ANNENBERG CENTER FOR HEALTH SCIENCES
AT EISENHOWER
Imparting knowledge. Improving patient care.

PANEL perspectives

Optimizing the Prevention of Herpes Zoster in Older Adults

A CME Activity

Overview

Thomas M. File, Jr, MD, MSc, and **Stefan Gravenstein, MD, MPH,** examine the clinical impact of herpes zoster (HZ), including severe and life-altering complications, particularly in older adults. In addition to discussing the diagnostic and management challenges of HZ, Drs. File and Gravenstein emphasize the role of primary care physicians in the optimal prevention of HZ.

Content Areas:

- Epidemiology
- Risk factors
- Postherpetic neuralgia and other complications
- Incorporating prevention strategies into practice
- Overcoming barriers to vaccination

Faculty

Thomas M. File, Jr, MD, MSc
Chair, Division of Infectious Disease,
Summa Health System
Akron, Ohio
Professor of Internal Medicine and Master Teacher,
and Chair, Infectious Disease Section
Northeast Ohio Medical University
Rootstown, Ohio

Stefan Gravenstein, MD, MPH
Director of Center for Geriatrics
and Palliative Care
University Hospitals Cleveland
Medical Center
Professor, Case Western Reserve University
Cleveland, Ohio

Video Modules

This activity is supported by an independent education grant from Merck & Co.

Participate in interactive questions, download activity slides, and obtain your CE/CME credit online.
http://annenberg.net/herpes-zoster-cme

CE/CME Information

Target Audience
The target learning audience is primary care physicians and other health care providers who care for patients at risk for herpes zoster.

Learning Objectives
At the conclusion of this activity, participants should be better able to:

- Discuss the clinical impact of herpes zoster (HZ) and its related complications on older adult patients
- Identify patients who would benefit from HZ vaccination based on current guidance
- Detail practical strategies to engage patients in the prevention of HZ
- Employ patient-engagement strategies to overcome barriers to optimal HZ prevention

Accreditation and Certification
The Annenberg Center for Health Sciences at Eisenhower is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Annenberg Center for Health Sciences at Eisenhower designates this enduring material for a maximum of 2.0 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Disclosure Statement
In accordance with the Accreditation Council for Continuing Medical Education Standards, parallel documents from other accrediting bodies, and Annenberg Center for Health Sciences policy, the following disclosures have been made:

Thomas M. File, MD, MSc

Research Support	Nabriva
Consultant	Cempra, Melinta, Merck, Motif Bio, Nabriva, Paratek, Tetraphase

Stefan Gravenstein, MD, MPH

Research Support	National Institutes of Health, Sanofi Aventis, Seqirus
Consultant	Catapult Consultants, GlaxoSmithKline, Healthcentric Advisors, Janssen, Novartis, Pfizer, Seqirus
Advisory Board	Merck
Advisory	Sanofi Aventis

The faculty for this activity have disclosed that there will be no discussion about the use of products for non-FDA approved applications.

Additional content planners
The following have no significant relationship to disclose:

Eugene Cullen, MD (peer reviewer)
Eve Wilson, PhD (medical writer)

Annenberg Center for Health Sciences
John Bayliss, VP, Business Development, spouse is an employee of Amgen, Inc; all other staff at the Annenberg Center for Health Sciences at Eisenhower have no relevant commercial relationships to disclose.

The ideas and opinions presented in this educational activity are those of the faculty and do not necessarily reflect the views of the Annenberg Center and/or its agents. As in all educational activities, we encourage practitioners to use their own judgment in treating and addressing the needs of each individual patient, taking into account that patient's unique clinical situation. The Annenberg Center disclaims all liability and cannot be held responsible for any problems that may arise from participating in this activity or following treatment recommendations presented.

This activity is supported by an independent education grant from Merck & Co.

This activity is an online enduring material. Successful completion is achieved by reading and/or viewing the material, reflecting on its implications in your practice, and completing the assessment component.

The estimated time to complete the activity is 2.0 hours.

This activity was originally released in November 2016 and is eligible for credit through November 30, 2017.

Our Policy on Privacy
http://www.annenberg.net/privacy-policy/

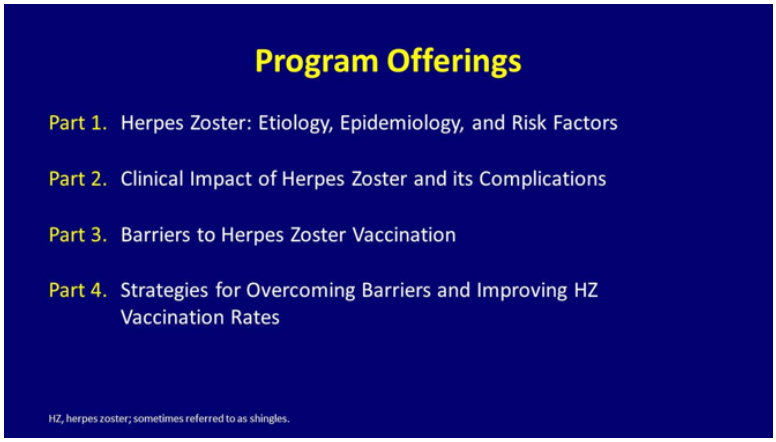
Contact Information
For help or questions about this activity please contact Continuing Education:
ce@annenberg.net

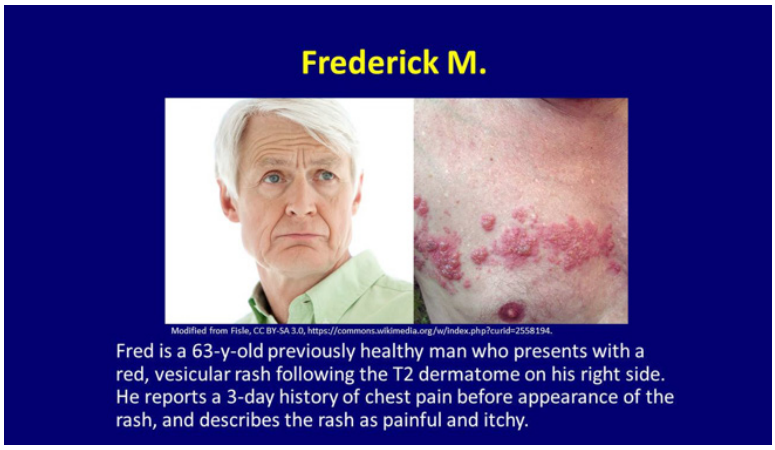
1 *Module 1: Herpes Zoster: Etiology, Epidemiology, and Risk Factors*

Dr. Gravenstein: Welcome to this program on optimizing the prevention of herpes zoster in older adults. What we hope to accomplish is to increase awareness of the impact of herpes zoster and its related complications on older adult patients, provide clarification regarding the latest guidance for herpes zoster vaccination, boost clinicians' confidence in recommending herpes zoster vaccination, and help to improve vaccination rates, thereby helping to improve primary prevention of herpes zoster.

I am Dr. Stefan Gravenstein, director of the Center for Geriatrics and Palliative Care at University Hospital Cleveland Medical Center, and professor of medicine at Case Western Reserve University Medical School in Cleveland, Ohio. With me is Dr. Thomas File, chair of the Infectious Disease Division at Summa Health System in Akron, Ohio, and professor of internal medicine and Master Teacher and Chair, Infectious Disease Section, Northeast Ohio Medical University, in Rootstown, Ohio.

Dr. File: This program is comprised of a series of 4 parts—4 different videos. The first video, which is this one, focuses on herpes zoster epidemiology and risk factors, and is intended to provide background and content for the other 3. The second video, which covers acute and chronic manifestations of herpes zoster, as well as complications of the disease, includes discussion of the sometimes very serious impact of herpes zoster on individuals' daily functioning and quality of life, and highlights vaccination as the best strategy for prevention. In the third video, we'll cover barriers to vaccination for herpes zoster, and this sets up a discussion in the fourth video of effective strategies for overcoming barriers and persuading patients to receive the vaccine.



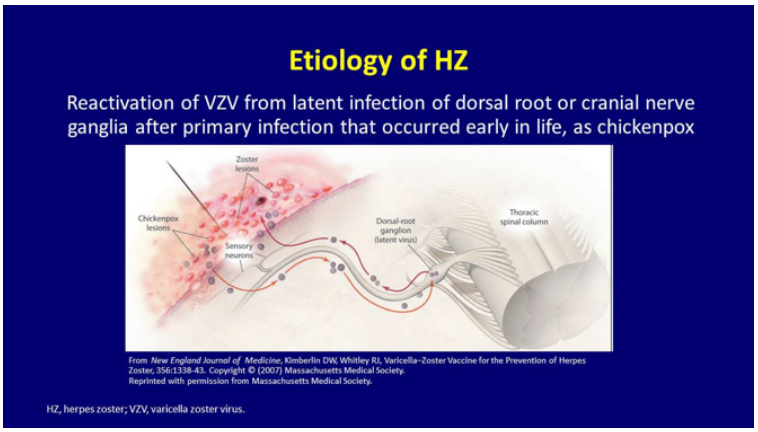


Dr. Gravenstein: Now, let's turn to the part 1 of the series: Etiology and Epidemiology of Herpes Zoster and Risk Factors for contracting the disease.

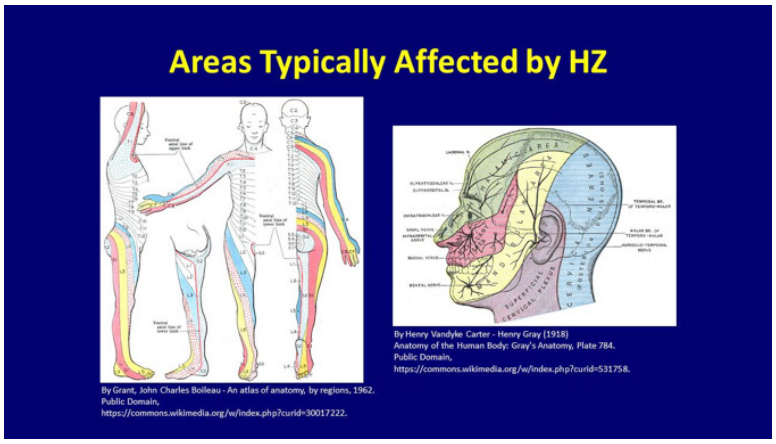
Here we have Frederick. Fred is a 63-year-old previously healthy man, and he comes with a 3-day history of some pain in his chest, and now has a red, vesicular rash following T2 dermatome on his right side. He describes the rash as painful and itchy.

Tom, could you explain what causes this eruption?

Dr. File: As you know, Stefan, each of us had chickenpox as a child, and so we know that herpes zoster is a reactivation of that same virus. As we look at this graphic here, when we had chickenpox, the vesicles, which are generalized on our body—they usually start on the trunk and the face, and they can spread over the whole body. The chickenpox rash lasts for about 2 to 4 weeks, but that's not the end of it, as we know, because the virus—or part of the virus—can travel down the sensory nerves to the ganglion root area of the spinal nerve and establish latency. It can remain dormant there for years—decades—but then it can reactivate. When it reactivates, it causes inflammation of the ganglion, which is usually associated with significant pain. Then the virus can travel back up the sensory nerve and cause the rash, the vesicles, at that site on the skin.

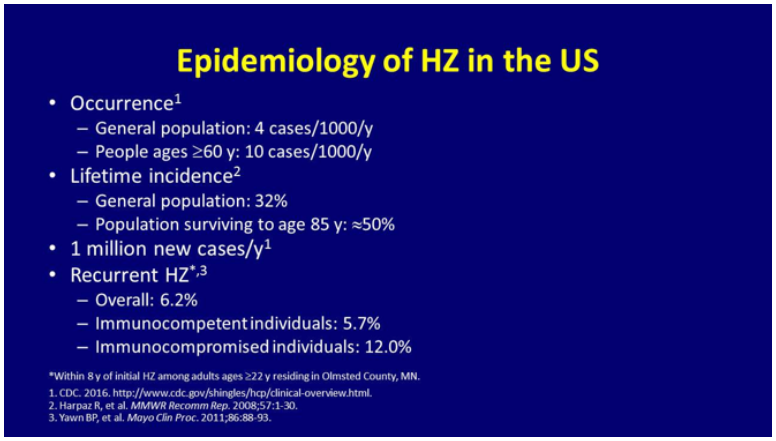


Now, we know that the dermatomes that will be involved in that rash are associated with the specific spinal nerves where reactivation occurs, and I'm showing you the mapping of the dermatomes of the spinal nerves on the left-hand part of this slide, and the cranial nerves on the right-hand part of the slide. Now, if we look where that patient's rash was, to me, it looks like it was either T3 or T4 of dermatome. Usually, in an immunocompetent host, it involves only 1 dermatome, but we know that in immunocompromised patients, it could involve multiple dermatomes.



Then if we refer to the cranial nerves, I want to point out the ophthalmic division of the trigeminal nerve, because if the rash involves the tip of the nose, which indicates involvement of the ciliary branch, we have to be concerned about significant infection in the eye. We'll be discussing that in one of the other videos.

Dr. Gravenstein: Zoster is much more common than most people realize. In the general population, it affects about 4 adults per thousand per year, and for those over the age of 60 years, it affects 2½ times that number: 10 cases per thousand per year. There's a lifetime chance of getting zoster of about 1 in 3. Those who make it to age 85, have roughly a 50-50 chance of getting zoster. We have a million new cases each year. In addition, zoster recurs in about 6% overall; and among immunocompromised individuals, the risk of zoster is about double, affecting about 12%.



When we're talking about immunocompromised individuals, we're referring to those that have malignant disease, such as metastatic cancer, or cancer that's requiring active treatment, such as radiation therapy, or immunosuppressive therapy. We're talking about people with organ transplants, including bone marrow transplants. We're talking about people on chronic steroids, such as for asthma or chronic obstructive pulmonary disease (COPD). So, there are quite a few people who are immunocompromised, and the degree of immunocompromisation relates directly to their degree of risk for developing zoster.

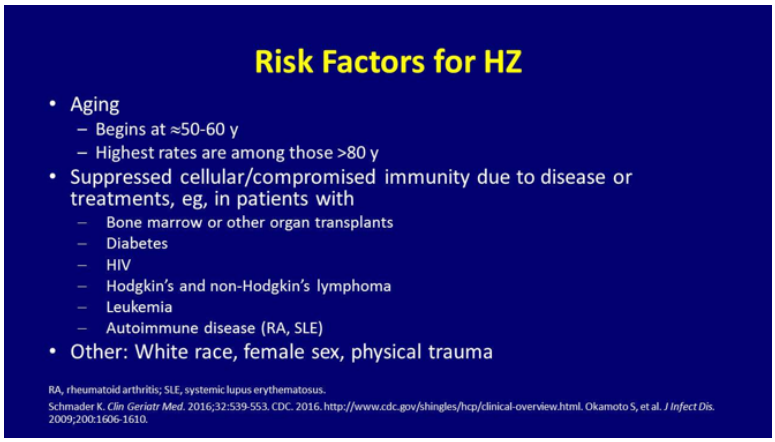
Dr. File: Where we're seeing a lot more of this is in patients who are receiving biologics, such as anti-tumor necrosis factor agents, for rheumatologic diseases, dermatologic diseases, and gastrointestinal diseases.

Dr. Gravenstein: The disease-modifying anti-rheumatic drugs (DMARDS).

Dr. File: Exactly. So, the risk of zoster is increased for a large portion of the population.

Dr. Gravenstein: Right.

Dr. File: So we know that patients have an increased predisposition to developing herpes zoster as their cell-mediated immunity (CMI) declines. And this occurs as we age; it starts perhaps at age 50 or 60 years; but when we reach the age of approximately 80 years and older, CMI starts to decline significantly.

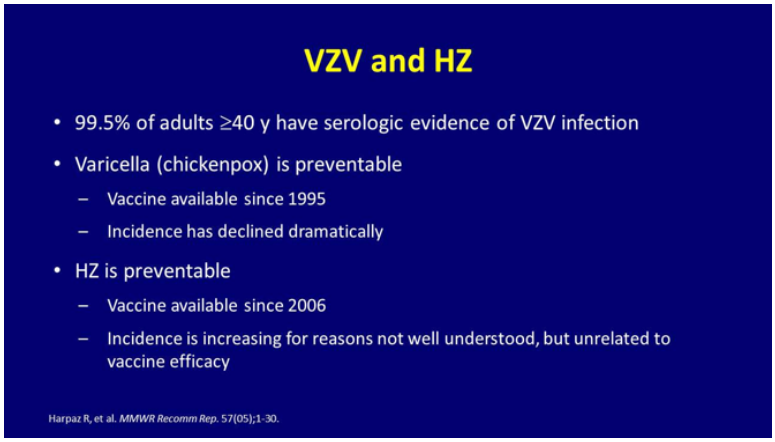


We also know, as you mentioned, Stefan, that patients who are on immunosuppressive therapy, whether for bone marrow or other organ transplants; and in patients with diabetes or with HIV and lower CD4 cell counts; and in patients with lymphoma, Hodgkin's disease, leukemia, or autoimmune diseases—these patients are all at higher risk for varicella reactivation and development of zoster.

Dr. Gravenstein: At what CD4 cell count do you think the risk really begins?

Dr. File: At 200 cells/mm^3. Certainly if they are below 200 cells/mm^3, they're at higher risk, but it's a variable gradation. I like to see my patients above 500 cells/mm^3 to be much clearer regarding their immune status. We also know that there are gender and race predispositions to zoster. Individuals of white race and women also tend to have a higher rate of zoster as well, as do those who have suffered physical trauma.

