

Yale CANCER
CENTER

answers

WNPR Connecticut Public Radio



Hosts

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Sun Safety and Skin Cancer
Awareness

Guest Expert:

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Yale Cancer Center Answers

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Welcome to Yale Cancer Center Answers with Drs. Ed Chu and Francine Foss, I am Bruce Barber. Dr. Chu is Deputy Director and Chief of Medical Oncology at Yale Cancer Center and he is an internationally recognized expert on colorectal cancer. Dr. Foss is a Professor of Medical Oncology and Dermatology and she is an expert in the treatment of lymphomas. If you would like to join the discussion, you can contact the doctors directly at canceranswers@yale.edu and the phone number is 1888-234-4YCC. This evening Ed welcomes Dr. David Leffell. Dr. Leffell is the CEO of Yale Medical Group and a David Paige Smith Professor of Dermatology Surgery and he is also the author of the book "Total Skin."

Chu David, one of the things that we have done with some of our previous guests is get a little insight into why that individual decided to go into their particular field. Can you start off by telling us why you decided to get into studying skin diseases and dermatology?

Leffell It's an interesting story, at least to me. I actually trained in internal medicine and did part of my training at Memorial Sloan Kettering Cancer Center. During that residency, in the early 80s, there was a new disease being identified in New York and other metropolitan areas. Young men were developing purple spots, and that of course was the introduction of Kaposi's sarcoma in gay men. At the same time immunology, and the role of the immune system in the skin, was taking off, at least from the point of view of research. So those two factors, taking care of those young men and also being exposed to the exciting scientific research in the immunology of the skin, led me to complete my residency in medicine, but then go on to dermatology.

Chu That's interesting. Obviously the Dermatology Program at Yale School of Medicine has been very strong in identifying skin diseases and trying to understand the immunologic basis for those skin diseases.

Leffell That's right. Under the leadership of Chairman, Rick Edelson, over the past 25 years or so dermatology research at Yale has been in the vanguard of understanding how the immune system functions through the skin. Remember, the skin is the body's largest organ and it's also the organ that first comes in contact with the environment. For anyone who has had poison ivy, I think it's pretty obvious that the skin has to have a mechanism of remembering that it doesn't like poison ivy, and if you go near it, it's going to give you a rash. That's a graphic way of describing the fact that the skin has an ability to remember the type of irritants or antigens that it comes in contact with. As we talk in more detail about skin cancer, I am going to come back to that concept of the skin's immune system, because we now know that it plays an important role in skin cancer as well.

Chu As I have had numerous bouts with poison ivy, I know that it can be pretty discomforting.

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How did you then get focused on skin cancer, which really is your main area of interest and you are one of the leading experts in the country?

Leffell When I was doing my residency in dermatology at Yale, I found myself gravitating towards that aspect of dermatology that focused on oncology, or skin cancers. At that time, in the late 80s, a new subspecialty of dermatology was developing which focused not just on skin cancer per se, but on the technique for treating non-melanoma skin cancer called the Mohs technique, also associated with plastic reconstruction. I found the idea of being able to diagnose, treat, and in the vast majority of cases get very good results, very rewarding. In addition, because of my exposure to immunology research, I identified this as a very unique way in which I could combine clinical practice with clinical research in an academic career.

Chu We are in the month of May, which is Skin Cancer Awareness Month. Is there just one type of skin cancer, or are there different types of skin cancer?

Leffell There are different types of skin cancer, but I would like to try to reduce it to something very straightforward and easy to remember. There are basically two categories that listeners have to know about, melanoma and non-melanoma skin cancer. Under the heading of non-melanoma skin cancer, there are two types of cancer that you can think of as cousins, because they are both caused by ultraviolet radiation from the sun. These include basal cell cancer, which is the most common cancer in humans, and squamous cell cancer. Basal cell cancer doesn't normally spread, in fact very rarely for all practical purposes, and it doesn't spread to other organs. Squamous cell cancer, in a very-very small percentage of cases, does have the potential to metastasize to other organs, but in the vast majority of cases squamous cell cancer and basal cell cancer are easily treated and that's the end of the story. Going back to the other big category of skin cancer, melanoma is a form of skin cancer that is potentially much more concerning, because in a more advanced stage it does have the potential to spread in the blood stream and cause death in certain cases. When we talk about skin cancer, we talked about basal cell cancer and squamous cell cancer, both of which arise from the cells of the epidermis or the top layer of the skin, and we talked about melanoma, which is actually a cancer of the pigment cells that reside in the bottom layer of the top layer of the skin.

