

**Shingles---Did you know...?**

- ✓ There are about a million new cases of shingles each year in the United States.
- ✓ Anyone who has had chicken pox can get shingles. That means 95% of adults are at risk.
- ✓ Approximately one-third of the U.S. population will get shingles. The risk rises after 50 years of age. Half of people living to age 85 have had or will get shingles.
- ✓ More than half of older adults do not understand the seriousness of shingles and its complications.
- ✓ Among those who get shingles, more than one-third will develop serious complications. The risk of complications rises after 60 years of age.
- ✓ Prompt treatment is essential to control acute symptoms.
- ✓ There is a new vaccine that can lower the risk of getting shingles.

***CDC Seeks to Protect Older Adults with Shingles Vaccine Message***, describes shingles and informs about the new shingles vaccine. Shingles is an extremely painful and debilitating rash that can lead to even more severe complications and have a major impact on quality of life. Shingles (also called herpes zoster) occurs when the varicella-zoster virus – the same virus that causes chickenpox – is reactivated in the body. There are about a million new cases of shingles each year in the United States. Older adults are particularly vulnerable to developing shingles and more prone to complications from shingles. Yet, research shows, more than half of older adults do not understand the seriousness of shingles and its complications. Prompt treatment is essential to control acute symptoms, but preventing shingles in the first place is the best approach. There is a new vaccine (Zostavax) that can lower the risk of getting shingles. CDC is working to educate health professionals and the public about the importance of this new vaccine for adults age 60 and older.

**For More Information:**

<b>At CDC:</b>	<b>At National Association of Chronic Disease Directors:</b>	<b>At CDC Healthy Aging Program:</b>	<b>At Health Benefits ABCs:</b>
<b>Curtis Allen</b> 404-639-8487 <a href="mailto:callen@cdc.gov">callen@cdc.gov</a>	<b>Jeanne Alongi</b> 916-452-2440 <a href="mailto:alongi@chronicdisease.org">alongi@chronicdisease.org</a>	<b>Maggie Moore</b> 770-488-5598 <a href="mailto:mmoore6@cdc.gov">mmoore6@cdc.gov</a>	<b>William F. Benson</b> 202-255-2001 <a href="mailto:b.benson@hbabcs.com">b.benson@hbabcs.com</a>

*\*For additional information, the complete article, “CDC Seeks to Protect Older Adults with Shingles Vaccine Message” begins at **Page 2***

## **CDC Seeks to Protect Older Adults With Shingles Vaccine Message**

*“Shingles is an illness that really decreases the quality of life for senior citizens. The good news is that there is a vaccine that can help maintain their quality of life at a higher standard.”* — Dr. Martin Myers, National Network for Immunization Information

Shingles — an extremely painful and debilitating rash that can lead to even more severe complications — has been called “the scourge of the elderly” (Wood, 1995). What if there were a vaccine with few side effects that could cut in half the chance of an older adult getting shingles and, perhaps more importantly, reduce the severity of complications? Wouldn’t every eligible older adult in America roll up his or her sleeve to receive the vaccine?

Such a product — Zostavax (“Zos-tah-vax”), an injectable vaccine, has been licensed by the Food and Drug Administration (FDA) and recommended for one-time administration to most adults age 60 or older by the Centers for Disease Control and Prevention (CDC). The Census Bureau estimates there are 50.6 million people age 60 or older in the United States. Yet only 1 million doses of Zostavax were distributed in the first year the vaccine was on the market (through the end of June 2007), according to its manufacturer, Merck & Co., Inc. This underscores how vital it is to educate both physicians and consumers about the seriousness of shingles as a painful and debilitating disease, and the importance of the shingles vaccine.

### **WHAT IS SHINGLES?**

*“Shingles is a very different kind of disease than the ones we usually talk about. It is a reactivation of a disease rather than a new infection.”* — Megan Lindley, CDC Immunization Services Division

The disease known as shingles (also called herpes zoster) occurs when the varicella-zoster virus (VZV) — the same virus that causes chickenpox — is reactivated in the body. Like all herpes viruses, VZV remains in the body for life. Even after a child recovers from chickenpox, the virus remains dormant in the nerve roots (dorsal root ganglia). As a person’s immunity to VZV begins to decline at the cellular level at older ages, the VZV virus can travel back up the nerve and reach the skin, causing the painful rash known as shingles. The blistering rash is usually limited to a small area on one side of the body, often on the face or torso. Shingles also can produce typical virus symptoms: chills, fever, upset stomach or headache.

A typical case of shingles might go like this: An active 62-year-old person —who plays tennis three times a week, volunteers in the community and is socially active — develops a rash on one side of the chest. The skin becomes red, blistered and painful. The rash occurs in a band-like area, which is the region supplied by the particular involved nerve. Clusters of small bumps become fluid-filled blisters,

which later drain and form crusted scabs. The weight of clothing or a passing breeze can cause agony. Even sitting, sleeping and eating are aggravating if those activities put pressure on the sores. The patient needs to get to a doctor to receive anti-viral medicine as soon as possible. Anti-viral medications can reduce the severity and duration of shingles, but do not prevent the development of postherpetic neuralgia, which is responsible for much of the severe illness of shingles in older adults (Oxman, 2005). Anti-virals have been shown to reduce other complications, such as those involving the eye (ophthalmic herpes zoster). The rash may continue for two to four weeks, but eventually improves and the pain diminishes. The person then returns to a normal schedule.

