some people), prompt revaccination could be considered.

While ACIP members struggled mostly with science and clinical results in reaching their decision to make a preferential recommendation for use of HZ/su, policy and coverage factors were mentioned during the debate. As long as the Affordable Care Act remains in effect, insurers have to cover the entire cost of ACIP-recommended vaccines. Knowing this, some ACIP members likely voted for the preferential recommendation so that employee providers would have the superior HZ/su product available for those aged 50 years and older; without the preference, coverage and inventory decisions might be based solely on price rather than effectiveness.

The Medicare Part B/Part D divide for vaccines is a growing concern among physicians (see the January/February 2017 issue of this newsletter). Zoster vaccine is a Part D benefit, which means that those on Medicare will be immunized mostly in pharmacies. However, with an ACIP recommendation for HZ/su administration beginning at age 50 years, many younger patients will be able to receive the vaccine from physicians with reimbursement through private insurance plans. Storage in the refrigerator will also increase the number of clinicians willing to maintain an inventory of the new vaccine.

Advances in vaccine technology and medical research are great, but to paraphrase former Surgeon General C. Everett Koop, immunizations are only useful when people get them. Immunization rates among adults continue to be low and for most vaccines, well below target goals set in the Healthy People 2020 program. For zoster, the goal was set at just 30%—the ZVL product was relatively new when the targets were set, and in 2008, only 6.7% of those aged 60 years or older had been immunized. The proportion of immunized patients 60 years of age or older is approaching 30% with the ZVL product—a good start but paltry when one considers that the number needed to vaccinate to prevent one case of shingles is only a dozen or so.
Some antivaccine advocates are claiming that people do not need vaccines if they take other measures to stay healthy. A search of the Web will uncover “Vaccines and Other Things to Avoid to Stay Healthy” videos and sites that claim, “Vaccines don’t save lives, healthy immune systems do!” In fact, both healthy lifestyles and vaccines are needed. Nutritious foods and healthy lifestyles are important, but do not stop the natural age-related decline in immunity. Vaccines can boost immunity and are critical for stopping pathogens that can infect anyone—the young, the old, the healthy, the infirmed.

Several vaccines are needed to protect people as they move from middle into old age and their immune systems decline. Gerontologists in all fields should increase their efforts with older people to reinforce pro-vaccine messages, make strong recommendations for people to get immunized against shingles and other diseases, and identify which immunizations they need and where they can get them.

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**SOURCES AND RESOURCES**

- Advisory Committee on Immunization Practices—agendas, minutes, and archives.