Chu For the purposes of our discussion this evening we are going to focus primarily on the non-melanoma skin cancer, which you mentioned. David, throughout your career have you seen a change in the incidence of the non-melanoma skin cancers?

Leffell We think that there has been a change if not in the incidence, then in the distribution; in other words, the types of people that are getting skin cancer. When I was in medical school, and even in training, it was unusual to see people under 50 with a basal cell cancer or a squamous

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cell cancer. Now it's not unusual to see people in their 30s and 40s. At Yale School of Medicine in the Dermatologic Surgery Unit, it's not infrequent for us to see patients in their 20s. I will say that the patient's in their 20s are more often than not women, and more often than not, when we inquire about their sun exposure practices, we always ask about the use of tanning beds, and the majority of women in their early to mid 20s that come in with basal cell cancer or squamous cell cancer have used ultraviolet tanning beds.

Chu It's interesting that you say that these tanning parlors pose an increased risk for individuals to develop skin cancer, because when we hear the advertisements about these tanning salons, the claim is that there is no increased risk for developing either skin cancer or any other type of skin diseases.

Leffell Well those claims in advertising and other venues are completely false and are a danger to public health. If you want to know how I really feel about it, I am happy to tell you. The purpose of this discussion is that listeners have to realize that these tanning parlors use ultraviolet lights that emit ultraviolet radiation that is the same as ultraviolet radiation from the sun, which is an environmentally documented cancer causing agent. Years of research, including research we have done at Yale, has not only confirmed that ultraviolet radiation causes skin cancer, but we even believe we understand the mechanism that is in effect in most cases. The tanning industry is not helping anyone, and going back to the original question about changes in the incidence of skin cancer, I think they are actually impacting the distribution of skin cancer and perhaps the incidence by making people believe that its safe, not only that its safe, but I have seen advertisements claiming that you need to go to a tanning parlor because you need ultraviolet radiation to get more vitamin D.

Chu Interesting. Other than sun exposure, which clearly is the main cause, are there any other risk factors or causes for developing non-melanoma skin cancer?

Leffell Yes, in the sense that there are certain people that are more at risk for developing skin cancer from sun exposure, precisely because they have less natural protection against the ultraviolet radiation, and in general, I think the listeners who fit the description know who they are, but it always bears repeating. Individuals with light colored hair, fair skin, people with light colored eyes, blue, green or gray, are all at increased risk for developing skin cancer, because among other things their ability to protect against harmful effects of the sun is lessened because they lack natural pigment response or tanning response to ultraviolet radiation. That's not to say that people that don't fit that description aren't at risk. In fact, we routinely see people who would describe themselves as more olive skin, of Mediterranean heritage, coming in with skin cancer and the reason for that is over the course of the lifetime, they have managed to get enough sun exposure to overwhelm their body's ability to defend.