For other people who develop shingles, the story is different. They develop chronic pain and serious complications that make it difficult to sleep, leave the house or shop (Katz, 2004; Schmader, 2007). Sometimes they never return to normal activities, and become depressed and reclusive because of long-term pain and disability.

Complications develop in somewhere between one-third and one-half of older adults with shingles; the percentage rises with the age of the person in whom shingles develops (Insinga, 2007; Oxman, 2005). The most frequent complication is the chronic pain syndrome called postherpetic neuralgia (PHN). PHN is the occurrence of persistent pain after the shingles rash heals; it can last for months or even years. Only rarely does PHN cause disability and suffering for the rest of the patient's life.

Studies of pain severity have shown that the long-term pain of PHN exceeds pain scores for childbirth, musculoskeletal pain, osteoarthritis and chronic cancer pain (Katz, 1999). In one study, 42% of patients referred to their worst shingles pain as "horrible" or "excruciating" (Katz, 2004). As pain levels increase, the person is more likely to have a decline in physical and social functioning and an increase in emotional distress (Katz, 2004). Patients with more severe pain during the initial stage of shingles may be at higher risk for developing PHN (Wood, 1995).

Research puts shingles and postherpetic neuralgia on a par with congestive heart failure, diabetes and depression for disrupting a person's quality of life (Lydick, 1995). Thus, shingles can have a major impact on morbidity, lost work productivity and quality of life in older adults (Hornberger, 2006; Oxman, 2005).

"Shingles can really blight the lives of older people," commented Michael Oxman, MD, Study Chairman of the Department of Veterans Affairs' (VA) Shingles Prevention Study and Professor of Medicine and Pathology, University of California, San Diego and Staff Physician (Infectious Diseases) at the VA San Diego Healthcare System. "I have seen active people end up in a nursing home due to PHN," Dr. Oxman said.

In addition to the excruciating pain of PHN, other complications of shingles may include scarring, secondary bacterial infections, pneumonia, visual and hearing impairments and, rarely, death. If left

untreated, 10% of patients whose shingles affects an eye will experience severe visual loss, eyelid scarring or chronic in-turning of the eyelashes (Severson, 2003).

Although shingles is not highly communicable, it is a public health concern because of the serious complications, the detrimental impact on quality of life and the cost of care. The Agency for Healthcare Research and Quality recently estimated that an average of \$566 million per year is spent on health care for shingles and its complications (AHRQ, 2007). Another study estimated that the overall costs of shingles and PHN may be as high as \$1.7 billion a year, including health care costs and productivity losses (Dworkin, 2007).

The AHRQ report, using data from the 2003-2005 Medical Expenditure Panel Survey, found that the average expenditure for shingles-related treatment was \$525 per person, including \$317 for visits to physicians and \$157 for prescription medicines. Among those age 65 and older with shingles, the AHRQ analysis found that 40.2% of expenditures for shingles treatment were made by Medicare, 29.3% by individuals and 21.2% by private insurers.

## **WHO GETS SHINGLES?**

Shingles affects an estimated 1 million or more individuals in the United States each year — almost half of those cases are among people age 60 or older, for whom zoster vaccine is recommended (Oxman, 2005).

“Anyone who has ever had chicken pox ... is at risk for shingles,” explained Joan Benson, MD, MPH, Executive Director for Policy, Public Health and Medical Affairs for Global Vaccines and Infectious Disease at Merck & Co., Inc. Studies show that over 95% of all adults have had chickenpox, even if they do not recall the chickenpox episode (Kilgore, 2003).

Experts estimate that somewhere between 20% and 30% of people develop shingles over their lifetime (Schmader, 2002). Because risk rises with age, by age 85 approximately 50% of adults that old have had or will have shingles (Schmader, 2002). In addition, older adults are more likely than younger adults to have a more severe case of shingles and to develop PHN (Oxman, 2005).

It is not clear why some people develop shingles and others do not, but it appears to be connected to immunity. The risk for getting shingles begins to rise around age 50, because older adults tend to have weaker immune systems. People more likely to get shingles also include those with HIV infection or cancer, or those who are receiving chemotherapy, radiotherapy, immunosuppressant drugs or corticosteroids (steroids).

“The predominance of epidemiological data shows shingles is more common among women, and that is controlling for age and the fact that women live longer,” said Rafael Harpaz, MD, MPH, an epidemiologist with CDC’s National Center for Immunization and Respiratory Diseases. One study found 60% of the people who got shingles were women and 40% were men (Insinga, 2005).

Studies conducted in the United States and the United Kingdom indicate that shingles are less common in the black population than among whites, Dr. Harpaz said.

## **HOW IS SHINGLES TREATED?**

*“The anti-viral drugs generally don’t have many interactions and they are only taken for a transient period of time.”* — Dr. Ken Schmader, Duke University

Most cases of shingles can be managed in the primary care setting, but specialists are sometimes required if the eyes, lungs or other organs are involved, or if a pain specialist is needed.

Appropriate and immediate treatment of herpes zoster can control acute symptoms and reduce the risk of longer term complications. Starting anti-viral medication within 72 hours of the onset of shingles can reduce the pain and the length of time the outbreak lasts. Anti-viral medicines used to treat shingles include acyclovir (Zovirax), famciclovir (Famvir) and valacyclovir (Valtrex). Topical antibiotics may be prescribed if the blisters become infected. A medicated lotion (such as Benadryl or Caladryl) or astringent

soaks (such as Bluboro or Domeboro) may relieve pain and itching, according to the American Academy of Family Physicians. Pain medicine (analgesics or opioids) also may be prescribed for shingles or PHN.