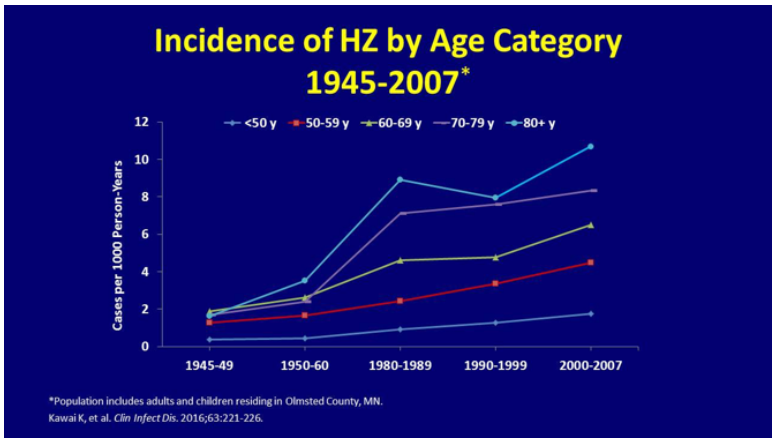
Now, we know that 99.5% of adults ages 40 years and older, and certainly people our age, have serologic evidence of prior varicella infection—chickenpox. But we know that among the younger age group who have been receiving the vaccine, chickenpox is almost gone. Many of our residents have never seen a case of chickenpox, which is interesting. This shows the dramatic benefit of the varicella vaccine, which has been available since 1995.



Herpes zoster is also preventable: a vaccine has been available since 2006. Interestingly, the incidence of zoster is increasing, perhaps, in part, for reasons we mentioned, such as increases in the percentage of populations that are at risk. But the increase is unrelated to vaccine efficacy.

Dr. Gravenstein: So, you don't think that because we've been giving chickenpox vaccine, people are now potentially at greater risk in the future for getting shingles, because it's not as effective in protecting against zoster as the disease itself?

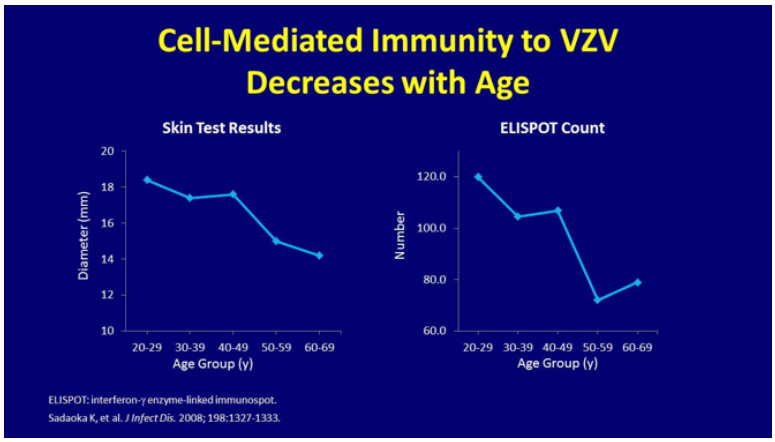
Dr. File: I don't think so, but we do know that patients who received the varicella vaccine are still at risk for getting zoster.



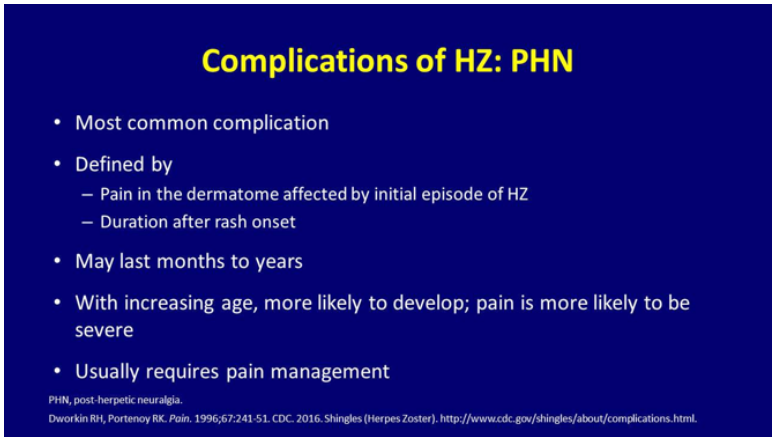
Dr. Gravenstein: Here you can see the incidence of herpes zoster by age. The lines go progressively from the top to the bottom, from oldest to youngest. You can see, over the last 50 years, that zoster incidence has been increasing in all age groups, but most dramatically in the oldest age group. This is likely unrelated to the availability of the varicella zoster vaccine, which as you heard, was back in 1995, or the introduction of the anti-viral therapy back in the 1980s, or the change in the prevalence of immunocompromised adults.

The increasing risk for zoster with age is, in general, thought to be related to the decline in CMI. We have different ways to measure CMI, and one would be, for example, with skin test results.

On the left side of this slide, you can see a graph showing that, as you get older, your skin test reactivity goes down, and that relates directly to the risk for developing zoster. On the right-hand side, another measure of cell-mediated immunity is interferon gamma: you can see again, with age, interferon gamma levels, as elicited from cells, also decline.



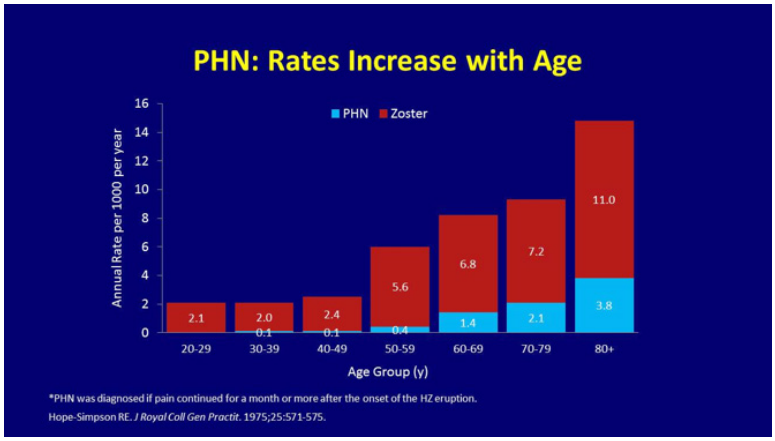
Dr. File: Now let's turn to some of the complications of herpes zoster. I think the most significant one—the one that causes the greatest disability for our patients—is postherpetic neuralgia (PHN). This is defined by pain that persists after resolution of the rash. Now, definitions vary: pain duration could be 30 days, 60 days, 90 days, or 120 days. I like to think about it in terms of 30 days, because I think even that is a significant association with pain. PHN may last for months to years, and it occurs increasingly with age: the older the patient, the more likely they are to have PHN. Pain is also more likely to be severe, and usually requires some form of pain management, which can be very difficult for many patients.



Dr. Gravenstein: Does the classification of 30, 60, 90, or 120 days, used to define PHN, change how you approach treatment?

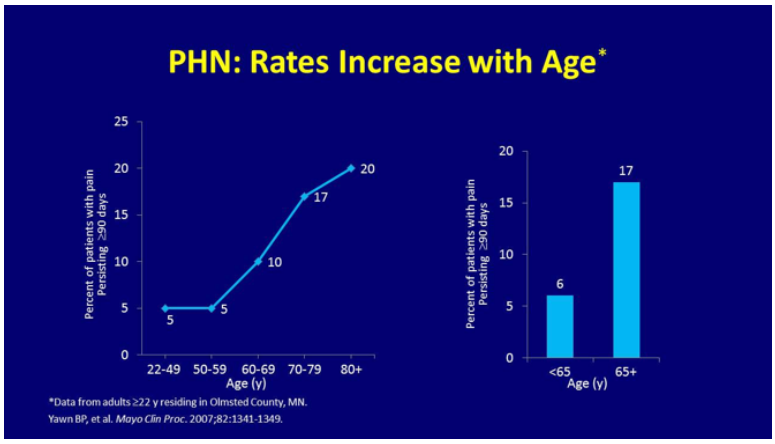
Dr. File: Not really. If patients are having significant pain after 30 days, I want, for the benefit of the patient, to try to relieve that pain and discomfort, because it affects their daily lives.

Dr. Gravenstein: So the definition doesn't change the treatment.

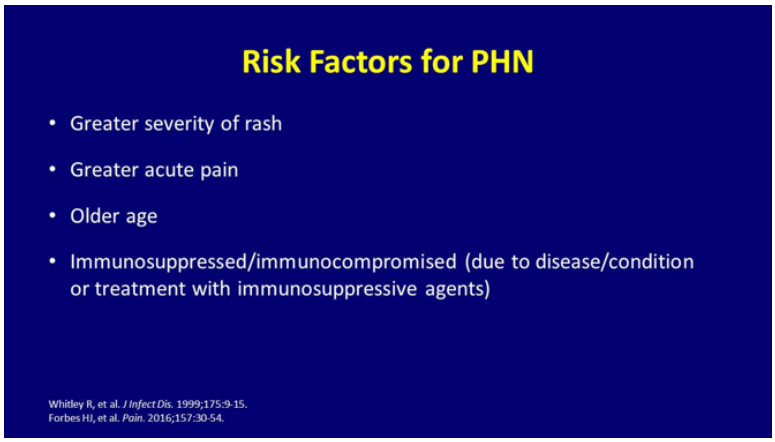


Dr. File: I agree. Now, this slide looks at the relative rate of PHN associated with age. This is from a study from the United Kingdom, but it shows that as patients age, particularly when they get above age 80 years, that the incidence of PHN is significant.

This is another study, from the United States—from a metropolitan area in Minnesota. Again, looking at the rate associated with age, on the left-hand part of the slide, you can see that the numbers start to go up quite steeply after age 50 years. Then on the bar graph at right, you can see that patients ages 65 years and older have a 17% incidence of PHN, whereas the incidence is much less among those less than age 65 years.



We also know that the risk of PHN is also associated with other factors during the initial herpes zoster episode. The greater severity of the rash, the greater the pain associated with rash. I like to call this zoster-associated pain, or ZAP. The older age groups have increased risk of PHN, as do those who are on immunosuppressive or immunocompromising agents.



Dr. Gravenstein: In this graph, you can see the severity of zoster and the duration of chronic pain in adults ages 50 years and older. At the top vs the middle vs the bottom lines, you see folks who have had the most severe rash or discomfort at onset (top line), compared to those that have the least severe (bottom line). The most severe pain is seen with lots of lesions—47 or more lesions, or with moderate pain and 21 or more lesions, or severe pain and fewer than 47 lesions.

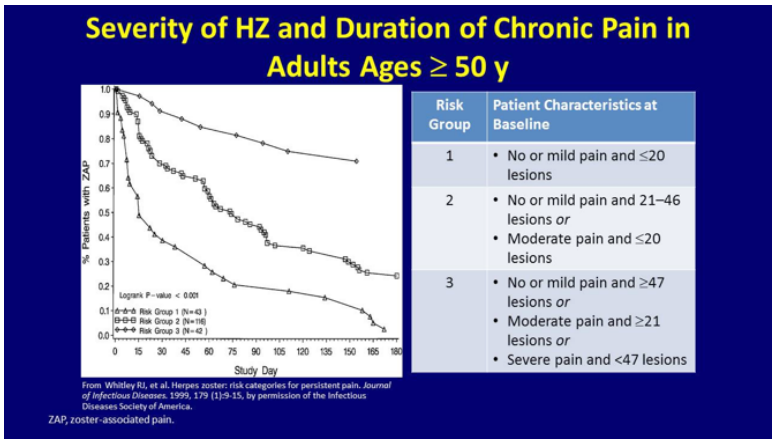
You can see that the more lesions you have, or the more pain you have at the beginning, the worse your prognosis is in terms of duration of the chronic pain that follows. The bottom bar shows a group that had no or mild pain and 20 lesions or fewer. You can see pain resolves pretty quickly in this group—within a few weeks.

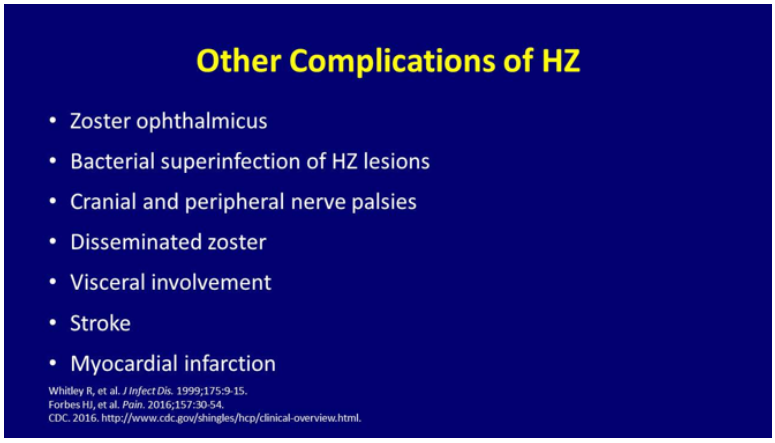
There are many other complications seen with zoster. You heard Dr. File refer to some of these. One of the most serious complications we worry about is zoster ophthalmicus. We also see bacterial superinfection of herpes zoster lesions, typically involving *Staphylococcus aureus* or sometimes group A beta-hemolytic streptococcus. We also see cranial and peripheral nerve palsies, aside from those involving the ophthalmic nerve. Disseminated zoster and visceral involvement (such that of the pleura or the brain), and stroke and heart attack have also been associated with zoster.

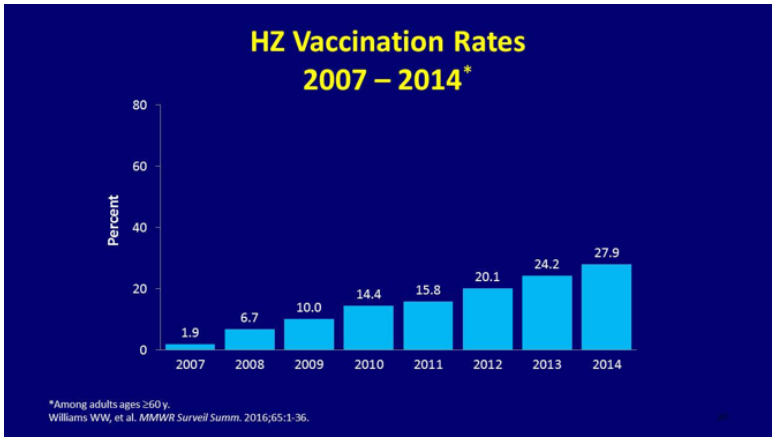
Dr. File: Looking at the rate of patients who have received the zoster vaccine, it's not very high. The vaccine has been available for about 10 years, but if you look at the last bar on this graph, in 2014, only 28% of patients eligible for the vaccine have received it.

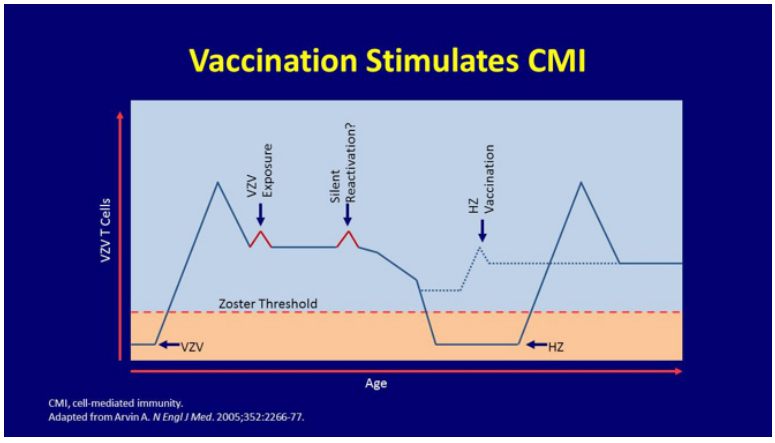
Looking at the benefit of the vaccine, it boosts cellular immunity. This graphic shows that once you have infection with the varicella virus, there is a robust response from the cellular immune system, as you can see in this slide. Then, periodically, if we are exposed to chickenpox, when, for example, our children develop chickenpox—although that's not happening as much as in the past because of the vaccine—if we are exposed to chickenpox, that reboosts our immune system.

We can have subclinical cases of reactivation that boost the immune system as well. But we know—and as shown in this slide—as we age, or if there are other underlying conditions, that as our cell-mediated immunity wanes and goes below a certain threshold, then we are at risk for developing herpes zoster. So the goal of the vaccine, as shown in this slide as well, is to boost that cellular immunity, when we would be at risk, so as to reduce the risk of developing zoster.