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- Chu There is this myth out there that says African Americans who have dark colored skin aren't at increased risk for developing skin cancer, but what you just said would suggest that they also are at increased risk.
- Leffell It's a matter of degree. We speak less in terms of race and more in terms of skin types. So, people with much darker skin types have a very-very low incidence of non-melanoma skin cancer. The thing that these listeners have to be aware of is the risk of melanoma occurring on the hands and feet and under the nails. They seem to have an increased risk for that.
- Chu Typically what should an individual look out for if there is a concern that a skin cancer may be developing?
- Leffell Basal cell cancer is tricky, and it's tricky because it can appear in many different ways. I will try to go through the descriptions momentarily, but the real reason it's tricky is because it can often heal up and go away for a month or two only to come back. It allows the person a false sense of security, and if you ask patients when they first noticed the skin, they will often have a very hard time being precise about it because it does go away and then recurs without doing anything in particular, it's a nature of its biology. The classic basal cell cancer appears as a small dome-shaped bump that's pearly in quality, and if you look closely in a magnifying mirror, you will see little blood vessels coursing through it, but basal cell cancer can also look like a scar, a whitish, smooth, waxy scar and if you have one of those, but you can't actually remember having an injury, you probably should have it checked out; that's called a morpheaform basal cell cancer. Then there is superficial basal cell cancer that can sometimes look like a patch of eczema. The big difference is that it doesn't go away with simple topical treatment and in between each of these is a wide range of growth that could represent basal cell cancer, but if you were to ask me what is the cardinal sign, the most common sign that patients talk about when they come in with basal cell cancer, I would have to say bleeding. The growth starts bleeding and then it heals up and starts bleeding again, or there was blood on the pillow and that's how they realized there was something going on, because the spot, which I picked at, hasn't gone away.
- Chu People will also notice moles throughout their body. Do they have to worry about developing basal cell or squamous cell cancers, or is it primarily melanoma that they should be worried about?
- Leffell Moles relate to melanoma, primarily. In addition, basal cell cancer and squamous cell cancer are more often than not going to occur on sun-exposed areas such as the face, the scalp, the tops of the ears, the backs of the hands, and in women historically, below the knees.

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Chu How about on the back? Is there increased incidence of someone lying down and the back getting sun exposed?

Leffell Yes, we see it more often in men than in women, men working outside for example, recreationally without a shirt.

Chu Obviously sun protection is key for anyone who is going out in the sun. What are your general recommendations for sun exposure or for sun protection to try to prevent against increased sun exposure?

Leffell Doctors tell people to do a lot of different things. Some of the advice is rooted in science, some of it is rooted in tradition, and some of it isn't rooted in anything. But when it comes to sun protection, we know the basic sciences of how ultraviolet radiation causes skin cancer. In addition, we know from various research studies that if you are successful in reducing the amount of sun exposure, the number of precancerous clones of cells in the skin will actually decrease. So there is a real benefit to sun protection. Some people say, I am 60, 70 years old what difference does it make, the horse is out of the barn? I would say the horse may be out of the barn, but it is not out of the corral, and so it makes sense to follow the following steps: #1. Use a sunscreen with a sun protection factor of 30, that also provides ultraviolet A protection. #2. Wear a brimmed hat, and here we are transitioning from health care to style and fashion, and many people, many men certainly claim, that there are no brimmed hats that look good. That may be true, it's a matter of taste, but any of the hats out there look a lot better than having surgery on your ears or on other parts of your face because of skin cancer. In addition, you want to make sure that you are not in the sun during peak hours; you should be in the shade between 10 and 4, at least between 10 and 3. If you follow those steps as part of a comprehensive plan of sun protection, you will benefit yourself. I have had patients, many patients over the years, who have gotten serious about sun protection, and guess what, I don't see them as often.

Chu Interesting. Now David, we go to drug stores and we see all of the sun blocks and there is 15, 30, 45 and 50. Can you give us a quick run down on what that number really means?

Leffell The sun protection factor, or SPF, refers to the degree to which the product will protect you against ultraviolet B, or the burning rays. If something has an SPF of 30 and you are normally able to stay out in the sun, say you have very fair skin, for 10 minutes before turning pink, it means that you should be able to stay out, theoretically, for $SPF \times 10$ minutes, 300 minutes, but it's really just a rough guide and it's going to vary with the individual. The other thing you need to look for is UVA protection, and the most common ingredients to look for with respect to ultraviolet A, those are the tanning rays and aging rays,

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are called Parsol 1789, or avobenzone, and/or zinc oxide.

Chu You are listening to Yale Cancer Center Answers and our special guest this evening is Dr. David Leffell. At the other side of the break we will talk more about the treatment of skin cancer with our guest Dr. David Leffell.