While anti-viral drugs are generally well-tolerated by older adults, “the more difficult problem occurs when older adults are being treated for pain and prescribed analgesics,” according to Kenneth Schmader, MD, a geriatrics professor at Duke University who is also the co-investigator for the Shingles Prevention Study, a VA Cooperative Study Program that looked at the efficacy of a shingles vaccine. “There, things get trickier,” Dr. Schmader said. “Opioids can have a terrific amount of side effects in older adults, such as dizziness, constipation, nausea, vomiting, and they have to be prescribed pretty carefully.” These drugs also could interact with other medications affecting the central nervous system, such as anti-depressants, anti-psychotics or benzodiazepines, explained Dr. Schmader.

Shingles cannot spread to cause other cases of shingles in exposed persons. However, the shingles rash does contain VZV, which can be transmitted to cause chickenpox in persons (mostly younger children) who have never had chickenpox or never been vaccinated with the varicella vaccine. Shingles is considerably less contagious than chickenpox, and it is generally not necessary to isolate the affected person while the rash is present. Covering the rash with dressings or clothes can reduce the risk of transmission further.

#### **THE VACCINE FOR PREVENTING SHINGLES**

*“Shingles is a very prevalent disease, is more common among older adults, and is more serious as you age. So we are really concerned that older adults get vaccinated as soon as possible before they are at risk for serious complications of the disease.” — Megan Lindley, CDC*

Fortunately, researchers have developed a preventive vaccine, Zostavax, sold by Merck. Zostavax is a live, attenuated vaccine, meaning it is a living organism that has been weakened and adapted to provide immunity without causing illness. Researchers believe the vaccine works by boosting VZV-specific immunity. Zostavax is a stronger version of the same varicella vaccine that is given to children to prevent chicken pox. It is important to point out that the vaccine is for preventing, not treating, shingles.

Approved by the FDA in May 2006, Zostavax is licensed as a one-dose vaccine for people age 60 years or older. The federal Advisory Committee on Immunization Practices (ACIP), an advisory body to CDC, voted in October 2006 to recommend the vaccine. Those recommendations will be published shortly in *Morbidity and Mortality Weekly Report (MMWR)*. ACIP recommendations become official CDC policy when published in the *MMWR*.

“Zostavax is about 50% effective in preventing shingles, but the exciting thing for me as an older person myself is that it reduces my chance of having shingles and it reduces my chance of having PHN, which is the awful complication of shingles,” said Martin Myers, MD, director of the National Network

for Immunization Information in Galveston, Texas. “My wife and I were at the head of the line to get the vaccine,” he added.

Research clearly shows that adults age 60 or older can have a significant benefit from the Zostavax vaccine (Oxman, 2005; Pellissier, 2007). Based on the findings of the Shingles Prevention Study, a large clinical trial that tested Zostavax versus placebo in 38,000 adults who were age 60 years or older, the vaccine reduced:

- the overall incidence of shingles in older adults by about 51% and
- the incidence of PHN by 67%.

The study also found that the vaccine’s effectiveness in reducing the incidence of shingles drops with the age of the vaccine recipient. For example, Zostavax was 64% effective for those age 60-69 years, 41% effective for those ages 70-79 years and 18% effective for those age 80 years or older. However, the number of cases of shingles and PHN among people age 80 or older is so high that vaccinating this population “actually has major impact,” Dr. Harpaz said, particularly since the effectiveness of the vaccine at preventing PHN is better maintained in persons age 80 and older. Indeed, the oldest adults are most likely to suffer detrimental effects from shingles and PHN. They have a harder time seeking and obtaining medical care to obtain anti-viral or pain medication. Furthermore, they tend to be frailer, with multiple chronic conditions and “they are least able to tolerate PHN and the powerful medications used to treat the pain of PHN,” Dr. Harpaz said. “People of this age have little reserve, and are least able to handle the debilitating effects of shingles and PHN.”

Considering how severely shingles can impact people, and the vaccine’s reduction of the risk of developing PHN, this is considered an important vaccine for older adults of all ages.

## **PRESCRIBING THE VACCINE**

“The vaccine is more effective in people ages 60-69, so it is probably better that they get vaccinated at that age,” said Megan Lindley, MPH, coordinator of the Shingles Vaccine Implementation Group in CDC’s Immunization Services Division. “Although it is not 100% effective, shingles is so common that having people vaccinated against the disease should have a profound effect on public health.”

There are no contraindications for most older people with existing chronic disease who may be taking medications. “There is no problem giving the vaccine to older people who are on multiple medications,” explained Dr. Schmader. “The only concern is that individuals who are on immunosuppressant agents, like high-dose prednisone or cancer chemotherapy, should not be getting the shingles vaccine.” The vaccine should not be given to people who have immunodeficiencies due to AIDS,

leukemia, lymphoma or malignant neoplasms affecting the bone marrow or lymphatic system. It is also not recommended for women who are pregnant.

Frailty alone is not a barrier to getting the vaccine. “The issue here is that the people in frailest health are also the people most at risk for complications of zoster and so to my knowledge there is not a contraindication for people who are frail, unless they have immunocompromising conditions,” said Walter Orenstein, MD, director of the Emory University’s Program for Vaccine Policy and Development.