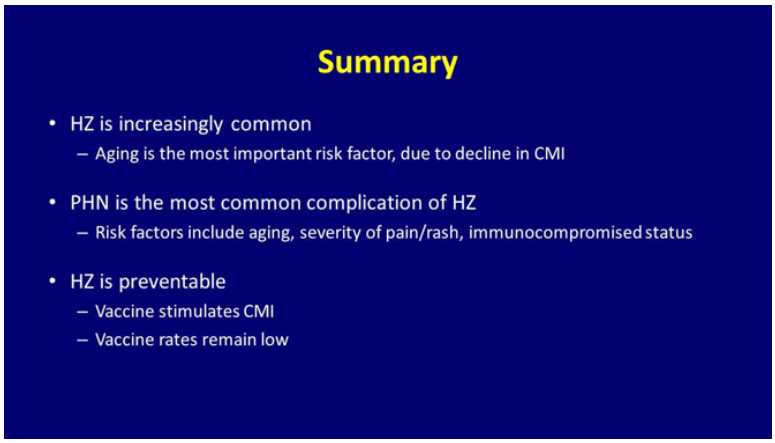


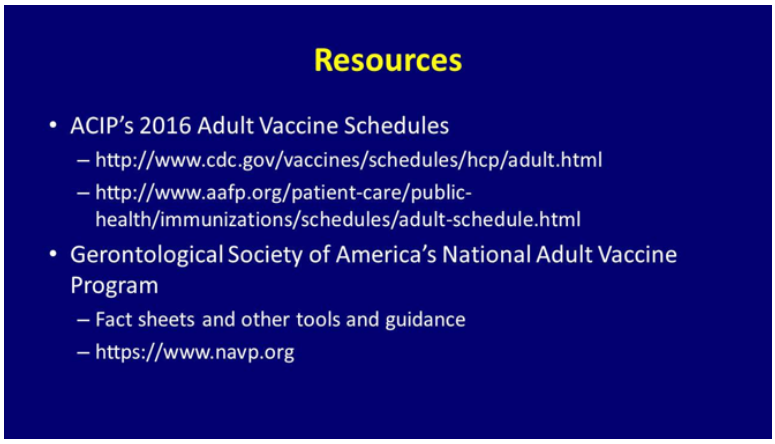






Dr. Gravenstein: To summarize, then, herpes zoster is increasingly common, and aging is the most important risk factor, due to a decline in CMI. PHN is the most common complication of herpes zoster, and risk factors include aging, severity of pain and rash, and immunocompromised status. Herpes zoster is preventable—the vaccine stimulates CMI—but vaccine rates remain surprisingly low. Only one-third of the population that is eligible for this vaccine has received it, and this gives us a huge opportunity to do better.





I want to thank you for your participation in this video, and thank Dr. File for joining us. I hope you will join us for the next video in the series: Clinical Impact of Herpes Zoster and Its Complications.

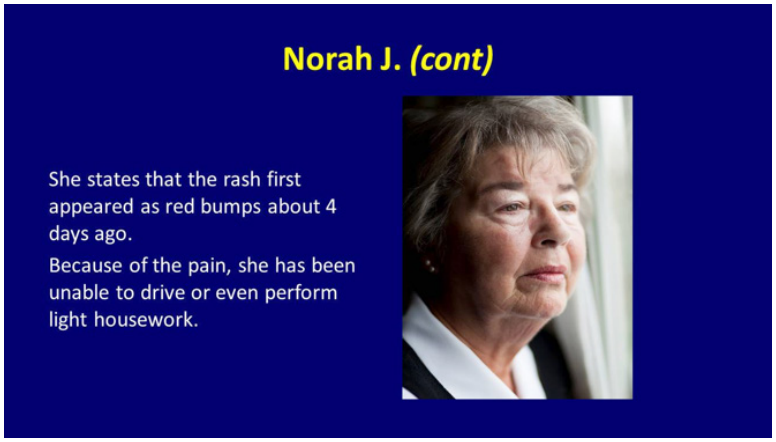
In addition, I would like to point out helpful resources for clinicians and patients pertaining to herpes zoster vaccine recommendations, as well as recommendations for other adult vaccines. One is the adult vaccine schedule from the Advisory Committee on Immunization Practices (ACIP) found on the CDC's and the American Academy of Family Physicians' websites, and the other one is from the Gerontological Society of America (GSA)—materials from the National Adult Vaccination program can be found on the GSA's website.

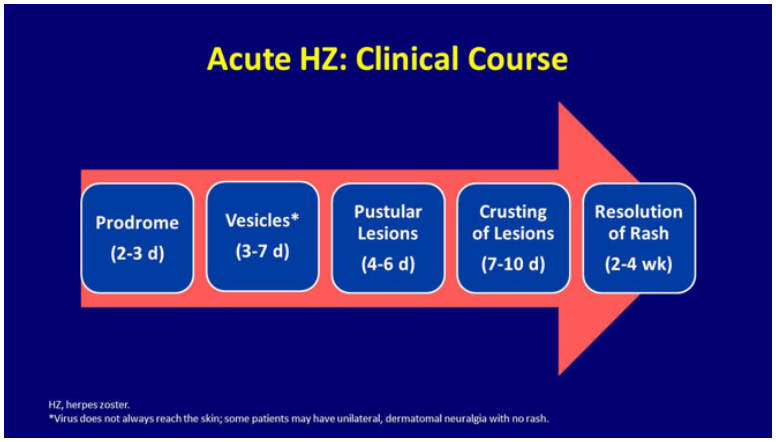
Thank you for joining us.

2 *Module 2: Clinical Impact of Herpes Zoster and its Complications*

Dr. File: Welcome to part 2 of this video series, during which we will discuss the clinical impact of herpes zoster and its complications. We will first discuss the potential impact of adult herpes zoster and then turn to postherpetic neuralgia (PHN) and other long-term complications.

First, let's meet a patient, Norah, who has a particularly severe case of herpes zoster. She's 66 years of age and presents with a vesicular rash running from her back to her waist along the T9 and T10 dermatomes. She says that the rash is extremely painful and characterizes the pain as intense, constant, stabbing, and unresponsive to nonsteroidal anti-inflammatory drugs (NSAIDS). She states that the rash first appeared as red bumps about 4 days ago. Because of the pain, she has been unable to drive or even perform light housework. Now, we're going to come back to this case later, but first I'd like to ask Stefan, what is the clinical course of herpes zoster?





Dr. Gravenstein: The prodrome, which occurs before the rash appears, can involve pain or other kinds of symptoms that can last for 2 or 3 days before first vesicles appear. The vesicles last 3 to 7 days, then become pustular, and that lasts for up to a week. Then the rash crusts over, another week passes, and finally rash resolves; complete resolution can take 2 to 4 weeks.

There are some people who go on to have secondary symptoms, which we will talk about later.

The prodromal phase occurs before the virus invades the dermis, and that's why there's no rash yet. There may be other kinds of symptoms, such as itching, hyperesthesia, paresthesia, burning, or just pain. Typically, it will occur in a specific dermatome—that is, the dermatome of the nerve cells that contain the virus.

Then the rash appears. It is typically unilateral, and the size and distribution varies. Pain is typically described as burning, aching, tingling, and stabbing; occasionally there's no rash at all; patients can clear up without getting a rash.

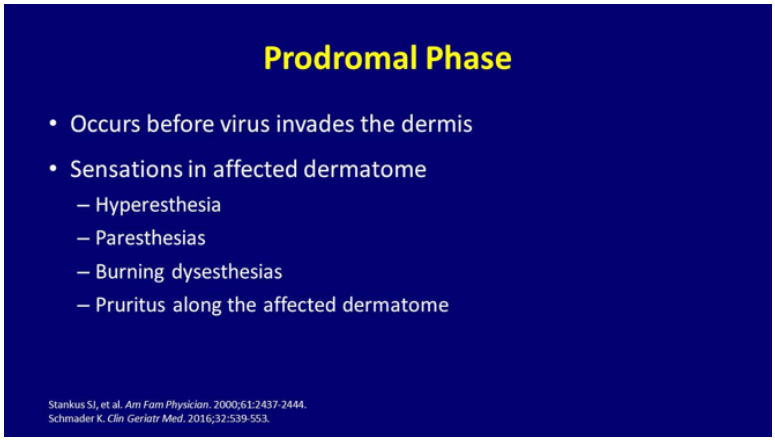
The virus is transmissible once vesicles appear, and this is the same virus that causes chickenpox; it's a reemergence of a virus that has been dormant, and it's transmissible until the rash crusts over. Here you can see pictures of the early stages, on the left, where the vesicles are just beginning to appear; then in the middle frame, we see a rash with plenty of lesions—this looks like probably 30 or 40 lesions. Then on the right, we see the crusting over; zoster is no longer contagious at that point.

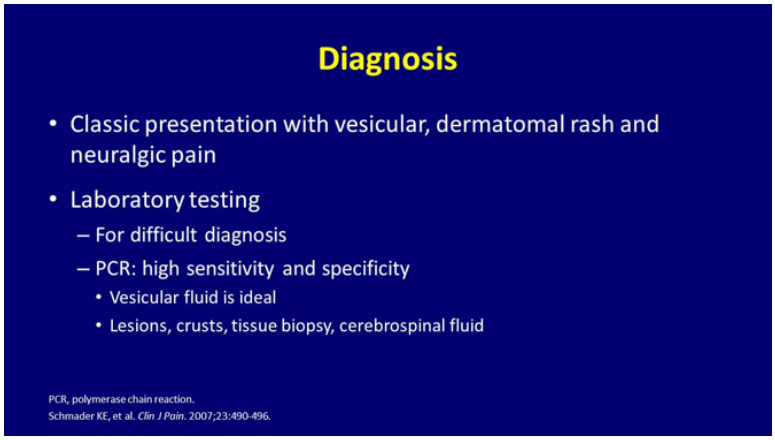
So, the classic presentation is with vesicular dermatomal rash and neuralgic pain. Laboratory testing may be indicated if there is confusion about what the rash represents. Sometimes the lesions might resemble impetigo or something else, and if it's not clear, you do want to get a sampling of the rash, and probably you want a PCR test for the virus.

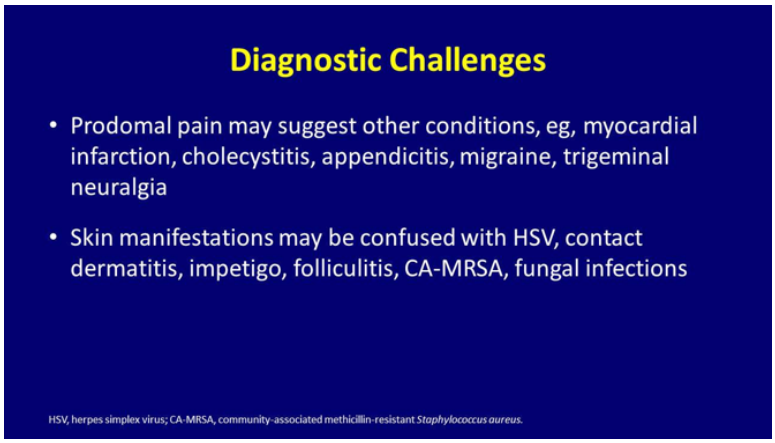
PCR testing is highly sensitive and specific. The best sample to test is vesicular fluid, or you can take some of the crust. You could also get a tissue biopsy, or if the patient has neurologic symptoms that you're not sure about. Taking cerebral spinal fluid (CSF) is appropriate, for example, to differentiate zoster from meningitis.

When you think about your most difficult zoster diagnoses, what patients do you think of?

Dr. File: The most difficult diagnosis is when patients don't develop the rash. We see a percentage of patients who present with pain along a dermatome, who have pain that could mimic myocardial infarction or acute appendicitis. Maybe the rash doesn't even occur, and then laboratory tests, neurologic tests, PCR tests—using CSF as probably the best bet—can be helpful in distinguishing the cause of pain. But fortunately, zoster pain usually resolves after a time when there isn't a rash.







If there *is* a rash, the biggest challenge is what you've already mentioned: differentiating zoster lesions from other sorts of vesicular or pustular lesions, more specifically *Staphylococcus* lesions. In particular, with the emergence of community-associated methicillin-resistant *Staphylococcus aureus* (MRSA) over the past decade or so, this is an important differential. We also know that if patients develop the rash, they are at higher risk for developing secondary bacterial infections; thus, patients may have both.

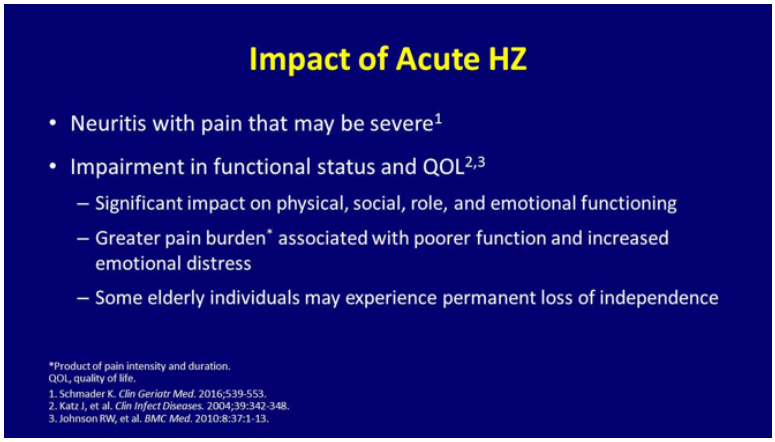
Dr. Gravenstein: Yes, and I often run into trouble with immunocompromised patients. Because the number of potential infectious diseases skyrockets, considering a diagnosis of zoster often gets missed.

Dr. File: Yes, and those patients, in particular, the rash may be atypical. We may see large bullae rather than the small vesicles.

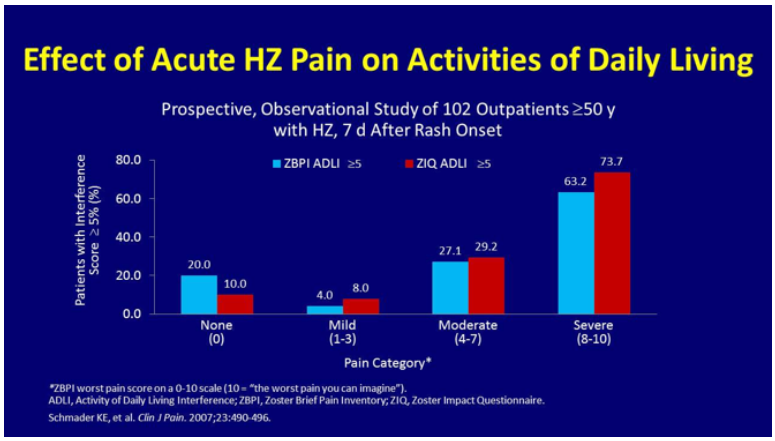
Dr. Gravenstein: So, what other diagnostic challenges do you have?

Dr. File: Well, we've already mentioned the prodromal pain that may suggest other conditions. We mentioned acute appendicitis. Cholecystitis would be another example from a potential intra-abdominal differential. We might think the patient has a myocardial infection, as we said, or even pulmonary emboli. I've had difficulty considering that, at times, because of pleuritic chest pain. Trigeminal neuralgia—which would be up in the facial area—can be very severe and may mimic migraines, for example. We've already mentioned skin manifestations, such as impetigo or even contact dermatitis. And then herpes simplex virus (HSV) infection sometimes presents as a somewhat linear rash, and may be localized unilaterally; this can be difficult to differentiate from herpes zoster as well. We already mentioned zoster mimicking community-associated MRSA. As I've said, I've seen several patients for whom this differential diagnosis has been difficult. I recently saw a patient who had cellulitis of the face and involving the nose, so we were quite concerned: could this be a manifestation of zoster in the trigeminal nerve ophthalmic division, or true cellulitis or erysipelas? These can be difficult differential diagnosis as well.

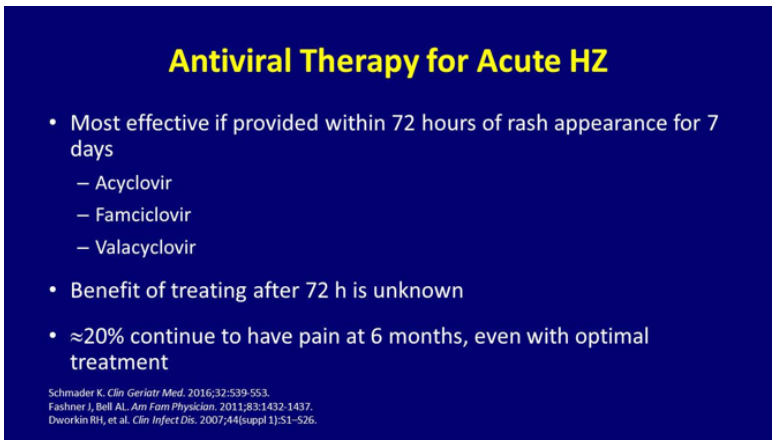
Dr. Gravenstein: So, the impact of acute herpes zoster includes neuritis, with pain that may be severe; pain is front and center. Also, we sometimes don't consider that with pain comes functional impairment—meaning an impact on physical, social, role, and emotional functioning. Patients may no longer able to do the things that they usually do to get through life, so this affects their quality of life. The greater the pain burden, the poorer their function and the more emotional distress they have. Some older individuals may experience permanent loss of independence from zoster, and it is really profound when we see somebody who is completely disabled in this way.



This slide shows the effect of acute herpes zoster on the activities of daily living. This was demonstrated in a study using 2 mixed-method approaches—measuring functional impairment and stratifying by the severity of pain. The left pair of bars represents patients with no pain; the second set of bars, mild pain; the third set of bars, moderate pain; and the far right set of bars, severe pain. The vertical height of these bars shows how much functional impairment the patients have. For the severe group, two-thirds to three-quarters had substantial functional impairment. The point here is that pain with zoster affects function in profound ways, and we're treating more than the pain; we need to help keep patients viable members of the community.



Dr. File: Now, we know that using antiviral therapy can reduce the duration of the acute zoster episode. We know that these agents are most effective if we give them within the first 3 days. The agents we use include acyclovir, famciclovir, and valacyclovir. I consider these attractive antimicrobial—or rather antiviral—agents because they are not active in normal cells. When they enter cells that are infected with herpes, the virus produces a thymidine kinase which can phosphorylate these drugs. The drugs are then further phosphorylated by cellular enzymes into a triphosphate form, and that's the active form—the form that inhibits viral replication. The bottom line is that if there is no herpes infection within the cell, the drugs don't cause problems with the cell generally; they're relatively safe from that standpoint. The antivirals act only in cells that are infected with herpes.