Medical Minute

There are over 10 million cancer survivors in the US and the numbers keep growing. Completing cancer treatment is very exciting, but cancer and its treatment can be a life changing experience. After treatment, the return to normal activities and relationships can be difficult and cancer survivors may face other long-term side effects including heart problems, osteoporosis, fertility issues, and an increased risk of second cancers. Resources for cancer survivors are available at federally designated comprehensive cancer center such as the Yale Cancer Center to keep cancer survivors well and focused on healthy living. This has been a medical minute and you will find more information at yalecancercenter.org. You are listening to the WNPR Health Forum from Connecticut Public Radio.

Chu Welcome back to Yale Cancer Center Answers. This is Dr. Ed Chu and I am joined here this evening by Dr. David Leffell, Deputy Dean of Clinical Affairs of Yale School of Medicine, and the David Paige Smith Professor of Dermatologic Surgery. David, before the break we were talking about the use of sun protection to try to prevent sun exposure. Can we talk a little bit about if in fact someone believes that they do have a lesion that could develop into skin cancer? What should that individual do?

Leffell The most definitive way of determining whether you have skin cancer or not is to be seen by a dermatologist who will examine you carefully. If there is a concern about skin cancer they will perform a small biopsy, which is a very simple, office-based procedure that provides a great deal of information.

Chu When would that individual be referred to someone like yourself who's expertise is in dermatologic surgery?

Leffell The vast majority of skin cancers are easily treated by your dermatologist or plastic surgeon, the question of referral comes up based on the type of skin cancer that it is. The technique that we specialize in at Yale Cancer Center is the technique called Mohs micrographic surgery. This is a method developed over more than 40 years ago that allows for the very conservative stepwise layered removal of skin cancers, and there are two purposes to this technique. Number one is obtaining the highest cure rate, which it does do in the 98% range, and the other is to minimize the removal of normal tissue so that you get the optimum

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cosmetic results. Since most skin cancers occur on the face, it's important to take an approach that's very conservative, and at the same time gets the highest cure rate. The type of patients that would be referred to us would be those that have recurrent skin cancer, in other words, skin cancer that failed previous treatment, those on the central facial area or in difficult areas like around the eyes or ears or those that have microscopic appearance where there are little roots, something more than just a superficial skin cancer.

Chu Some people might be concerned if we are talking about surgery on the face, because obviously there might be some cosmetic issues. Is there ever any concern about the outcome in that kind of situation?

Leffell As good physicians we try to pride ourselves on always being concerned on behalf of the patient and watching out for their welfare. In reality, the Mohs technique goes hand in glove with classic reconstruction and we do a substantial amount of classic reconstruction. I would say that virtually over 90% of the reconstruction we do in the office is at the time the skin cancer is removed. Rarely do we have to refer to our colleagues in plastic surgery, because more complex procedures are needed. We do approximately 3500 cases a year that are referred from all over the region, and what's important to know it is that not everyone needs plastic surgery or stitching. In fact, probably 25% to 30% of patients benefit from the conservative removal of the skin cancer and don't require stitches or plastic surgery at all; you can allow the wound to heal naturally and cosmetically. In appropriately chosen cases it can look better than if you try to do plastic surgery.

Chu Is there anything that needs to be done after surgery has been performed, or is it just kind of observation at that point?

Leffell It is, the cure rate with the Mohs technique, and often with procedures that are done locally in the dermatologist or the local physicians office, have very high cure rates. Radiation treatment is almost never needed in those cases, though we do use it in more advanced and aggressive cases that involve invasion of the nerves by cancer, but those fortunately are relatively rare. There is no chemotherapy for skin cancer, it is a treatment at the present time that not only is adequately and fully treated surgically, but in fact through new therapies we are even moving away from surgical treatments.

Chu What are the non-surgical alternative approaches that one could take to treat skin cancer?

Leffell The good thing about skin cancer, if there is a good thing, is that it's out there and accessible to treatment. As a result, it lends itself to topical therapy, the use of creams and other approaches. Perhaps the best known topical approach is a drug called imiquimod, the brand

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name is Aldara, and it's a cream that's applied anywhere from every other day to five days a week for a period of six weeks or more or less. It stimulates the immune system of the skin, which I mentioned earlier is to produce natural interferon among other things, which actually destroys the cancer cells and in appropriately selected cases its cure rate is very good and it allows removal of the skin cancer without any surgical intervention.