It is considered safe to get Zostavax at the same time as an influenza vaccination (Kerzner, 2007).

As with most vaccines, common side effects include mild reactions (discomfort, swelling or redness) at the injection site, headache or itching. No serious problems have been identified from the shingles vaccine, CDC said.

Zostavax is being closely monitored for unusual or severe problems, as are all vaccines. A post-marketing study will continue to assess whether more serious adverse events occur more frequently among those who received the vaccine. Vaccine recipients should report to their doctor if anything unusual happens immediately following vaccination, including allergic reactions (difficulty breathing, wheezing or hives), a high fever or behavior changes. If someone does experience a serious reaction, they should ask their doctor or nurse to report it by filing a Vaccine Adverse Event Reporting System (VAERS) form, or an individual can file a report online by going to [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or calling 1-800-822-7967.

## **PAYING FOR THE VACCINE**

Merck sells the vaccine to health care providers for \$161.50 for a single dose, or \$1,539 for 10 doses. Physician administration fees and other charges can bring the price for consumers to somewhere between \$165 and \$300 per vaccination. That is substantially more than older adults are used to paying for an influenza or pneumococcal vaccine. Adult vaccine costs are approximately \$11 to \$15 for influenza, \$24 for pneumococcus, \$180 for the three-dose series of hepatitis B, \$120 for the two-dose series of hepatitis A and \$134 for the two-dose series of varicella. Merck said it conducted an extensive health economics analysis to help establish an appropriate price for Zostavax.

The Medicare Part B program, which covers part of the costs of care by physicians, outpatient hospitals, home health agencies and other health services for older adults, generally does not offer vaccines for preventing diseases. The only exception has been the vaccines for influenza, pneumococcal disease, and hepatitis B for those at increased risk. Those three vaccines were written into Medicare Part B law by Congress. Congress has not passed a law adding Zostavax to the list. The Partnership for Prevention, a public health policy organization, has recommended that Congress give the Medicare

program authority to add and remove coverage for preventive services without waiting for congressional action.

Starting in 2008, Congress required all Medicare Part D prescription drug plans, which are administered by private contractors, to include all commercially available vaccines not covered by Part B. “The vaccine should be on all Part D formularies in 2008,” said Jeffrey Kelman, MD, MMSc, Chief Medical Officer of the Center for Beneficiary Choices at the Centers for Medicare and Medicaid Services (CMS). However, Part D participants may have to meet a plan’s requirement for deductibles or copayments, and coverage may vary depending on what stage of prescription drug coverage (initial coverage period, gap or “donut hole,” catastrophic coverage) they are in. Starting in 2008, vaccine administration fees also are covered under Part D.

Older adults who get their prescription drug coverage through a Medicare Advantage Prescription Drug Plan also will be able to obtain vaccines under their plans, Dr. Kelman said.

Both Dr. Orenstein and Dr. Schmader said that coverage for Zostavax should be in Medicare Part B, not Part D. “But that is unlikely to happen,” Dr. Schmader added. “It takes an act of Congress to get something into Part B.” Putting Zostavax under Part D means that physicians have to get used to a different reimbursement system than they are accustomed to for vaccines covered under Medicare Part B.

Dr. Kelman outlined three ways that providers can be reimbursed for providing vaccines to older adults with Part D prescription drug coverage:

- 1) An in-network provider can charge the Part D plan for the vaccine and administration.
- 2) An out-of-network physician can bill the beneficiary, who must seek reimbursement from the Part D plan, or the physician can use a new Medicare Web portal device, which offers Web-assisted electronic physician billing to Part D plans.
- 3) A specialty pharmacy can send the vaccine to a physician’s office and the pharmacy then bills the Part D plan for the vaccine and the physician bills Part D for the administration fee.

For those adults not yet old enough to receive Medicare, some state Medicaid programs will cover the vaccine for low-income people who are ages 60-64. Private insurance plans may also cover the vaccine for beneficiaries 60-64 years old who do not qualify for Medicare.

For other low-income adults without insurance, Merck offers a vaccine assistance program (contact: 1-800-293-3881 or go to <http://www.merckhelps.com>).

## GETTING MORE PEOPLE VACCINATED

*“Any new vaccine has a gradual uptake. It takes awhile for people to start thinking about it.”*  
— Dr. Martin Myers, National Network for Immunization Information

So why haven't more older adults received Zostavax? Like many medical issues, the answer is complex. Part of the reason is that shingles is not highly communicable, rarely causes death and is not viewed by many as a major public health problem. In addition to cost issues outlined above, other barriers to vaccination involve the relative newness of Zostavax, the need for physician and public awareness and education about the vaccine, a medical system currently focused mostly on childhood vaccines, the need to keep Zostavax frozen until injected and, some say, the wording of the FDA package insert.

**Education Issues.** One key barrier for use of Zostavax is that physicians are not accustomed to new vaccines for adults. “This is the first new adult vaccine in a long time,” CDC’s Dr. Harpaz said. Compounding the vaccine’s newness is its modest effectiveness for reducing the incidence of shingles. Some older adults, and their physicians, may feel the vaccine is not worth bothering with, particularly as compared to pediatric vaccines which are typically much more effective. However, the shingles vaccine is about as effective for older adults as the influenza vaccine, which is widely utilized. “Physicians do not always appreciate the seriousness and potential severity of shingles, which can impact the strength of their recommendations to patients,” Dr. Benson noted.