I've already mentioned that the best benefit is with earlier treatment. However, I certainly would continue to give therapy; I will even initiate therapy on day 4, 5, or 6 if I'm seeing new vesicles. I am going to initiate therapy with the antiviral agents. We know that treatment reduces the duration of acute zoster, and probably reduces, to some extent, the pain associated with the acute episode. However, it's unclear if antiviral treatment prevents PHN, which is a major complication, as we've mentioned. We know that 20% of the patients continue to have pain at 6 months even with optimal treatment.

So then we have to consider pain management. There are several different approaches. We can use NSAIDS for mild pain. Many patients will be treated with opioids, but there's controversy about using—or overusing—these drugs, as you know. Glucocorticoids have been used by many in past decades. Studies conducted a couple of decades ago suggested that the use of a tapering dose of steroids may improve quality of life, but a recent meta-analysis suggested that this really wasn't the case. I don't give steroids now to patients with acute zoster. Do you, Stefan?

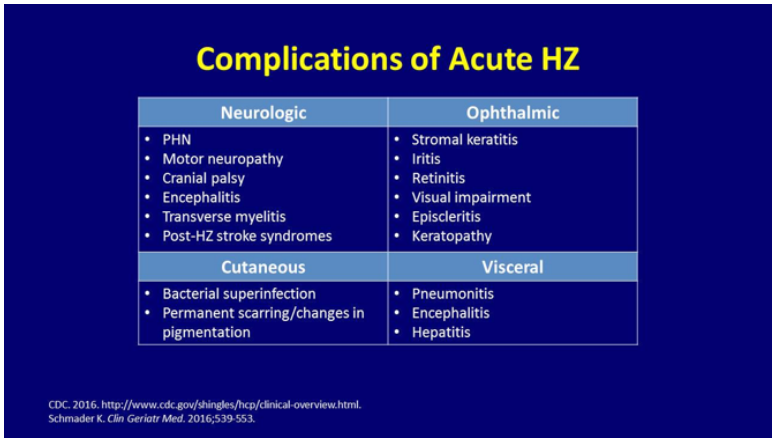
Dr. Gravenstein: No, I don't.

Dr. File: In my experience, the best approach has been the anticonvulsive agents, such as gabapentin. I find these are usually helpful. How about yourself?

Dr. Gravenstein: We use a lot of gabapentin at my institution. I like using capsaicin cream; it's effective against other types of peripheral neuropathies and has the advantage that it isn't systemically absorbed. So, in my oldest patients, who may already be cognitively impaired, it doesn't further impair them.

Dr. File: Yes. Then, of course, if you have refractory pain, sometimes patients have to go to an anesthetic nerve block, but then you would have to refer them to a pain specialist.

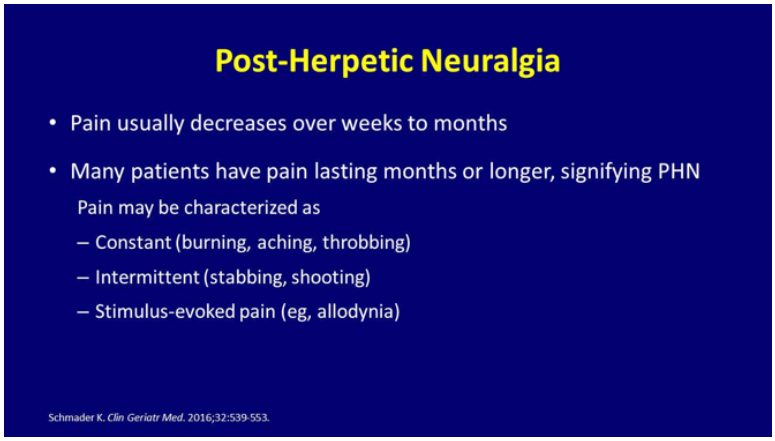
Dr. Gravenstein: Right. So when we think about the complications of acute zoster, we can divide these into 3 or 4 categories. If you combine ophthalmic with neurologic complications, there would be 3 categories. But the ophthalmic category is important enough that really it should be thought about separately. Ophthalmic complications may include stromal keratitis, iritis, retinitis, visual impairment, episcleritis and keratopathy. Other neurologic complications may include cranial nerve palsy; PHN, which is longstanding pain; motor neuropathy; encephalitis; transverse myelitis; and post-herpes zoster stroke syndromes. Cutaneous complications include bacterial superinfection, permanent scarring, and changes in pigmentation. Finally visceral complications may include pneumonitis, encephalitis, and hepatitis.



Dr. File: I would like to comment that we are now becoming aware that varicella zoster virus (VZV) is a common cause of encephalitis in older patients. It's more common than encephalitis caused by herpes simplex virus (HSV). So, VZV is something that we always check for when we see such patients; we'll evaluate the CSF for zoster, perhaps with PCR.

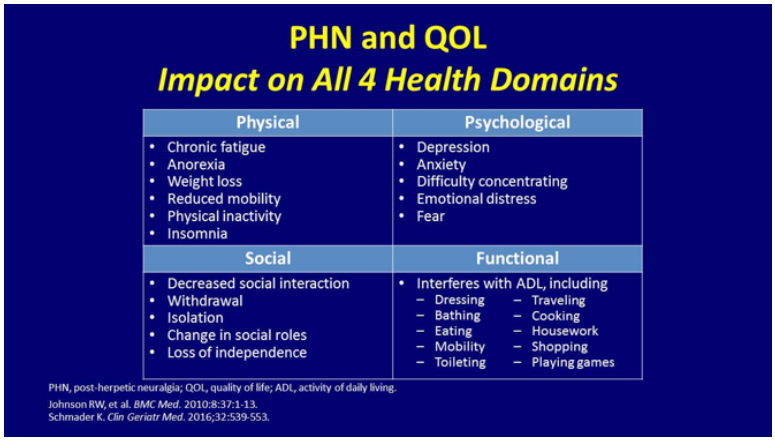
Dr. Gravenstein: Do our antiviral agents penetrate the blood brain barrier?

Dr. File: Yes, they do, but we have to use larger doses and give them intravenously (IV). We can't rely on the oral forms. We may need to treat patients with either HSV or VZV encephalitis for many weeks with IV acyclovir.



Dr. Gravenstein: We've discussed PHN, and we've classified it as pain that lasts for months after the initial infection and the rash is cleared. Many patients have pain lasting months or longer. This pain may be characterized as constant, which typically is burning, aching, or throbbing; or intermittent, which is typically stabbing or shooting. Pain may also be or stimulus-induced; patients may have allodynia.

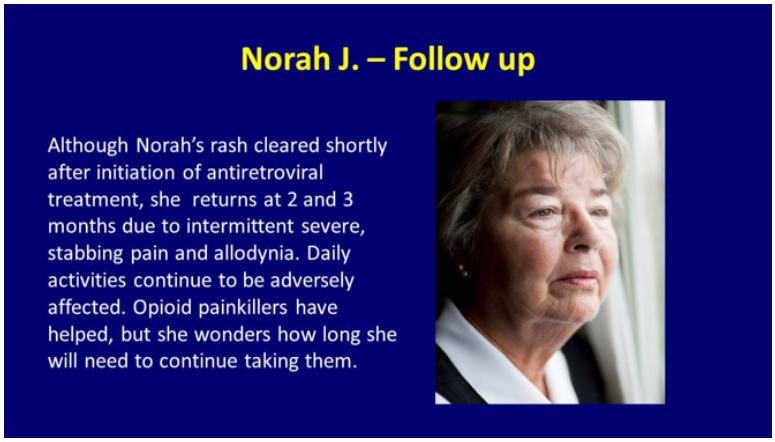
We've already talked a bit about the zoster pain and quality of life. This slide shows the 4 health domains affected by PHN: the impact on physical, psychological, social, and functional domains. Regarding the physical impact, chronic fatigue is common. The pain can be exhausting; patients also lose appetite and weight. Patients may have reduced mobility, especially those with allodynia, which can be exacerbated by moving. Physical inactivity and insomnia are common.



From a psychological standpoint, depression, anxiety, problems with concentration, emotional distress, and fear may occur. These patients tend to be withdrawn, they have reduced social interaction, they become isolated, there are changes in their social roles and sometimes loss of independence.

From a functional standpoint, as a geriatrician, I divide this domain into activities of daily living that are basic—those on the left side of this grouping; or instrumental, on the right side. The left side includes dressing, bathing, eating, transferring, toileting; the right side includes things that require more thought, such as traveling, cooking, housework, shopping, laundry, playing chess—anything that requires a little bit of thinking.

Dr. File: Let's get back to Norah. Her rash cleared shortly after the initiation of antiviral therapy. But now she returns at 2 and 3 months due to intermittent, severe, stabbing pain and allodynia, as you described. Her daily activities continue to be adversely affected. Opioid painkillers have helped, but she wonders how long she will need to continue taking them.



Dr. Gravenstein: Let's discuss pain management options for PHN. We've talked about topical approaches, like the lidocaine patch or capsaicin cream. Anticonvulsants were mentioned—gabapentin and pregabalin—as were opioids, and you've heard about the issues with opioid use and overuse in the press. I think when using them specifically for the treatment of pain, they aren't as addictive. Tricyclic antidepressants work well in some patients. In my oldest patients, these can have a significant anticholinergic side effects, so they are not typically the first thing that I reach for. Combination treatments—2 or more of any of these agents—may be helpful. Noninvasive treatments, non-drug treatments, so anything from transcutaneous electrical nerve stimulation (TENS), acupuncture, or psychological interventions can sometimes be helpful. Then we have invasive treatments, such as specific peripheral or central nerve blockade. We can also deliver drugs via the central nervous system or provide spinal cord stimulation. Remember, there are many options, and when I think anecdotally about what seems to work best, those would be anticonvulsants and topical agents; the latter have the benefit of no systemic side effects.

Pain Management for PHN

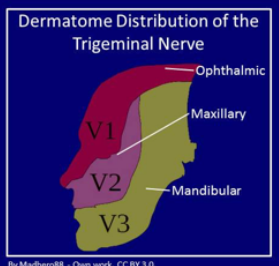
Class/Type	Options
Topical	• Lidocaine patch • Capsaicin
Anticonvulsants	• Gabapentin • Pregabalin
Opioids	• Controlled-release oxycodone • Long-acting morphine • Tramadol
Tricyclic antidepressants	• Amitriptyline • Desipramine • Nortriptyline
Combination treatments	• Two or more of the above
Noninvasive/nondrug treatments	• Transcutaneous or percutaneous electrical nerve stimulation • Acupuncture • Psychological
Invasive Treatments	• Peripheral/Central nerve blockade • CNS drug delivery • Spinal cord stimulation

Schmader K. *Clin Geriatr Med*. 2016;32:539-553.
Fashner J, et al. *Am Fam Physician*. 2011;83:1432-1437.

I think you need to look at your patients individually and treat them based on their specific characteristics. Many of the pain medications required dose adjustments, and patients who are older, or have reduced creatinine clearance, require extra considerations. Many treatments are ineffective and poorly tolerated. Frankly, I have some patients who respond inadequately to anything we can offer, and they remain disabled. There's room, then, for referral to a specialist, like a pain specialist who might be able to provide nerve blockade or other approaches. These still might be incompletely effective.

HZ Complications
Zoster Ophthalmicus

- Viral reactivation in ocular divisions of trigeminal ganglia
- Severe long-term implications, including loss of vision
- Refer immediately to an ophthalmologist
- Antiviral medications most effective when begun within 72 h of rash onset



By Madhero88 - Own work, CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid=6777419.

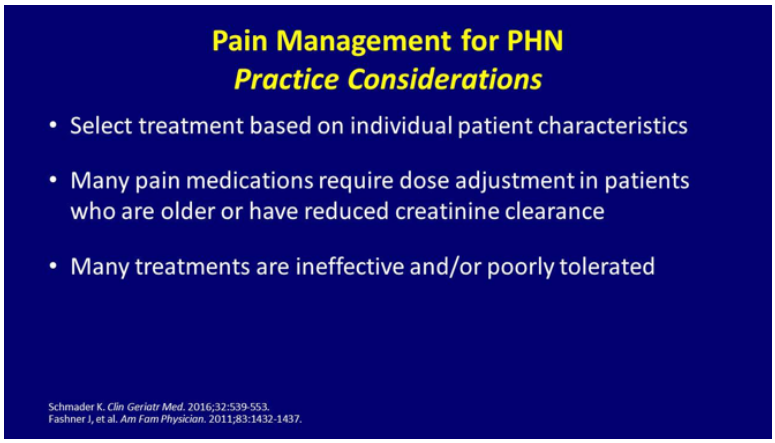
Shaikh S, Ta CN. *Am Fam Physician*. 2002;66:1723-1730.

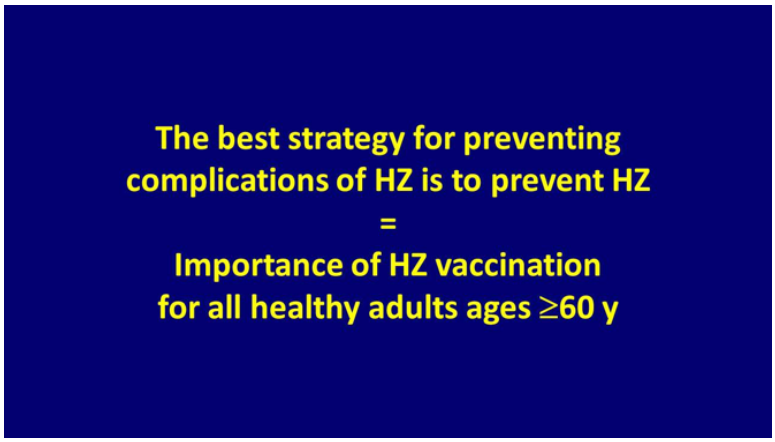
Dr. File: Now I'd like to discuss another common and severe complication of herpes zoster. Let's bring this into context with a new case. This is Grace, a 73-year-old woman who presents with edema and inflammation affecting the eyelid and conjunctiva, together with a rash that extends from her left eyebrow to the tip of her nose. She describes intermittent, almost unbearable, stabbing pain in the area of the affected eye. She says that the pain started one week ago before development of the rash.

Grace S.

Grace is a 73 y-o woman who presents with edema and inflammation affecting the eyelid and conjunctiva, together with a rash that extends from her left eyebrow to the tip of her nose. She describes intermittent, almost unbearable, stabbing pain in the area of the affected eye. She says the pain started one week ago, before development of the rash.

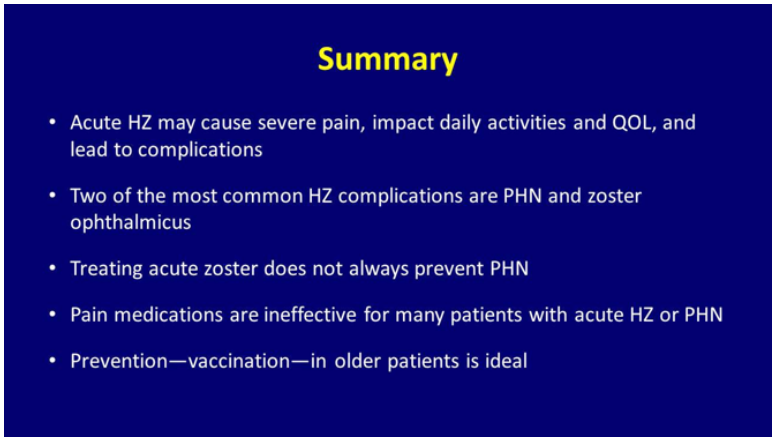
Now we discussed this in one of the other videos. This is an example of a rash along the ophthalmic division of the trigeminal nerve; and particularly since it involves the tip of the nose, it involves the ciliary branch as well. We know that when we see this, it's a signal to look for significant involvement of the eye—which we already know for Grace, because of the involvement of the conjunctiva. We're concerned about eye infection, which may manifest as episcleritis, iritis, or keratitis; further, the infection can cause necrotizing or retinal necrosis, which can be very serious and lead to loss of sight. These are very serious infections, with severe long-term implications if they are not treated expeditiously. Such patients need an immediate referral to an ophthalmologist, who will give topical therapy. They also need systemic antiviral therapy to try to reduce the impact of the virus. The bottom line is, when we see this, to make sure that we refer right away—that day—to an ophthalmologist.





Dr. Gravenstein: So the best strategy for preventing complications of herpes zoster is to prevent it in the first place. This highlights the importance of getting a vaccination for anyone who is at or over the age of 60.