Chu That's interesting and it also kind of brings us back to your initial point of how the immunology system is intertwined with skin diseases or skin cancer.

Leffell It is, and I think the Aldara story is a great example of the fact that the immune system plays a constant surveillance role. Skin cancers are always brewing in people that have had a lot of sun exposure, microscopically we know because you can see it under the microscope. You can see precancerous cells jumbling up and getting ready to grow. There has to be a mechanism that's keeping those cells in check and the immune system plays that role; however, ultraviolet radiation from the sun, interestingly enough, and we have known this for many decades, can blow away some of the immune protective cells of the skin, thereby, creating an opportunity for skin cancer cells to multiply and grow. For example, many people know that if they are prone to cold sores they can breakout after they have been in the sun, and one of the possibilities is that ultraviolet radiation from the sun is suppressing the local immune protection that keeps a virus in check, allowing it to breakout into a cold sore. There are many examples of how actual skin problems reflect the function or dysfunction of the immune system.

Chu That's fascinating. David, you and your group here at Yale Cancer Center have been very actively involved in various aspects of clinical research. Can you tell us a little bit about the types of research that you have been involved in?

Leffell Probably the most salient achievement was under the leadership of Allen Bale. Combining his research endeavors with our clinical organization, we were able to identify, along with other researchers internationally that were part of the effort, the skin cancer gene. The patched gene it's called, is actually a gene that similar to one found in the fruit fly and this was back in the mid to late 90s. Since that time, as a result of those discoveries and based on a lot of those findings, other researchers have gone on as well to clarify not just the mechanism of how cancer is caused in the skin, in the case of basal cell cancer, but it turns out that the patch gene may play a role in other cancers as well. What we do know is ultimately discovery is going to be what enhances human comfort and health and that doing translational research, in other words, doing research that uses a human tissue or involves patients answering questions about mechanisms, is the only way we are really going to develop effective treatments. We often talk about translational research as bench to bedside,

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but in reality, most translational research in my opinion actually originates at the bedside when the clinician makes an observation about a disease, has a discussion with the basic scientist or a laboratory scientist, and together they begin to try to answer questions by joining forces and by joining their different intellectual perspectives.

Chu And it is a two way street, it requires balance on both sides. In the 90 seconds or so that we have left in the show, its amazing how quickly time has gone, can you tell our listeners a little bit out your book called "Total Skin."

Leffell "Total Skin" was written in 2000 and was published by Hyperion. My goal then was to be a reliable home reference for skin. There are many books out there that will tell you how to look 50 years younger, and if you are only 40 it will tell you how to look 30 years younger, all sorts of things that are actually not substantiated by science but appeal to the imagination of people, as well as to me frankly. However, what people really need to know is what do I have? Is it serious? Who should I see? How do you treat it? Is it something I can take care of at home? And so, I wrote "Total Skin" and included in it a variety of color photographs which are pretty effective at identifying specific skin lesions, although people should not rely on it exclusively for that type of information. Though the book has been out of print it is still available on Amazon, I believe, but it's out of print. But better than buying it, it's now available for free on the Yale Dermatology website or the following website www.totalskin.md.com. I would encourage listeners to get it if they have questions about their skin health. It covers everything from skin cancer to rashes to some of those issues related to looking younger and it's in PDF form, easy to download and read.

Chu I have read the book and really it's terrific.

Leffell Thank you.

Chu I would strongly encourage all of you listeners out there to go ahead and download the book, it really is very helpful for those of you who want to learn more about skin in general. You have been listening to Yale Cancer Center Answers and I would like to thank our guest expert this evening Dr. David Leffell for another terrific program. Next week, we will continue our focus on May Skin Cancer Awareness Month with the discussion on that other type of skin cancer, melanoma. Until then, I am Ed Chu from Yale Cancer Center wishing you a safe and healthy week.

If you have questions or would like to share your comments, go to yalecancercenter.org where you can also subscribe to our podcast and find written transcripts of past programs. I am Bruce Barber and you are listening to the WNPR Health Forum from Connecticut Public Radio.