The public also appears unaware of the serious nature of shingles. Two recent surveys — one conducted for the International Federation on Aging and the other for the American Pain Foundation (with funding from Merck) — found that many older adults (age 50+) do not know much about shingles. Among the startling findings of these two surveys: 1) Three-quarters of the respondents said that they knew only “some” (24 percent), “a little” (27 percent) or “almost nothing/not sure” (26 percent) about shingles. 2) About 50% of respondents did not consider themselves at risk for developing shingles despite having had chicken pox as a child. 3) About 40% said they would not take any immediate action if they had the initial signs of shingles, and half were unaware that there were medications to treat shingles. 4) About 60% of respondents were unaware that shingles can lead to chronic pain in some individuals.

“Unfortunately, the majority of consumers do not feel at risk for shingles,” Dr. Benson said. “This lack of disease awareness among consumers can impact their decisions to seek out preventative measures through vaccination.”

To help educate the public about shingles and Zostavax, Merck launched an education campaign via print media, the Internet and physician offices, and created a consumer website ([Shinglesinfo.com](http://Shinglesinfo.com)). Merck also provided financial support for the American Pain Foundation’s public education campaign, “Spotlight on Shingles: Know What You Can Do.” Other partners in that campaign include the Alliance

for Aging Research, Assisted Living Federation of America, National Council on Aging and Older Women's League.

For its part, CDC's National Center for Immunization and Respiratory Diseases has developed fact sheets, posters and up-to-date Frequently Asked Questions by physicians and the public featured on its vaccine website. This information will be distributed through partnership organizations and immunization program managers, as well as sent out on a listserv called "Immunization Works" for organizations interested in immunization issues. CDC also partners with the Immunization Action Coalition, which works to increase immunization rates through public education.

**Infrastructure Issues.** Another barrier to vaccination is the absence of an adult immunization infrastructure similar to that for children, said Dr. Myers, who also is the Director for Public Health Policy and Education of the Sealy Center for Vaccine Development at the University of Texas Medical Branch.

There are relatively few vaccines for older adults anyway, "so this is a big breakthrough to have a new vaccine to address another important problem in older adults," Dr. Schmader said.

Asked why society seems to be better at vaccinating children than older adults, Dr. Orenstein cited several reasons. 1) The vaccines used in adults generally are not as effective as those used for children, partly due to the more robust nature of children's immune systems. 2) Childhood vaccines are built into a routine schedule for "well child" visits. 3) There is no financial safety net for adult vaccination that is similar to the Vaccines for Children Program or funding from Section 317 of the Public Health Service Act, which provides grants for immunizing children who cannot afford vaccines. 4) The diseases against which adults are vaccinated, with the exception of zoster, may not be easily distinguishable from similar clinical illnesses that are caused by other infectious agents. That makes the benefits of vaccines more difficult to appreciate.

In addition, the National Immunization Surveys conducted by CDC to track vaccination coverage are largely focused on children, not adults. Vaccines designed only for older adults (such as pneumococcal polysaccharide and Zostavax) also lack a national Vaccine Injury Compensation Program (VICP) like that available for children's vaccines. VICP is a no-fault compensation program to resolve vaccine injury claims by providing compensation to people found to be injured by certain vaccines. According to Orenstein, CDC is considered a national leader on immunization issues; however, limited resources have resulted in a focus primarily on childhood immunization (Hinman, 2007).

The National Vaccine Advisory Committee — which is an advisory body to the National Vaccine Program Office at the U.S. Department of Health and Human Services — has called for expanding Section 317 to adult immunization programs and creating a Vaccines for Adults Program to ensure adults have access to recommended vaccines.

The Partnership for Prevention, in *Strengthening Adult Immunization: A Call for Action*, also called for programs and support for adult immunization. Those recommendations have been endorsed by the American Medical Association, American Public Health Association and other groups.

**Vaccine Storage Issues.** Another potential barrier to widespread use of the vaccine is the requirement that Zostavax must be kept frozen (5° F/-15°C or colder) when it is transported and stored, diluted just prior to administration and discarded if unused within a half-hour of preparing the vaccine. Not all primary care physicians have an appropriate freezer that is separate from a refrigerator. For offices without a free-standing freezer, Merck encourages physicians to refer appropriate patients to a pharmacy participating in the Merck Adult Vaccination Program, which allows pharmacists to provide vaccines where allowed by state law.

Meanwhile, Merck is working to develop a refrigerator-stable version (4°C) of the vaccine.

**Package Label.** FDA and ACIP (the advisory body to CDC) differed in some aspects of their recommendations about Zostavax. The ACIP said the vaccine should be given to people age 60+ regardless of whether or not they had a prior case of shingles. However, the package label approved by FDA states that Zostavax is not licensed for people who have had prior episodes of shingles because that population was not included in the Shingles Prevention Study. As a result, some health plans are not providing the vaccine to adults who have had shingles. For example, in its information for members, Kaiser Permanente for northern California states, “The U.S. FDA does not recommend this shot for people who have already had shingles.”

In reaching its recommendation, the ACIP determined that a reoccurrence of shingles is not as rare as was once thought, and it would be too burdensome for providers to determine if a patient had a prior episode of confirmed shingles, Dr. Harpaz with CDC noted. “We thought it would be a big barrier to using the vaccine” if patients had to be screened for a prior shingles episode, Dr. Harpaz said of the ACIP’s decision.