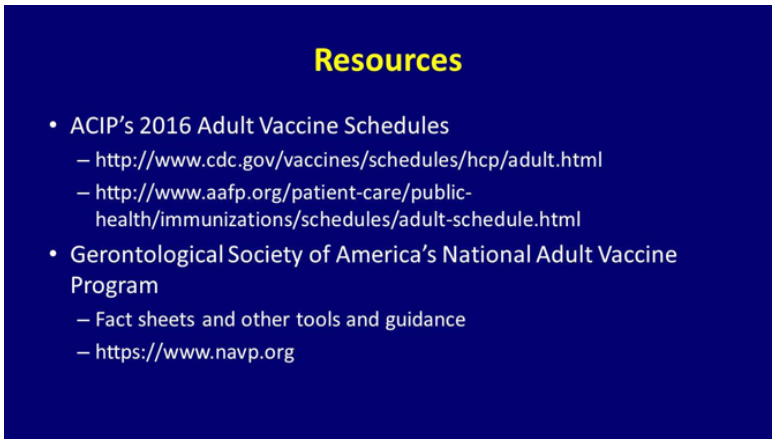
Dr. File: In summary, in this video, we've reviewed acute herpes zoster and the fact that it may cause severe pain, which impacts daily activities and quality of life, and may lead to certain complications. Two of the most common herpes zoster complications are PHN and zoster ophthalmicus. We've discussed that treating acute zoster does not always prevent PHN, that pain medications are oftentimes ineffective for many patients with acute herpes zoster or PHN, and that many patients may have severe disability for long periods. So it important to bring up prevention by vaccination in older patients, which is the best way to prevent these complications.



Thank you for participating in this video. We invite you to watch the next video in the series, Barriers to Herpes Zoster Vaccination.

In addition, I would like to point out helpful resources for physicians and patients pertaining to herpes zoster vaccine recommendations, as well as recommendations for other adult vaccines. One source is the adult vaccine series from the Advisory Committee on Immunization Practices (ACIP), found on the CDC's and the American Academy of Family Physicians' websites.

Thank you.



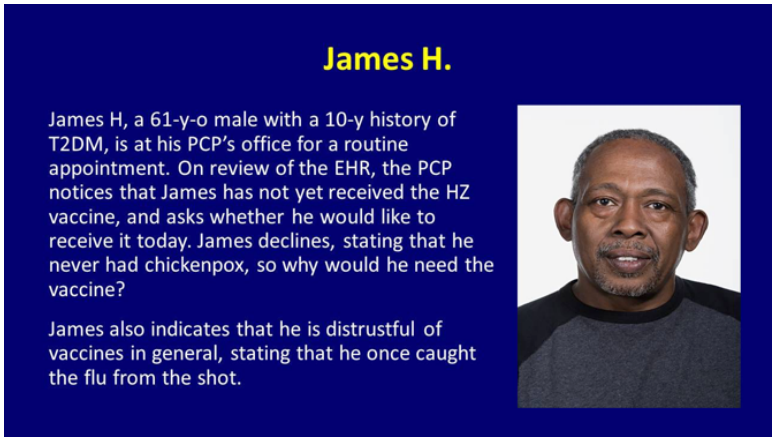
3 *Module 3: Barriers to Herpes Zoster Vaccination*

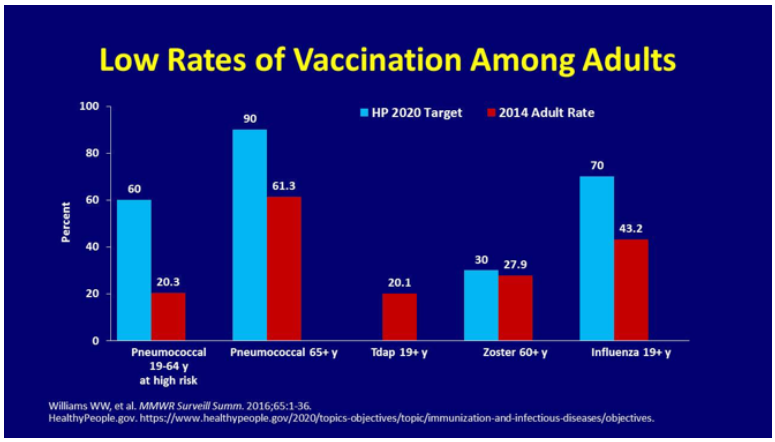
Dr. Gravenstein: Welcome to the third in this video series, during which Dr. File and I will discuss barriers to herpes zoster vaccination. In this video, we will introduce a number of barriers, and in the fourth and final video, we will describe ways to overcome them.

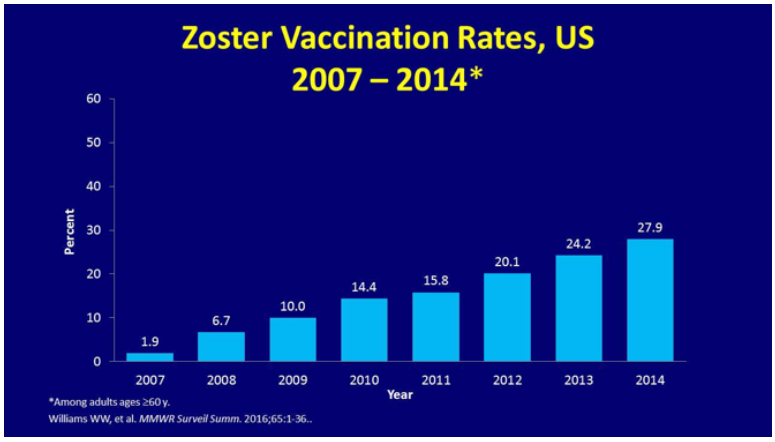
James is a 61-year-old male with a 10-year history of type 2 diabetes. He is at the office for a routine appointment. On review of his electronic health record, his primary care physician (PCP) notices that James has not yet received his herpes zoster vaccine, and asks whether he would like to receive it today. James declines, stating that he never had chickenpox, so why would he need the vaccine? James also indicates that he is distrustful of vaccines in general, stating that he once caught the flu from the flu shot. Sounds typical to me.

So, let`s talk about the low rates of vaccination among adults. It has been the goal of Healthy People 2020 to get folks vaccinated at higher rates. For zoster, there is relatively low goal, because this is a relatively new vaccine on the market. Nevertheless, despite our goals, the overall vaccination rate for all of the adult vaccinations is relatively low. Zoster vaccination is at a pathetically low rate of 28%.

So you can see, since the zoster vaccine was introduced in 2007, we've had a 4% increase in vaccination coverage every year. At this rate, it'll take us decades to get to vaccination coverage for the entire eligible population.

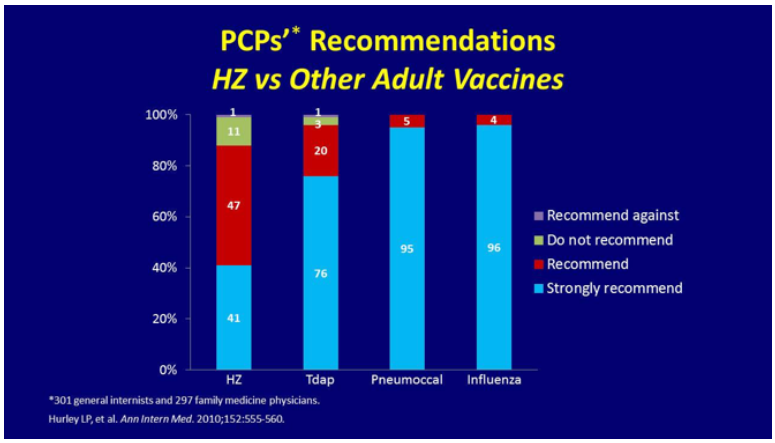






Dr. File: And now let´s look at barriers to herpes zoster vaccine, particularly those among physicians, and then patients as well.

If we look specifically at this study of about 600 PCPs who were asked how strongly they recommend the vaccines listed here—which include the herpes zoster vaccine, the tetanus-diphtheria-pertussis (Tdap) vaccine, the pneumococcal vaccine, and the influenza vaccine—you can see that for the herpes zoster vaccine, the percentage of physicians that strongly recommend it is significantly lower than for the other vaccines. As we will discuss, this is a very important issue—how strongly we, as health care providers, recommend this vaccine to our patients. This becomes very important.



Now, if we look at the specific reasons why physicians may not strongly recommend the vaccines, particularly herpes zoster vaccine, you can see that the most frequently mentioned barriers or issues are related to finances—the cost of procuring the vaccines or concerns about costs to patients. In addition, there are the logistical barriers regarding storage of the vaccine, which requires an adequate freezer and monitoring to ensure the freezer is working appropriately. Then, something that applies to the administration of all adult vaccines is that often when adults go to their physician, there are more acute problems that concern the physician more than administering preventive vaccines.

PCP-Level Barriers to Administering the HZ Vaccine*

Barrier	Responses (%)			
	Major Barrier	Somewhat of a Barrier	Minor Barrier	Not a Barrier
Cost concerns for my patients	53	30	10	7
Reimbursement challenges for my practice	52	25	10	13
Up-front costs of purchasing the vaccine for my practice	43	21	17	19
Need for my patients to pick up the vaccine at a pharmacy	23	25	18	34
Need to store the vaccine in the freezer in a sealed separate compartment	16	20	22	42
More pressing medical issues taking precedence over the vaccine	12	23	30	35

*Survey of 301 general internists and 297 family medicine physicians.
Hurley LP, et al. Ann Intern Med. 2010;152:555-560.

Dr. Gravenstein: So, one of our challenges is how to get the vaccine paid for. Zoster vaccine is covered under Part D but many physicians cannot directly bill. Many patients must purchase the vaccine, then seek reimbursement. If they have some other types of insurance, their copays and deductibles may vary; some may be cost prohibitive and, the vaccine can be expensive if you have to pay for it out of pocket.

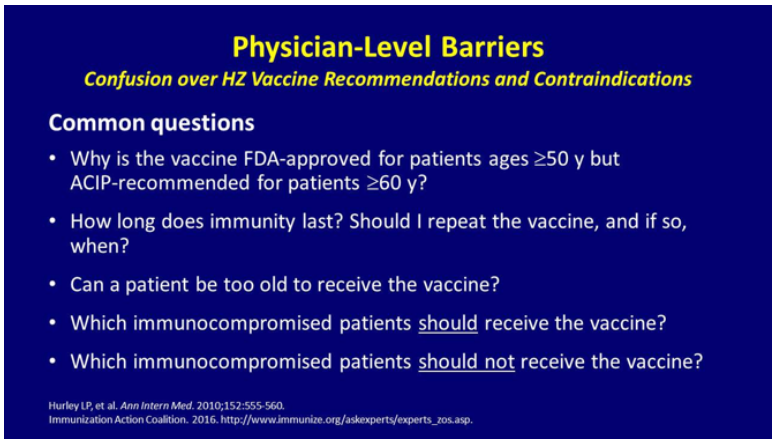
In contrast, influenza, pneumonia, hepatitis B vaccines are all covered under Medicare Part B with no co-insurance or deductible.

Medicare Gap in Zoster Vaccine Coverage

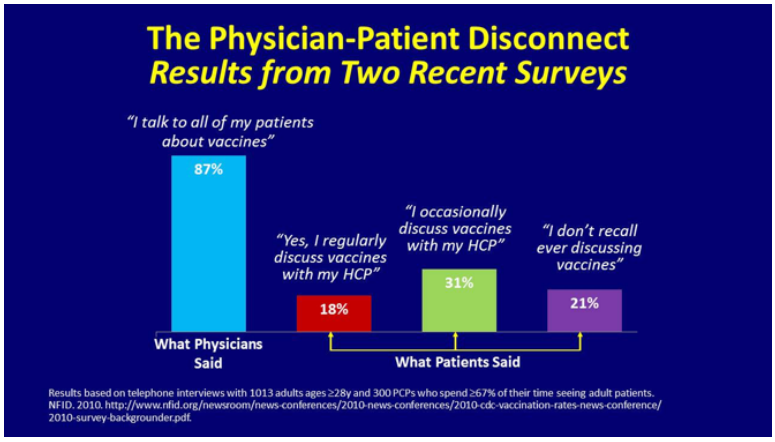
- Zoster vaccine is covered under Medicare
  - Part D, *not* Part B
  - Many physicians cannot directly bill
  - Many patients must purchase then seek reimbursement
  - Copays and deductibles vary; some may be cost-prohibitive
- In contrast, influenza, pneumonia, and hepatitis B vaccines are covered under Medicare Part B with *no coinsurance or deductible*

Hurley LP, et al. *Ann Intern Med*. 2010;152:555-560.
Medicare Interactive.org. http://www.medicareinteractive.org/get-answers/medicare-covered-services/preventive-care-services/medicare-coverage-of-vaccines-and-immunizations.

Dr. File: Now, we know that there are many questions, and a lot of confusion among physicians, about barriers and how to administer herpes zoster vaccine. Here I´m listing some of the common questions; we will be discussing the answers in greater detail in the subsequent video. Physician questions include, "Why is the vaccine FDA-approved for patients ages 50 years and older, but the Advisory Council on Immunization Practices (ACIP) recommends it for people ages 60 and older?" Others include "How long does immunity last?" and related questions about the need for a booster or a second dose of vaccine. Still another question is, "Can a patient be too old to receive the vaccine?" Finally, there are questions about immunocompromised patients, such as which immunocompromised patients can or should get the vaccine, and for whom is the vaccine contraindicated because of their immunosuppressed status.



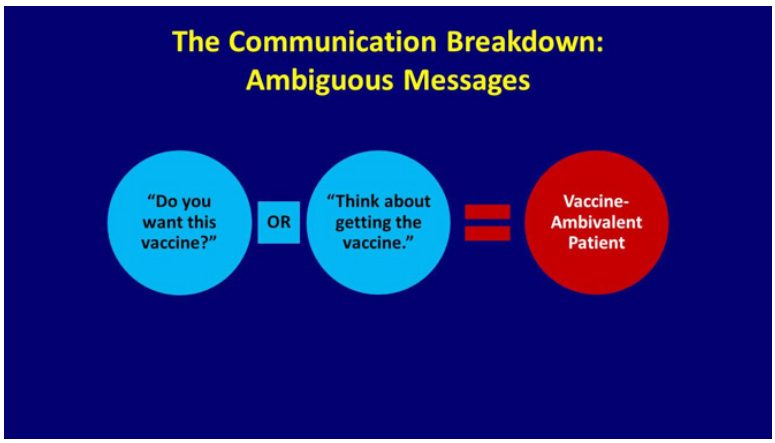
Dr. Gravenstein: So as we heard, one of the most important factors in giving a vaccine is a strong physician recommendation. On this slide, you can see that physicians report that they recommend vaccines to their patients 87% of the time in a reliable way, but patients tell us something different. Fewer than half of the time patients report that their physicians either regularly or occasionally discuss vaccines with them, and a significant proportion don't recall ever discussing vaccines with their PCPs.



So, no matter which side of the data you believe, we, as physicians, have a way to go to recommending vaccines in a consistent way.

Dr. File: I think part of the problem lies in the message. We should not give an ambiguous message, such as the message that the PCP gave to the patient we presented earlier, when he asked, "Do you wish to get the vaccine?" This is something we should tell the patient, or at least advise the patient. We should say this is something that we strongly recommend—that it is time for this patient to get the vaccine.

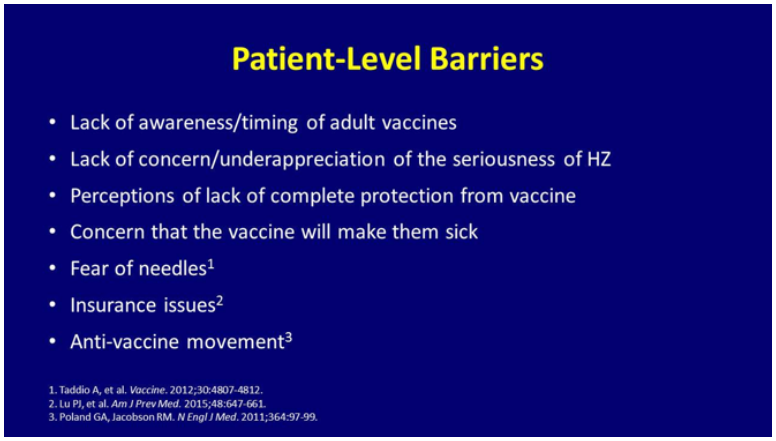
So, using the terminology shown in this slide, asking the patient, "Do you want to get the vaccine or will you think about getting the vaccine?"—these are not strongly worded recommendations; they are too ambiguous. So in the future, what we really want to do is to stress that we should all be champions in promoting strong recommendations for the vaccine.



Dr. Gravenstein: It shouldn't be framed like a choice. When we offer vaccines for children, we are really not offering it, they're up for the vaccines per their schedules; this vaccine is what's due.

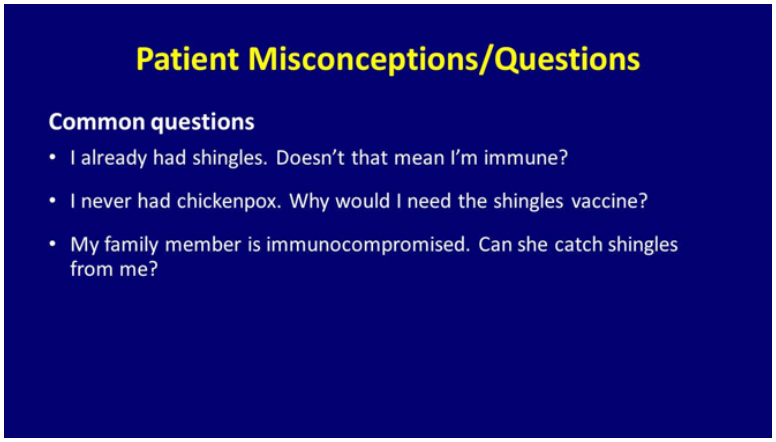
Dr. File: Right; that's absolutely the case, and it's what we should do for our adult patients as well. Not only for the zoster vaccine but the other adult vaccines mentioned in the earlier slide.