Dr. Oxman, who chaired the Shingles Prevention Study conducted at 22 sites, said the FDA’s package insert does not mention that the incidence of postherpetic neuralgia was reduced by 67% in the study. “The vaccine’s most important characteristic is its ability to reduce by two-thirds the incidence of clinically significant postherpetic neuralgia, which is responsible for much of the morbidity of shingles in older adults,” he said. Because the FDA did not include that data, the package label identifies only a 39% reduction in pain in those who developed PHN despite receiving the vaccine. The FDA concentrated on the risk of people developing PHN once they had shingles, “which was not a study endpoint,” according to Dr. Oxman. That is different from the reduction of the overall risk of getting PHN.

## **CDC's ROLE**

*“CDC needs to try to translate the technical information into simple-to-understand information for practicing physicians and for the public.”*  
— Dr. Walter Orenstein, former head of CDC's immunization program

CDC's role is to make public health professionals and the public aware of the vaccine and to work to reduce any disparities in health care, Dr. Harpaz said. “Our focus should be on enabling use of shingles vaccine, including educating providers, educating the public and reducing barriers to the availability of the vaccine, such as the financing and the storage/handling issues,” Dr. Harpaz said.

A CDC workgroup for the shingles vaccine has collaborated with CDC's Healthy Aging Program to educate professionals about the shingles vaccine, CDC's Lindley said. That partnership will help funnel information to the aging services network, consisting of state and local area agencies on aging, Indian programs that work with older adults, and service providers, as well as the Administration on Aging.

The recent addition of zoster immunization for all adults 60 years of age or older to the Adult Immunization Schedule also should help increase awareness among physicians.

In response to focus groups conducted with state immunization program managers, CDC developed some basic information on Zostavax so that immunization managers could update their materials, Lindley said. CDC also offers “Immunization Updates” via satellite broadcasts four times a year. These updates address storage and handling concerns and other questions that providers might have. The vaccine also is discussed at conferences and educational meetings for professionals on vaccine preventable diseases, said Gina Mootrey, DO, MPH, a medical epidemiologist, with CDC's National Center for Immunization and Respiratory Diseases. CDC's vaccine/shingles website (<http://www.cdc.gov/vaccines/vpd-vac/shingles/default.htm>) has a Q&A section on shingles vaccine, as well as slide sets from provider education sessions.

Disease tracking and monitoring (surveillance), often referred to as the “bread and butter” of CDC, also is important. Surveillance and epidemiological studies are ongoing throughout the year and information from these studies is presented at various conferences and in publications, Lindley said. The Varicella Active Surveillance Project (VASP), a CDC cooperative agreement with the Philadelphia Department of Public Health and the Los Angeles County Department of Health Services, collects population-based incidence rates for herpes zoster diseases in their communities. VASP monitoring had traditionally focused on those age 20 or younger, but CDC is moving to expand the surveillance to adults age 50 or older, Dr. Harpaz said.

Other CDC monitoring efforts include placing questions about shingles on various surveys, including the Health and Retirement Study and the National Health Interview Survey, Dr. Harpaz said. CDC is exploring the possibility of collecting shingles information through the Behavioral Risk Factor

Surveillance System and the Vaccine Safety Datalink, a collaborative project with managed care organizations to collect medical and immunization histories for more than 5.5 million people annually. CDC also would like to use Medicare data on shingles to help monitor trends.

## **FUTURE DIRECTIONS**

The success of any preventive vaccine program hinges on both public and physician education about the importance of vaccination. This is especially true because older adults are less likely to have a “well patient” visit when preventive measures might be considered. Clearly more public education is needed to ensure older adults and their caregivers are aware of the seriousness of shingles and its complications, and the importance of vaccination. Another prime area for education is vaccination reimbursement policy. “The best thing that could be done is for people to know if their insurance would fully cover the cost of this vaccine for them,” Lindley said.

CDC needs to continue to conduct surveillance and measure immunization coverage, work to minimize barriers to access, monitor vaccine use and impact, and track adverse events, said Dr. Orenstein, who is a former director of CDC’s National Immunization Program (now part of the National Center for Immunization and Respiratory Diseases).

MedPAC, an independent federal body that advises Congress on Medicare issues, has suggested that Congress should permit coverage for appropriate preventive vaccines under Medicare Part B instead of Part D. “If beneficiaries have to pay the full payment rate for vaccines and then seek reimbursement from their plans, physicians are concerned that the out-of-pocket cost will discourage beneficiaries from seeking preventive care,” MedPAC told Congress in 2007. Putting all vaccines under Part B would increase Medicare spending “by less than \$50 million for one year and by less than \$1 billion over five years,” according to MedPAC’s data. By comparison, Medicare’s overall health care expenditures were \$408 billion in 2006, according to the latest report from the Medicare Trustees.

Ongoing research also will determine future policy decisions, such as possibly lowering the recommended age for vaccination to 50, providing a “booster shot” at some time after the initial vaccination, using a higher dose of vaccine or allowing vaccination of people with some degree of immunosuppression.

The duration of the vaccine’s effectiveness over time in an individual is still unknown, because the vaccine is relatively new and immunity continues to decline with age. At present, the vaccine’s effectiveness has continued for the four years that the original study participants have been followed to date. If further research indicates that immunity fades over time, then a second vaccine, or “booster shot,” may be recommended. Dr. Schmader said, “My gut feeling is that the cell-mediated immunity gains that

we get with the vaccine are going to decline in older individuals, so that there probably will be a need for a booster at some point.”