Dr. Gravenstein: In the same way that there are physician barriers, there are patient barriers to vaccines. For example, patients may be unaware of which adult vaccines they should receive and when. We have many different vaccines' schedules, so expecting our patients to know that they should be getting their shingles vaccine, is beyond what the typical patient can presently do. There may be a lack of awareness of why they should receive a given vaccine, what the vaccine is preventing, and the seriousness of herpes zoster.



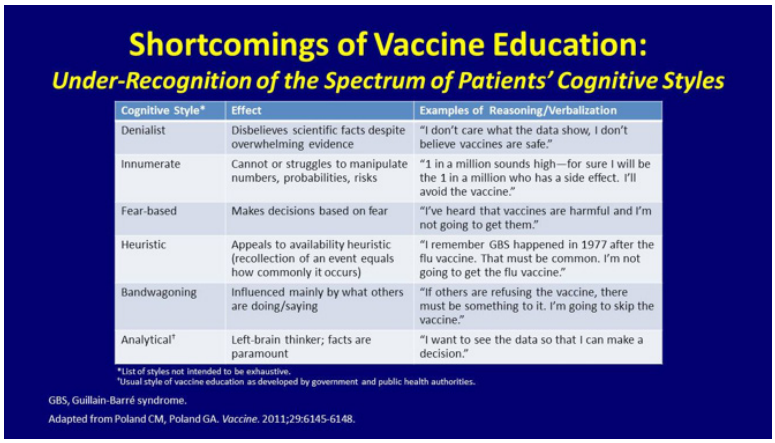
They may know of people who got a vaccine and then got the disease anyhow. They may not understand that the vaccine can still attenuate disease even if they don't get complete protection. Certainly I've heard people say that they got the disease from the vaccine; I've heard that with the flu shot. If patients have that concern with the shingles vaccine, I think there's just room for education.

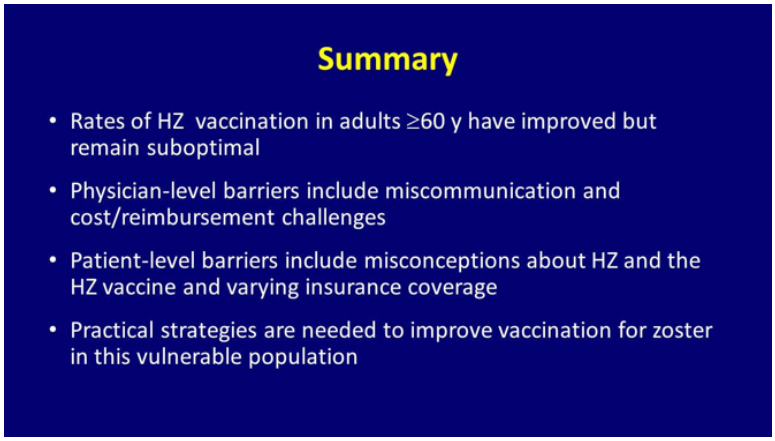
Fear of needles is not an uncommon problem. Insurance issues can come up, and then there's the anti-vaccine movement, which perhaps isn't as large for the shingles vaccine as it is for other vaccines, but clearly this is something we should be prepared for.

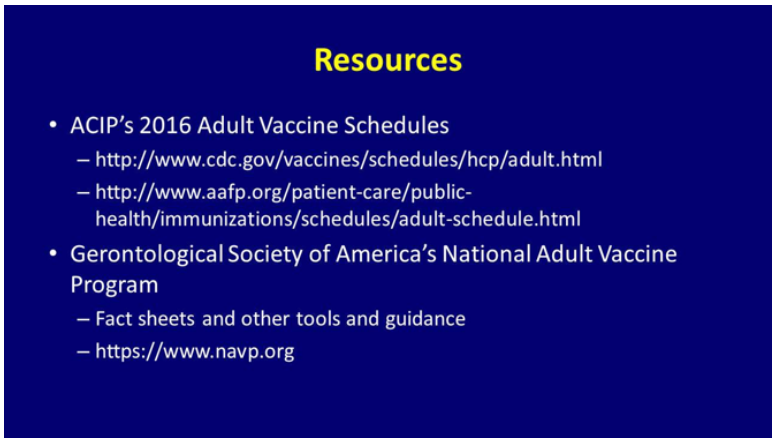


Common questions we get from patients include, "I already had shingles. Doesn't that mean I am immune?" or "I never had chickenpox, why would I need the shingles vaccine?" or "My family member is immunocompromised. Can she catch shingles from me if I get the vaccine?"

There are shortcomings in our vaccine education. When we talk to our patients, we need to understand where they're coming from and why they may be declining or reluctant to get a vaccine. And when we think about this, we can think of 6 basic styles that run through patients' minds. Typically they lean toward one of these styles when choosing to not get a vaccine. For example, a denialist may just not believe any of the data, so why should they start believe something now? There is a problem with innumeracy, which is when you tell patients about how much their risk is reduced, but they don't understand percentages or risk in numeric terms. There are patients who refuse vaccines based on fear—they are afraid of something about the vaccine. There is the heuristic argument: patients may hear of something that happened with a vaccine once, so they now take a shortcut in their mind and apply it to everything about vaccines. Bandwagoning is another style we see: none of the patient's friends have gotten the vaccine, so why would they? Finally, there is the analytic approach. This is a left-brain style. These patients want all the details, and until they get all the facts, they're not going to make any decisions. So when you think about theses styles when patients refuse vaccines, you can also use specific strategies to help change patients' minds. These strategies will be topics of our next video.







This brings us to the close of the video. To summarize, rates of herpes zoster vaccination for adults ages 60 and older have improved, but remain suboptimal. We have lots of room to go. There are significant physician-level barriers, including miscommunication and cost reimbursement challenges, and how we provide our messaging. There are patient level barriers, including misconceptions about herpes zoster, the zoster vaccine, and varying insurance coverage. Clearly, practical strategies are needed to improve herpes zoster vaccination in this vulnerable population.

I want to thank you for participating in this video and invite you to view the final video in this series, during which we will address the barriers identified here. In addition, I´d like to thank Dr. File for joining us today and to point out helpful resources for physicians and patients pertaining to herpes zoster vaccines, as well as recommendations for other adult vaccines. Adult vaccines schedules from the ACIP, found on the American Academy of Family Physicians' website, have more information, as does the website for one for the Gerontologic Society of America's initiatives, the National Adult Vaccination Program.

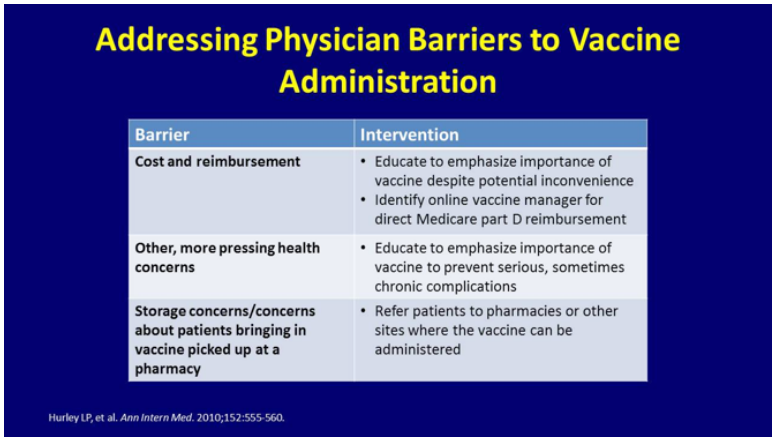
Thank you again for joining us.

4 *Module 4: Strategies for Overcoming Barriers and Improving Herpes Zoster Vaccination Rates*

Dr. File: Welcome to the fourth and final video in this series, Strategies for Overcoming Barriers and Improving Herpes Zoster Vaccination Rates.

Let's start with physician barriers. Stefan, what are those barriers and how can we consider them?

Dr. Gravenstein: There are 3 broad categories: cost and reimbursement; other more pressing health concerns for the patient so that vaccines needs to wait for another time; and storage of the vaccine and monitoring, which includes concern about patients bringing in vaccine that's been picked up at the pharmacy and whether it's still good to give.



The intervention for cost and reimbursement is to educate—to emphasize the importance of vaccinating despite the potential inconvenience. This sometimes requires that the physician convince the patient and identify an online vaccine manager for direct Medicare Part D reimbursement. Regarding health concerns, if the patient is in and it's not the appropriate time to vaccinate, we can emphasize the importance of the vaccine to prevent serious and sometimes chronic complications, and maybe move it from the doctor's office or the examining room to the nurse outside the doctor's office, so it still can be done in the same visit—that is, if the problem is time at the visit.

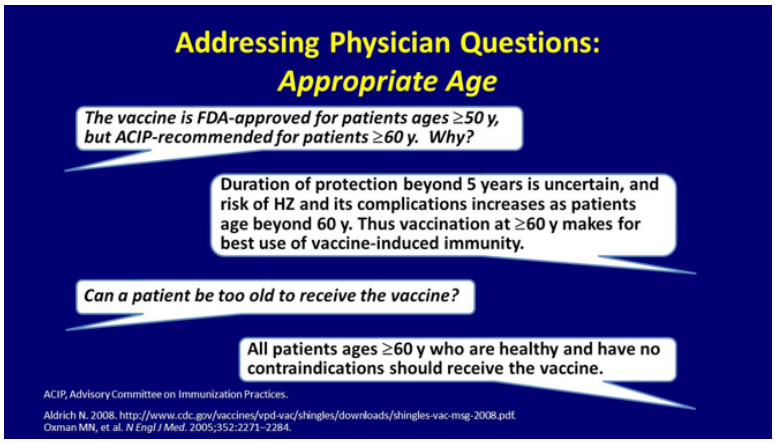
Then finally, if physicians can't store the vaccine or they don't have the right refrigeration resources, they can refer patients to pharmacies or other sites where the vaccine can be administered. That's often what we do in my office, because we can't afford to keep the vaccine.

Dr. File: That's exactly what we do as well.

Dr. Gravenstein: So, among questions physicians may ask are, "Why, if the vaccine is FDA-approved for patients ages 50 years and older, does the Advisory Committee on Immunization Practices (ACIP) recommend it for people ages 60 years and older? Why is that?"

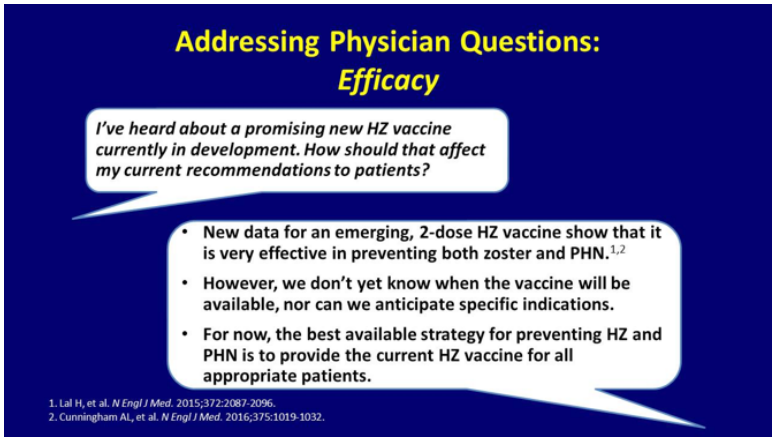
Dr. File: This is a common question I get from a variety of physicians, and it's related to the duration of protection. We know that after a certain period, maybe 5 years or so, the benefits of the vaccine may start to wane, and that the best "bang for the buck" is at age 60 years. This is because the older the patient is, the more likely he or she is to get zoster. Vaccination at age 60 years makes for the best use of the vaccine-induced immunity.

Dr. Gravenstein: So if the vaccine is best at 60 years, should you still get if you're 90 years old? Is there an age that's too old?



Dr. File: There is no an age that's too old. I remember advising my mother at age 90 years to get the vaccine. She was in assisted living and she was able to go to the pharmacy; because she had Medicare Part D, she had no copay at all, so she received it. However, to make the answer shorter, there is no age above which you would not give the vaccine.

Dr. Gravenstein: So I've heard about a promising new herpes zoster vaccine. Should we be waiting to give patients that one?

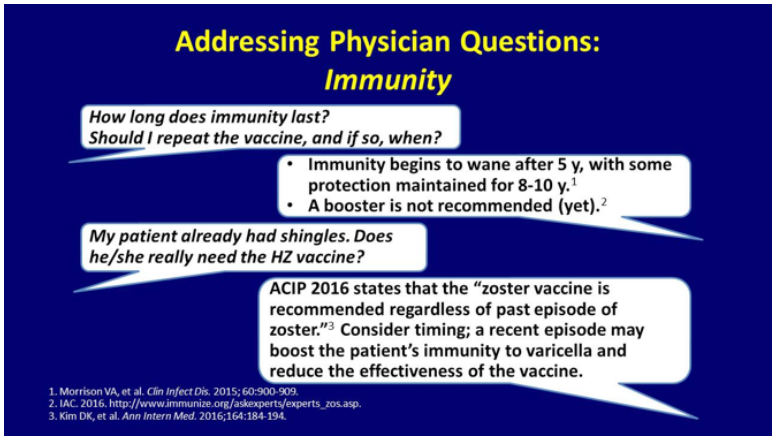


Dr. File: There are new data concerning this vaccine, and it does look very promising. It will require 2 doses for administration, and we anticipate that there will be specific indications, but we're not sure yet what those are. It hasn't been approved; it hasn't been evaluated by ACIP. Therefore, for now, it's still best to give the current vaccine to our patients who are 60 years or older; or, to those who we want to give at ages 50 years or older. It's best now to use the present vaccine until we know more about how the new vaccine will be indicated and when it will be available.

Dr. Gravenstein: I think about that as a missed opportunity. You should give patients the shot when you can. You don't want to wait for something else, because they may not be back.

Dr. File: That's absolutely true. It's true for all adult vaccines. Whenever we see patients for any reason, in our office or another health care setting, it's an opportunity to evaluate for all of these vaccines. And there's no reason why you can't give all of them at the same visit—the herpes zoster vaccine can be given with the tetanus-diphtheria-pertussis (Tdap), influenza, and pneumococcal vaccines. You can do that.

Dr. Gravenstein: But you said that immunity wanes, so if you're giving the zoster vaccine, after 5 years, maybe it's not so great anymore.



Dr. File: Right.

Dr. Gravenstein: Do you give it again?

Dr. File: That's a good question. We do know that the cellular immunity wanes after receiving the booster effect from the vaccine. We do know that there seems still to be some protection out to at least 8 to 10 years. But right now there is no recommendation by the ACIP for a repeat dose. This may change in the future. We'll see as we get more information. But right now there is no recommendation for a second administration.

Dr. Gravenstein: So, a natural infection is a great way to get immunity. Is having shingles anything like a natural infection? If I got shingles, would I then be free of needing to get the vaccine?

Dr. File: You're right. If you have an episode of shingles, or zoster, then you will have a natural boosting of the cell-mediated immunity at that time. Now there is some question as to how long should you wait after you've had that booster effect. Many authorities say that because of the booster effect of an infection, giving the vaccine may be counterintuitive, because it may reduce the effect of the vaccine: you already have a higher level of the cellular immunity from the zoster infection. Many say to wait 6 to 12 months to give the vaccine. But then you also have to consider the opportunity. If this patient is reliable; if you're seeing this patient routinely, if you are sure he or she is going to come back within in a year, then I think that's the best way to go.

Dr. Gravenstein: So, wait a year, perhaps, for another opportunity.

Dr. File: Yes, as long as you feel that they're going to come back.

Dr. Gravenstein: Another consideration with shingles is that it's not a new infection. It's a re-infection.

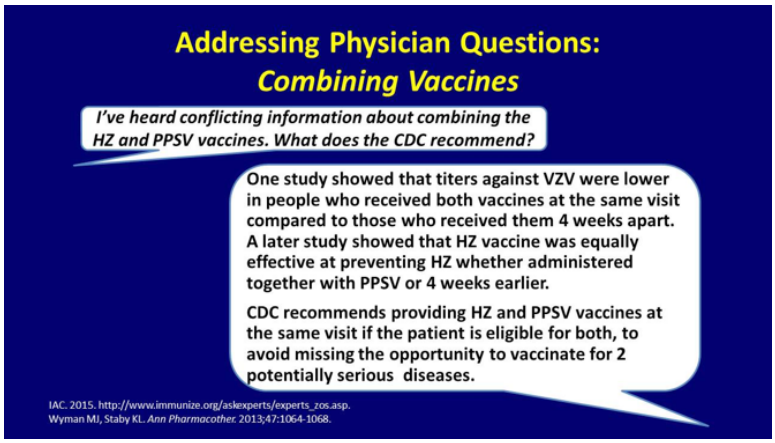
Dr. File: Right.

Dr. Gravenstein: It's a re-emergence, and that also means that immunity plays in a slightly different way.

Dr. File: I certainly would not give it during an acute zoster episode. We would usually wait till the acute episode is resolved. As to how long to wait after that, I think 6 to 12 months makes a lot of sense.

Dr. Gravenstein: So here's a nuance I don't think you'll have an answer for—but what about patients who never get the rash? If they have only the neuralgia, would that change your recommendation about the vaccine?

Dr. File: That's a good point. If they never get the rash, you're going to be hard put to diagnose that indeed shingles was what it was. If they never got the rash, I would give the vaccine anyway because you don't know what was going on unless you take some cerebrospinal fluid and measure for antibodies or do a PCR test.



Dr. Gravenstein: Yes, I bet that patient will be itching to give you some spinal fluid.

Dr. File: Right. In that case, I would give the vaccine.