Additional safety data for Zostavax will be analyzed after completion of a 10-year extension of the Shingles Prevention Study (in a study population of 7,000 people vaccinated under the initial program). “Merck plans to pursue an indication for people between 50 and 59 years of age” as well, Dr. Benson added. Other studies will evaluate the use of Zostavax concomitantly with other adult vaccines, Merck said. Merck also has committed to study the safety of high-dose Zostavax in approximately 5,000 people and the safety of Zostavax in about 300 people on low-to-moderate doses of steroids.

The Zostavax vaccine could be the start of something big in the adult vaccine world. “This is the start of a cutting edge for adult vaccines,” Dr. Schmader suggested. “We’ve had a paucity of research on vaccines for older adults in general. In the pediatric world, it seems we have had many more new vaccines.” Dr. Schmader pointed out that the pharmaceutical company Sanofi-Pasteur is testing a new tetanus and acellular pertussis vaccine for adults. Also, a new pneumococcal conjugate vaccine, different from the present pneumonia vaccine, is going to be investigated in the elderly, he said. There also is interest in developing a staph aureus vaccine against antibiotic-resistant staph infections.

Future policy directions may include guidance on shingles vaccination for nursing homes and other institutions where seniors live. “It is explicitly noted in the ACIP recommendations that nursing homes and other institutions should not fall through the cracks,” Dr. Harpaz said. “ACIP said that providers should be mindful of vaccinating such populations if it is medically appropriate for them.”

*This document is available online at [www.chronicdisease.org](http://www.chronicdisease.org) and at [www.cdc.gov/vaccines/news/media.htm#Reporters](http://www.cdc.gov/vaccines/news/media.htm#Reporters). It was written by Nancy Aldrich. William F. Benson was senior editor and project manager.*

## REFERENCES AND RESOURCES

### JOURNALS AND REFERENCES CITED:

- AHRQ, 2007: A. Soni, S. Hill, Agency for Healthcare Research and Quality, "Average Annual Health Care Use and Expenses for Shingles among the U.S. Civilian Noninstitutionalized Population, 2003–2005," Statistical Brief #194, <http://www.meps.ahrq.gov/papers/st194/stat194.pdf>.
- Dworkin, 2007: R. Dworkin, "Healthcare Costs of Acute and Chronic Pain Associated with a Diagnosis of Herpes Zoster," *Journal of the American Geriatrics Association*, 55(8):1168–1175, <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1532-5415.2007.01231.x>.
- Hinman, 2007: A. Hinman, "Adult Immunization: What Can We Learn from the Childhood Immunization Program?" *Clinical Infectious Diseases*, 44(12):1532–1535, <http://www.journals.uchicago.edu/doi/pdf/10.1086/519543>.
- Hornberger, 2006: J. Hornberger, "Cost-Effectiveness of a Vaccine to Prevent Herpes Zoster and Postherpetic Neuralgia in Older Adults," *Annals of Internal Medicine*, 145(5):317-325, <http://www.annals.org/cgi/content/abstract/145/5/317>.
- Insinga, 2005, R.P. Insinga, "The Incidence of Herpes Zoster in a United States Administrative Database," *Journal of General Internal Medicine*, 20(8):748–753, <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1490195>.
- Insinga, 2007: R. Insinga, "Acute/Subacute Herpes Zoster: Healthcare Resource Utilization and Costs in a Group of U.S. Health Plans," *Pharmacoeconomics*, 25(20):155-169(15), <http://www.ingentaconnect.com/content/adis/pec/2007/00000025/00000002/art00007>.
- Katz, 1999: J. Katz, "Measurement of Pain," *Surgical Clinics of North America*, 79(2):231-252, <http://www.ncbi.nlm.nih.gov/pubmed/10352653?dopt=AbstractPlus&holding=fl000.fl000m.isrctn>.
- Katz, 2004: J. Katz, "Acute Pain in Herpes Zoster and Its Impact on Health-Related Quality of Life," *Clinical Infectious Diseases*, 39(3):342, <http://www.journals.uchicago.edu/doi/abs/10.1086/421942>.
- Kerzner, 2007: B. Kerzner, "Safety and Immunogenicity Profile of the Concomitant Administration of Zostavax and Inactivated Influenza Vaccine in Adults Aged 50 and Older," *Journal of the American Geriatrics Association*, 55(10):1499-1507, <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1532-5415.2007.01397.x>.
- Kilgore, 2003: P.E. Kilgore, D. Kruszon-Moran, J.F.Seward, A. Jumaan, F.P. Van Loon, et al. "Varicella in Americans from NHANES III: Implications for Control through Routine Immunization," *Journal of Medical Virology* 70(Supplement 1):S111-8, <http://www3.interscience.wiley.com/cgi-bin/abstract/103519928/ABSTRACT>.
- Lydick, 1995: E. Lydick, "Herpes Zoster and Quality of Life: A Self-Limited Disease with Severe Impact," *Neurology*, 45(supplement 8):S52-S53, <http://www.ncbi.nlm.nih.gov/pubmed/8545021?dopt=Abstract>.
- Oxman, 2005: M.N. Oxman, "Shingles Prevention Study Group. A Vaccine to Prevent Herpes Zoster and Postherpetic Neuralgia in Older Adults," *New England Journal of Medicine*, 352(22):2271-2284, <http://content.nejm.org/cgi/content/abstract/352/22/2271>.
- Pellissier, 2007: J.M. Pellissier, M. Brisson, M.J. Levin, "Evaluation of the Cost-Effectiveness in the United States of a Vaccine to Prevent Herpes Zoster and Postherpetic Neuralgia in Older Adults," *Vaccine*, 25(49):8326-37, <http://www.ncbi.nlm.nih.gov/pubmed/17980938?dopt=Abstract>.
- Schmader, 2002: K.E. Schmader, "Epidemiology and Impact on Quality of Life of Postherpetic Neuralgia and Painful Diabetic Neuropathy," *Clinical Journal of Pain*, 18(6):350-354, <http://www.clinicalpain.com/pt/re/clnjpain/abstract.00002508-200211000-00002.htm;jsessionid=HPSBfhLhPVnnJ8LL2JYW2P1Vm2tQh1Thbkfy6Jp1NHJQcWxv1qv!1253064403!181195628!8091!-1>.
- Schmader, 2007: K.E. Schmader, "The Impact of Acute Herpes Zoster Pain and Discomfort on Functional Status and Quality of Life in Older Adults," *Clinical Journal of Pain*, 23(6):490-496, <http://www.clinicalpain.com/pt/re/clnjpain/abstract.00002508-200707000-00004.htm;jsessionid=HPSBfhLhPVnnJ8LL2JYW2P1Vm2tQh1Thbkfy6Jp1NHJQcWxv1qv!1253064403!181195628!8091!-1>.
- Severson, 2003: E. Severson, "Herpes Zoster Ophthalmicus in Olmsted County, Minnesota: Have Systemic Antivirals Made a Difference?" *Archives of Ophthalmology*, 121:386-390, <http://archophth.ama-assn.org/cgi/content/abstract/121/3/386>.
- Wood, 1995: M.J. Wood, "Shingles, Scourge of the Elderly. The Acute Illness," in: S.L. Sacks, eds. *Clinical Management of Herpes Viruses*, Washington, DC, IOS Press, <http://www.iospress.nl/loadtop/load.php?isbn=9789051992274>.