Dr. Gravenstein: Great. Now, I've heard conflicting information about combining the herpes zoster and the pneumococcal vaccines. What does the Centers for Disease Control and Prevention (CDC) recommend?

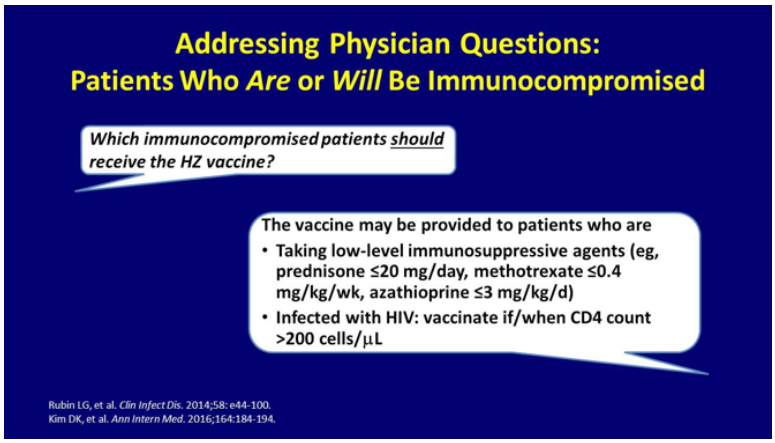
Dr. File: The CDC recommends that you can give them together and combining them doesn't reduce the effectiveness of the vaccines. When you give the zoster vaccine concomitantly with the pneumococcal polysaccharide vaccine (PPSV23), there is some reduction in the cell-mediated immunity, but from a protective standpoint it doesn't seem to reduce the preventive effect. The CDC is quite clear about its recommendation that you can give them at the same time.

Dr. Gravenstein: So the slight reduction in the immunologic measures is a curiosity, but not of clinical importance.

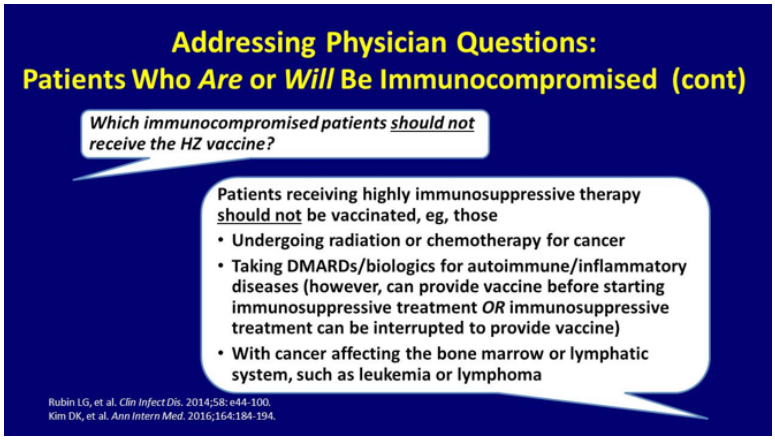
Dr. File: It does not reduce the preventive benefit. Probably the effect on immunologic measures is more than a curiosity, but from the standpoint of relevance and practicality, it should not deter one from giving both vaccines together.

Dr. Gravenstein: That's great to know.

So, which immunocompromised patients should get the zoster vaccine?



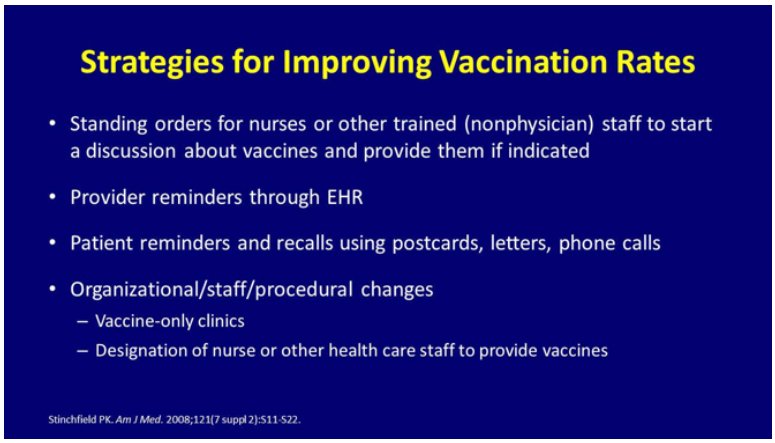
Dr. File: This is a very good point as well, because we're seeing more and more immunocompromised patients, particularly those with rheumatologic and dermatologic conditions who are on immunosuppressive therapies. ACIP recommends that if patients are on relatively low doses of these therapies, it's okay to give the zoster vaccine.



The concern is that the zoster vaccine is a live attenuated vaccine. That's why we're concerned about giving it to patients who may be immunocompromised. What ACIP recommends is that if you're on prednisone less than ≤20 mg/day, or if you're on methotrexate ≤0.4 mg/kg/week, or azathioprine ≤3 mg/kg/day, then it's safe to give the vaccines.

Now, another group of patients who are somewhat immunocompromised are those infected with human immunodeficiency virus (HIV). We see a lot of these patients. We would routinely feel comfortable giving them the vaccine if the virus is suppressed, with their CD4 cell counts above 200 cells/µL.

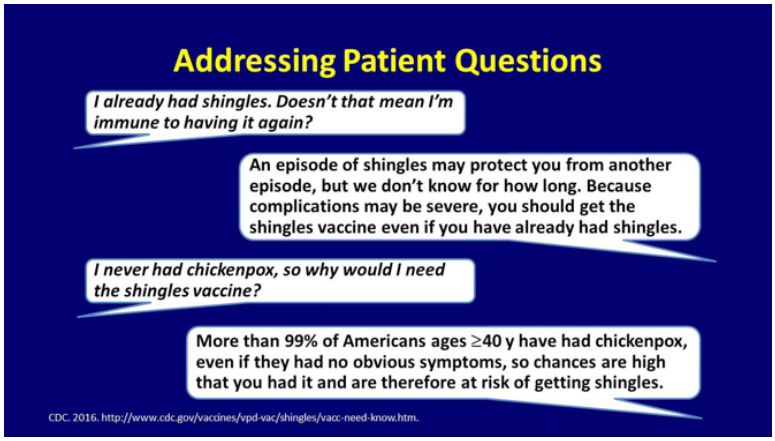
Dr. Gravenstein: Now, there are specific strategies useful for improving vaccination rates. In our office we often use standing orders—this is where the nurses, or other trained non-physician staff, start a discussion with the patient about vaccines and provide the vaccine if it's indicated. The provider can also get reminders through the electronic health record (EHR). These prompts are useful, especially for annual vaccines. Zoster is different, so it's programmed a little differently, and the EHR is relatively new, so providers may not yet know if patients have gotten the vaccine before. But it's a start.



Patient reminders—using postcards, letters, and phone calls—are strategies used for flu vaccine, and you can include a zoster recommendation in those reminders if your office is using them. Useful organizational changes in staff roles and procedures changes include vaccine-only clinics, or designation of a specific person in your office setting, such as a nurse or other health care staff, to provide the vaccines as their primary job. This can help boost quality numbers as well.

Dr. File: Well, now let's address patient questions and concerns. Stefan, what about the patient who says, "I already had shingles. Doesn't that mean I'm immune to having it again?"

Dr. Gravenstein: We've touched on this already. Having shingles does increase your immunity somewhat, but that doesn't last very long, and you can still have a recurrence. The risk of recurrent shingles or zoster is about 6% for the general population and 12% for the immunocompromised population.



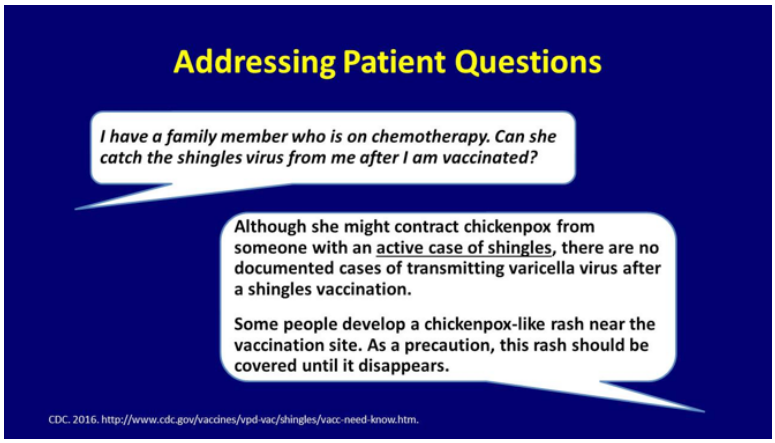
Dr. File: As we've said, we may want to wait 6 to 12 months if the patient's reliably coming back. Okay, another question: "I've never had chickenpox, so why would I need a shingles vaccine?"

Dr. Gravenstein: For the population that's age 40 years and older, close to 100% have had chickenpox whether they know it or not. You can tell patients with some certainty that they are likely to have had chickenpox, and they are at risk for shingles. Another consideration: if patients truly haven't had the chickenpox, their risk for a severe case increases with age. If they're under the age of 40 years, you might want to think about giving them the primary chickenpox vaccine, and then think about when you might give the zoster vaccine later on.

Dr. File: Yes, but we don't need to evaluate the patient with a blood to test to see if they have had chickenpox in the past, right? We can just go ahead and give it.

Dr. Gravenstein: Yes.

Dr. File: Another question. "I have a family member who's on chemotherapy. Can she catch the shingles virus from me after I'm vaccinated?"

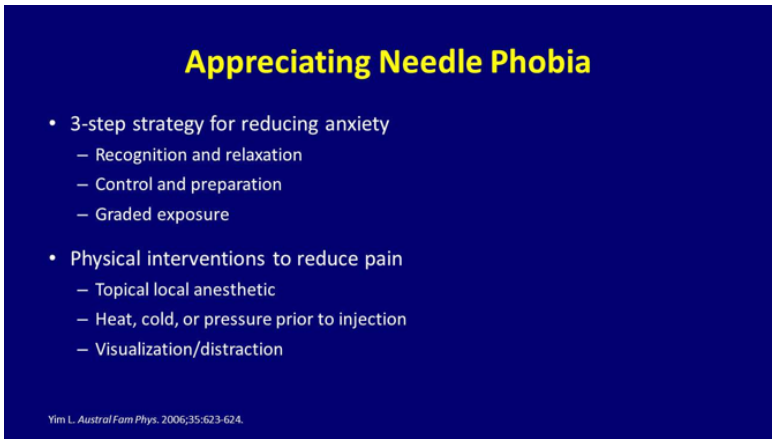


Dr. Gravenstein: The zoster vaccine virus is an attenuated virus, so it's not easy for someone who has received the vaccine to transmit the virus to an immunocompromised individual. It is transmissible, but at a very low level, and if there are lesions after the vaccine is given, simply covering the area is sufficient to protect other people in the household.

Dr. File: We should mention that it's possible to have a small number of zoster vesicles—just a few—associated with the injection site. But that's not very common.

Dr. Gravenstein: Right.

Dr. File: Now what about the issue of needle phobia? We mentioned that in one of the other videos. What's the issue with that?

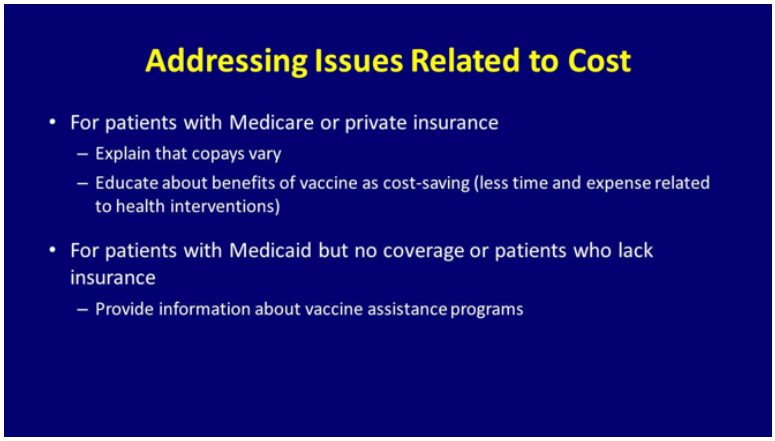


Dr. Gravenstein: A substantial portion of patients, maybe as many as a quarter, are afraid of needles or the pain from a needle. There's a 3-step strategy that we can employ to reduce anxiety. This includes, first of all, recognizing the phobia and helping patients relax, control, and prepare. What I typically do is tell the patient, "This isn't going to hurt more than a pinch. Here, let me pinch you so you can feel how it's going to feel, and I'll tell you right before I give it." Then I pinch the patient and right after the pinch, I insert the needle. That's graded exposure.

Physical interventions to reduce pain includes providing a topical local anesthetic. I haven't done that.

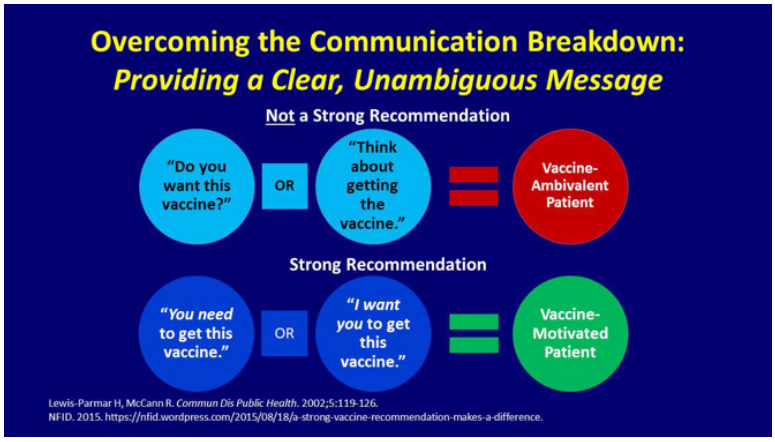
Dr. File: No, I haven't either.

Dr. Gravenstein: Applying heat or cold or pressure prior to the injection can help, and my form of pressure is a pinch, which is more than just pressure. Visualization and distraction may help; I sometimes do that. I put them in a happy place before I scare them with a needle.



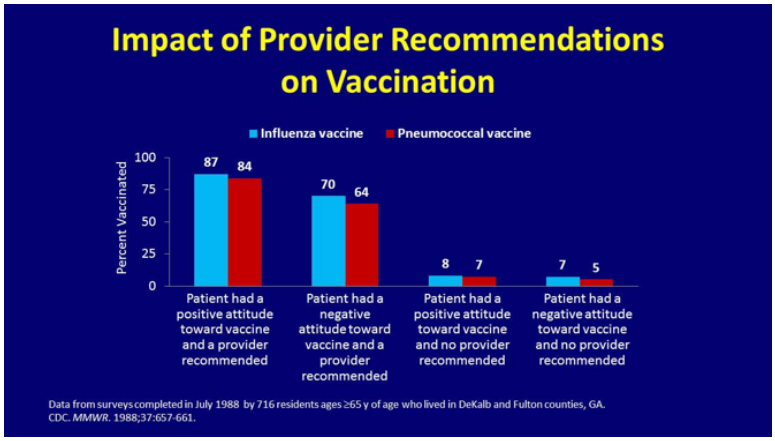
Dr. File: I like your process with the little pinch. That's a good idea. I'm going to have to try that, when patients complain about getting a needle.

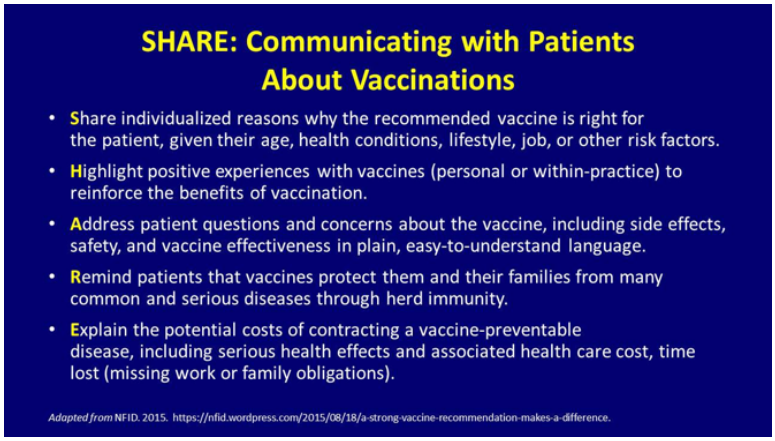
Let's address issues related to cost. We've mentioned this in another video. For patients who have Medicare or private insurance, we need to explain that there may be a copay; but we need to educate them about the definite cost benefits of giving the vaccine. Then for patients with Medicaid and no coverage, or patients who lack insurance, there are vaccine assistance programs that you or your staff can help patients access, so that you can administer the vaccine.



I want to mention again the importance of how we recommend the vaccine to our patients. Studies show that if we strongly recommend a vaccine to our patients, patients will be better motivated. They will be less likely to be moved by celebrities on TV or the anti-vaccine movement. Our patients have a lot of confidence in us. How we provide the message is really important. You don't want to take the approach on the top part of this slide, "Do you want the vaccine?" or, "Think about the vaccine." This is a more passive or ambiguous approach. As we mentioned in another video, patients should receive the vaccine, and so we should say, "You need to get the vaccine. I want you to get the vaccine. It is time to get your vaccine right now and we're going to schedule it." That makes a big difference in getting patients to accept the vaccine.

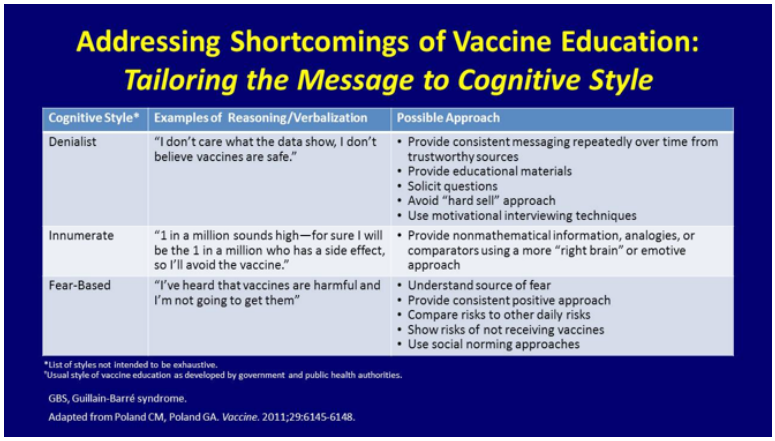
Dr. Gravenstein: So here we can see a slide describing the impact of provider recommendations on vaccination. You can see that when a recommendation is made, most patients end up getting the vaccine. When there is no provider recommendation, that's the right 2 bars, there is very little uptake of vaccine. That strong recommendation, "Today is the day you need to get your vaccine; here, I have your vaccine for you," or, "You should be getting your vaccine; go to the pharmacy and get it today." These are the kinds of recommendations you want to put forward to get patients to comply. Short of that, you will have failed your patient in getting this important protection.





Dr. File: Now, many patients, even when we give a strong recommendation, are still ambivalent, so there are other strategies we can use. This slide shows an acronym, the SHARE concept, which was developed by the National Foundation for Infectious Diseases. It's a way to communicate with patients about vaccines. I'll go quickly through it. "S" stands for sharing individualized reasons why the vaccine is right for the patient—for example, as a way to prevent complications that may occur from zoster. "H" stands for highlighting positive experiences with vaccines. "A" stands for to addressing patient questions. This is really important. We usually provide vaccine information sheets, which are available from the CDC. These provide the rationale for why the patient should get the vaccine, and they are very transparent, not biased at all; they give recommendations and also advise patients of possible adverse events and where to communicate if any significant problems with the vaccine occur. "R" stands for reminding patients that vaccines protect them and their families; we've mentioned that. "E" stands for explaining the potential cost of contracting a vaccine-preventable disease. All of these can be very helpful in motivating patients to receive the vaccine.

Now, there's another process, called motivational interviewing. It's been around for several decades, and it's interesting. Our medical school is now starting to adopt and promote it for our medical students to use in interviewing patients. It's a process that helps us, in an unbiased way, dialog with patients, and encourage them to become self-motivated to receive vaccines or change other health behaviors, such as stopping smoking or reducing weight. It uses the OARS technique, another acronym. "O" stands for open-ended questions. "A" stands for affirmation—in other words, affirming that patients want to be healthy. People want to be healthy, so we have to reinforce that. Then, "R" stands for reflecting on what could be the issues if patients don't receive the vaccine, and "S" stands for summarizing all of these considerations.



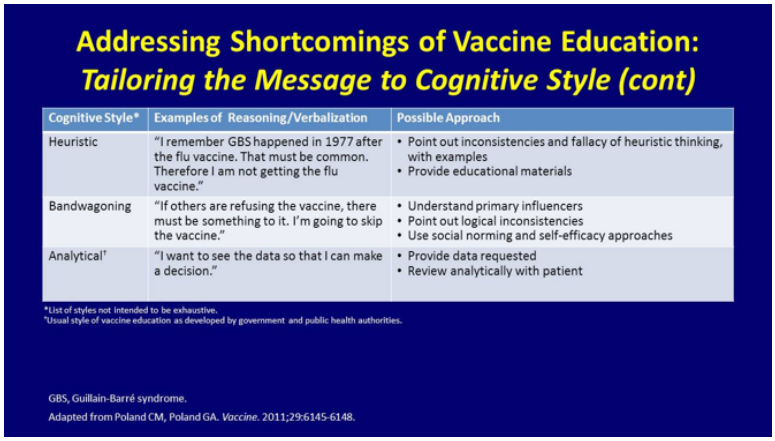
Dr. Gravenstein: Some shortcomings of vaccine education mentioned in the prior video include not being able to address the patient in their learning style. For example, patients with denialist tendencies include those who refute any data you put before them. These patients may say, "There's nothing you can do to convince me." We hear this in our political environment—you can't use an intellectual argument to change somebody's mind. Motivational interviewing could make a difference for these patients. You reach them with something that makes them think not so much about the data, but rather about the "WIIFM"—"what's in it for me."

You can ask patients what they see for themselves as healthy people, then reflect on what they think they need to do to get there. You can explain that they have a 1-in-3 chance of getting shingles in their lifetime; if they are 80 years of age, they have a 50-50 chance. You can gradually change how you argue about—and I use the word argue, but I would preferably say "present," or how you offer opportunities to patients—because receiving the vaccine then becomes an opportunity rather than a demand by the physician. Now this is a little counterintuitive, because we're supposed to be giving strong recommendations for vaccines, but for patients who have this denialist style, we're now trying to work it both ways.

Dr. File: Right. I think your point about arguing is counterintuitive to the motivational interviewing process as well. As you mentioned, you know a third of your patients are going to get zoster, and so these patients probably know somebody either in their family or among their friends who have had zoster. So, I ask them, "What was that like? Wouldn't you want to prevent that?" I think that these types of processes and reflective discussions can help patients be self-motivated to receive the vaccine.

Dr. Gravenstein: Yes. So, a second style is the individual who is innumerate. These are patients who don't have health numeracy; they can't work with numbers. You can say, "You have a 30% chance of getting shingles or zoster," but they don't know really what 30% means. They can't grasp it. One of the strategies I use in this situation is to say, for example, "Do you buy car insurance? Well, why do you get that? What's your chance of getting into a serious accident?" This is a way to approach innumeracy.

A patient with a fear-based cognitive style might say, "I've heard that the vaccine is harmful, and I'm not going to get it for that reason." For these patients, you want to understand exactly what they're afraid of, and that could be anything from the needle to side effects. You might compare this risk to other daily risks that they incur, such as stepping into an automobile, or stepping off the curb for my 90-year-old patients. These are strategies that I think one can use. Social norming is part of this as well.



The heuristic style is another challenge we frequently encounter. An example would be the patient who says, "I remember that Guillain-Barré happened in 1977 when they were giving out flu shots. That must be common. I wonder what's going to happen with this vaccine—therefore, I'm not getting the flu vaccine." This shortcut in applying a remote piece of knowledge to the current situation may not be scientifically accurate, but it might play into how they're making their decision. Stepping around that by pointing out that we have better data, if they're able to work with data, is an approach.

Bandwagoning is the style of patients who follow what they think everybody else is doing. When I'm making my strong recommendation and they give pushback, I will usually say, "Well, you know all of my other patients today have been getting the vaccine, and it's your chance to get yours, too." So, there are strategies that we can use in this context.

And then we sometimes have patients who are analytical—you just can't give them enough data; they want more data to substantiate it. Tom, I don't know which style you see most often.

Dr. File: I would say the style that is most common in my practice is the denialist. These patients just don't feel that they need the vaccine, and we have to explain to them that they are in a group or population, depending upon their age, that is at risk, and discuss the benefit of getting the vaccine to prevent shingles, and the complications that can occur. I think if anybody has known anybody with PHN, they want to avoid that. PHN can be quite debilitating, as we discussed in these other videos. This can be a compelling argument to try to prevent that complication.

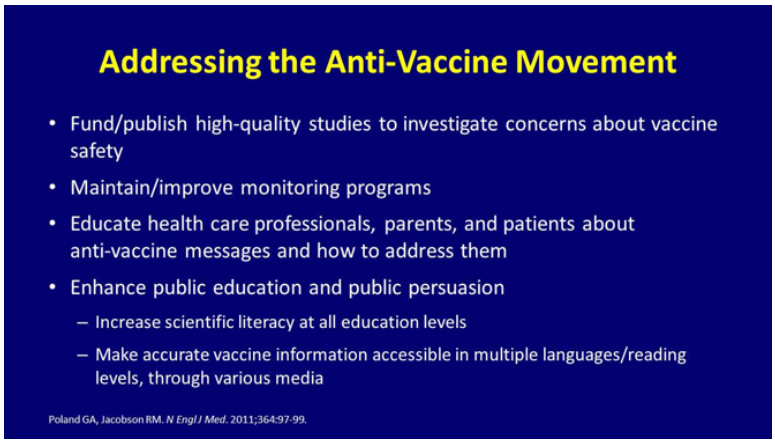
Dr. Gravenstein: Yes, it's hard. It's like the smoker who quits after their heart attack.

Dr. File: That's true. I can't tell you how many times I see this. I was rounding just yesterday in the hospital, and saw a patient with pneumonia. The standard question is, "Do you smoke?" "No." "When did you quit?" "Yesterday"—when they were admitted. It's an important issue.

Dr. Gravenstein: Yes. I encourage such patients not to wait until they get shingles to decide whether to get the vaccine.

Dr. File: Right. Stefan, do you believe that the anti-vaccine movement affects the herpes zoster vaccine rate?

Dr. Gravenstein: I haven't seen it that much yet with zoster, but I certainly have with other vaccines, and I think we need to be prepared for it. We don't have enough information yet, and the vaccine hasn't been used enough yet, for it to have caught traction. But as vaccine uptake increases I think it'll get traction and wind up in the crosshairs of the anti-vaccine movement.



We have do things to be ready to respond. That includes, for example, funding and publishing high quality studies to investigate the concerns about vaccine safety as a good starting point.

We have to have monitoring programs. Currently we have a vaccine adverse event reporting system, which is a good place to start, but folks need to report, and the back side of that is we're only reporting when bad things happen. I think there needs to be information about how little is happening—that the bad events are pretty rare events.

Dr. File: And we have to balance that, on the other side, with the burden of the disease and the burden of the complications. When you consider what the adverse events are relative to the complications that we can potentially prevent, it really weighs in on the side of receiving the vaccine.

Dr. Gravenstein: Yes, there needs to be some craftiness in how we do the messaging, because we don't want to over-alarm people about rare complications of zoster, such as heart attacks and stroke. At the same time, rare complications do occur, and there are really important complications like PHN that are not at all infrequent and can be substantially attenuated or prevented.

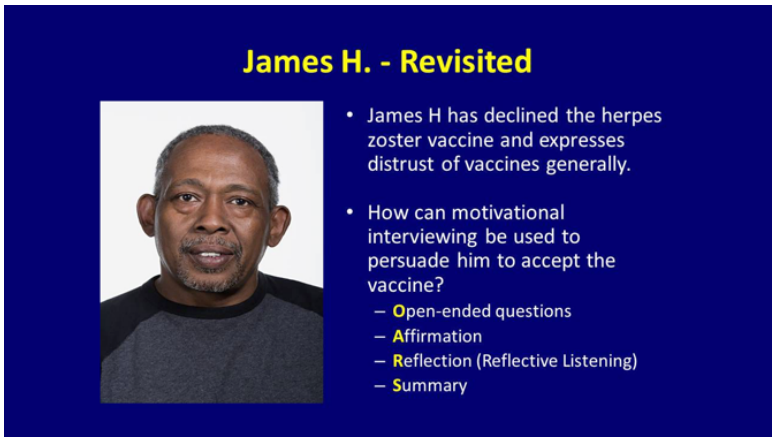
Dr. File: Correct.

Dr. Gravenstein: So, educating health care professionals and patients about anti-vaccine messages and how to address them is also part of the homework we have yet to do.

Finally, we need to enhance public education and public persuasion, to increase scientific and health literacy at all education levels. We need to make accurate vaccine information accessible in multiple languages and reading levels, through various media. For zoster—shingles—we have a long way to go on this.

Dr. File: As we come to a close, I'd like to re-emphasize the importance of herpes zoster vaccination as prevention, given the myriad negative effects of its complications for our patients.

Now, let's go back and revisit James, who we described in an earlier video. Let's discuss how might we approach him differently based on his presenting considerations and concerns.



Dr. Gravenstein: Well, certainly we could start with open-ended questions, if we're using the OARS approach. "Tell me more about your experience with the flu vaccine."

Dr. File: Right.

Dr. Gravenstein: We can ask, "Do you have concerns specific to zoster vaccine? Can you tell me what those are?" These are open-ended questions—those that don't have yes or no answers. Patients have to explain a bit. Then you can latch on to their explanation, and expound a bit on the upside and downside of whatever their rationale is and where it's coming from.

We can provide some affirming dialog, to say, "I know you want to take care of your health. Clearly you work hard to keep your diabetes under control. We could also be working on keeping other things under control, and you know your diabetes actually puts you at greater risk for getting shingles down the road."

We can do some reflective listening, if the patient gives something back, and then consider what they say and take it a step further. We can say, "You know, the shingles rash can be pretty painful." Then the patient might say, "Well, I'm certainly not excited about getting a painful rash." Then the reflective part would be, "Yes, when you get a painful rash, it can take you out of commission. You may find that you can't go out anymore, that you hurt too much. You may not be able to drive or do normal things." People don't realize how much zoster can impact them, or what they would you do if they couldn't drive. These steps are central to changing the message and how patients think about the vaccine.

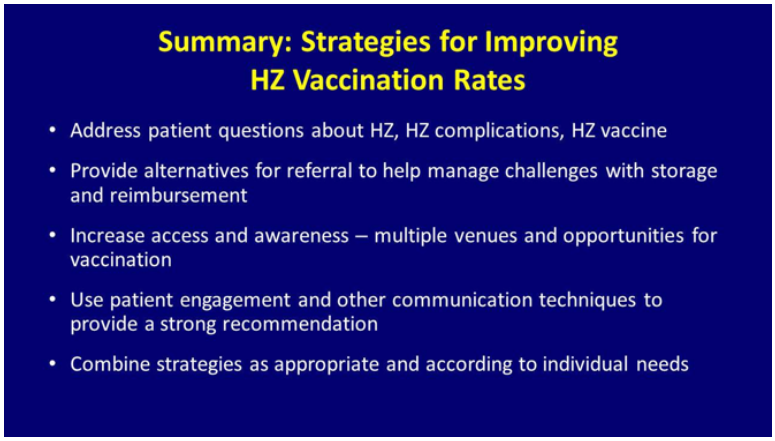
Dr. File: Right. And the other part that I would reinforce is, maybe we wouldn't even have to go through that OARS technique if we just gave them a strong recommendation.

Dr. Gravenstein: In the first place.

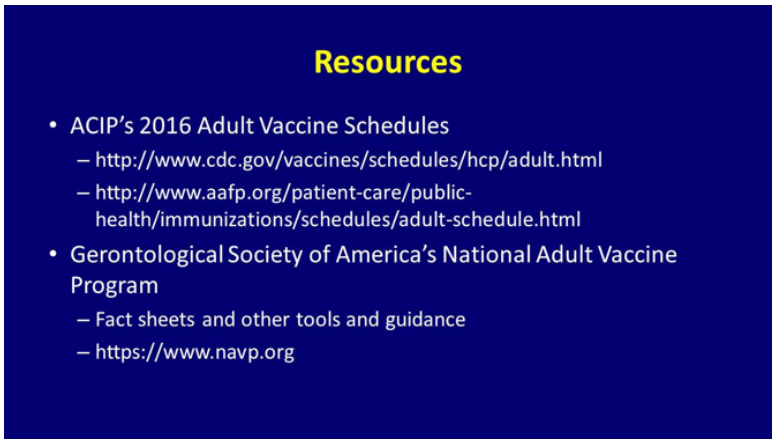
Dr. File: Yes, to begin with, and he would listen to us. Most patients will, and hopefully they will then receive their vaccines.

Dr. Gravenstein: One of the strategies that we use in our office, with the flu vaccine, is to have the nurse offer the vaccine upfront. If the patient declines, the nurse will say, "Well, Dr. Gravenstein is going to want to talk to you about that." Then patients will go ahead and take the vaccine so they don't have to have a discussion with the doctor.

Dr. File: Right.



Thank you, Stefan for this very helpful and enlightening video—and series of videos—on the herpes zoster disease and vaccine. To summarize, we've addressed patient questions about herpes zoster and complications and the herpes zoster vaccine. We've provided alternatives for referral to help manage challenges with storage and reimbursement. We've tried to help increase access and awareness as far as sharing multiple venues and opportunities for vaccination. We have demonstrated patient engagement and other communication techniques to provide a strong recommendation. By combining strategies as appropriate and according to individual needs, we hope that we will be able to increase uptake of this vaccine; as we mentioned, right now, only about a quarter of the population who is eligible for the vaccine has received it. It's important for our patients to prevent both the complications and the initial morbidity associated even with acute zoster.



I'd like to close by thanking our audience, and thanking Stefan, for your attention to this video. I encourage all of you to view or revisit the other 3 videos in the series. We hope the information provided is useful and will help you in your daily practice as you discuss and recommend the herpes zoster vaccine to your older patients.

I would also remind you that other sources are available to review the appropriate management and administration of vaccines. One is the ACIP recommendations, available on the CDC website. Then there's another resource from the Gerontological Society of America; they have a website that gives good recommendations as well.

Dr. Gravenstein: Right, the National Adult Vaccination Program, or NAVP.

Dr. File: Okay. Thank you very much for your attention.

Participate in interactive questions, download activity slides, and obtain your CE/CME credit online.
http://annenberg.net/herpes-zoster-cme