### **ADDITIONAL RESOURCES:**

*Age Page: Shingles*, <http://www.niapublications.org/agepages/shingles.asp>  
CDC Vaccines & Immunizations website, <http://www.cdc.gov/vaccines/>  
CDC Varicella Active Surveillance Project (VASP), <http://www.cdc.gov/vaccines/stats-surv/vasp/default.htm>  
*Herpes Zoster Vaccine Q&A (Shingles)*, <http://www.cdc.gov/vaccines/vpd-vac/shingles/vac-faqs.htm>  
Immunization Action Coalition, <http://www.immunize.org/zoster/>  
Medicare Learning Network article, <http://www.cms.hhs.gov/MLNMattersArticles/downloads/SE0727.pdf>  
Merck Adult Vaccination Program, 800-261-5579, <https://www.merckvaccines.com/srv/gw/mavp/enroll/landing.jsp>  
Merck information for physicians, [https://www.merckvaccines.com/zostavaxProductPage\\_frmst.html](https://www.merckvaccines.com/zostavaxProductPage_frmst.html)  
Merck shingles website, <http://www.shinglesinfo.com/>  
Merck Vaccine Reimbursement Support Center, 800-REIMBVAX, <http://www.vaccinesupportservices.com>  
Merck Zostavax website, <http://zostavax.com/>  
National Network for Immunization Information shingles vaccine information, [http://www.immunizationinfo.org/vaccineInfo/vaccine\\_detail.cfv?id=54](http://www.immunizationinfo.org/vaccineInfo/vaccine_detail.cfv?id=54)  
Partnership for Prevention, <http://www.prevent.org/content/view/106/54>  
*Patient Information about Zostavax*, <http://www.fda.gov/cber/label/zosmer052506pi.pdf>  
Shingles (Herpes Zoster) Vaccination, <http://www.cdc.gov/vaccines/vpd-vac/shingles/default.htm#patient>  
*Shingles* (Medline Plus), <http://www.nlm.nih.gov/medlineplus/shingles.html>  
*Shingles* (National Institutes of Health), <http://nihseniorhealth.gov/shingles/toc.html>  
*Shingles (Zoster): Questions and Answers: Information about the Disease and Vaccine*, <http://www.immunize.org/catg.d/p4221.pdf>  
*Shingles Disease - Questions and Answers (Herpes Zoster)*, <http://www.cdc.gov/vaccines/vpd-vac/shingles/dis-faqs.htm>  
*Shingles Interactive Tutorial*, <http://www.nlm.nih.gov/medlineplus/tutorials/shingles/htm/index.htm>  
*Shingles Vaccine: What You Need to Know*, <http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-shingles.pdf>  
*Shingles: Hope through Research*, [http://www.ninds.nih.gov/disorders/shingles/detail\\_shingles.htm#96673223](http://www.ninds.nih.gov/disorders/shingles/detail_shingles.htm#96673223)  
*Shingles: What Is Shingles, and Who Can Get It?*, American Academy of Family Physicians, <http://familydoctor.org/online/famdocen/home/common/infections/common/viral/574.html>  
*Spotlight on Shingles: Know What You Can Do*, [www.spotlightonshingles.com](http://www.spotlightonshingles.com)  
*Zostavax Questions and Answers*, <http://www.fda.gov/Cber/products/zosmer052506qa.htm>  
*Zoster (Shingles) Vaccine*, <http://www.cdc.gov/vaccines/recs/adult-specinfo.htm#zoster>

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