

# Mayo Clinic Q & A - Dr. Jeffrey Karnes - Prostate Cancer Mon...

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## SUMMARY KEYWORDS

prostate cancer, prostate, psa, men, cancer, screening, urologist, mayo clinic, diagnosed, treat, breast cancer, grade, jeff, aggressive, age, important, treatment, research, active surveillance, therapy

## SPEAKERS

Dr. Halena Gazelka, Narrator, Dr. Jeffrey Karnes

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- N** Narrator 00:01  
Coming up on Mayo Clinic Q&A,
  - D** Dr. Jeffrey Karnes 00:04  
September is Prostate Cancer Awareness Month. One in eight U.S. men will be diagnosed during their lifetime with prostate cancer. The majority, over 50% of men who are diagnosed are over the age of 65. The longer we live, the more likely we are to have a diagnosis of prostate cancer.
  - N** Narrator 00:20  
Men as young as 50 years of age are urged to be tested for prostate cancer, 45 for men with a family history of cancer or if you're African American. As with all cancers, the key to a positive outcome starts with early diagnosis.
  - D** Dr. Jeffrey Karnes 00:35  
Even locally advanced cases of prostate cancer, their survival rates at five years can be

well over 90% and even approach 100% for some even advanced cases.

**D** Dr. Halena Gazelka 00:47

Welcome everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. Prostate cancer is one of the most common types of cancer. In fact, for men, it is the most common type of cancer after skin cancers. According to the National Cancer Institute, approximately one in eight men will be diagnosed with prostate cancer at some time during their lifetime. So, if you've been diagnosed with prostate cancer or someone you love has, what comes next? Here with us to discuss that very topic today is Dr. Jeffrey Karnes. Dr. Karnes is a neurologist and chair of the Division of Community Urology at the Mayo Clinic in Rochester, Minnesota. Thanks for being here today, Jeff.

**D** Dr. Jeffrey Karnes 01:30

Thanks, Dr. Gazelka.

**D** Dr. Halena Gazelka 01:32

Wonderful to have you here. Can you tell us first, who is at risk, most at risk for prostate cancer? Is it similar for all men?

**D** Dr. Jeffrey Karnes 01:42

It is not. I first want to say that this is a very timely interview because September is Prostate Cancer Awareness Month. And as you mentioned, one in eight U.S. men will be diagnosed during their lifetime with prostate cancer. The majority, over 50% of men, who are diagnosed are over the age of 65. To answer your question, age is a risk factor. The longer we live, the more likely we are to have a diagnosis of prostate cancer. Certainly, there is a hereditary component that we appreciate more with prostate cancer. Certainly, men of African American descent are at a not quite two fold, but over 1.5 fold increase in being diagnosed with prostate cancer as well. So, those are some risk factors as we look at prostate cancer across the U.S. population.

**D** Dr. Halena Gazelka 02:39

Well, thank you for mentioning that September is Prostate Cancer Awareness month. And it kind of reminds me a little bit of breast cancer because I remember hearing that one in eight women will develop breast cancer, so very common cancers in men and women,

**D** Dr. Jeffrey Karnes 02:55  
A lot of similarities between prostate and breast cancer. You know, they're both influenced by our hormones. And they both have treatments that involve hormones at times, especially for the more advanced cases.

**D** Dr. Halena Gazelka 03:09  
Interesting. So, with women, you screen for breast cancer with mammograms. Do you screen men for prostate cancer? And how do you diagnose it if you suspect it?

**D** Dr. Jeffrey Karnes 03:19  
So, we do especially urologists, recommend screening. There have been some fairly large population-based studies predominately out of Europe, that have shown that screening can save lives with prostate cancer. Certainly, we struggle with detection and over detection, detecting men who really need treatment versus men who might not need treatment with their prostate cancer when it comes to screening. But traditionally, we, you know, I like a baseline PSA for men in their 40s. But however, a lot of guidelines will suggest a 50 year start up screening. Certainly, it's an informed decision making regarding the patient and their primary care doctor, or the patient and a urologist when it comes to decision making with screening. Screening is done by two methods. One is a PSA, which is a blood test. It's a circulating protein in our blood that actually can be detected by a fairly simple blood test. And certainly, it's not, it could be very sensitive to detecting prostate cancer, but not very specific. And certainly, we have ways to try to increase that specificity. But certainly, all elevated PSAs are not prostate cancer, but most prostate cancers do have elevated PSAs. The other method we use is a rectal exam, or an exam that we palpate or feel the prostate, to ensure there's no abnormal nodules, roughness, or richness to the prostate. And those are the two ways that usually men are then referred to a urologist.

**D** Dr. Halena Gazelka 05:09  
Jeff, can I go back to the topic of PSA for just a moment because it's such an important topic, and I want to be certain that our listeners are clear. I think what I heard you say that the PSA test is quite sensitive for prostate cancer. So, in other words, if prostate cancer is present, the PSA is likely to be high in that setting, would that be true?

**D** Dr. Jeffrey Karnes 05:31

That'll be true, we can, you know, increase the sensitivity of a PSA by actually lowering the upper limits of detection, and we certainly do that, and actually Mayo Clinic was on the front edge of that years ago, where they use more age specific PSA cut points. So, you know, a lot of times people will use a cut point of four. Well, we know that a PSA in a man who is 50 shouldn't be four.

**D** Dr. Halena Gazelka 06:01  
Okay.

**D** Dr. Jeffrey Karnes 06:02  
That's not a normal PSA. Or even three is not a normal PSA. But a man in his 70s or a man who is 70 with a PSA of four can be completely normal, because the prostate continues to grow with age, and the PSA can be proportionate to the volume of prostate. So, we use a lot of age specific guidelines when it comes to PSA, you know, to both try to increase the sensitivity in men that we want to make sure we don't miss a prostate cancer like that younger man, and actually, you know, increase the PSA threshold in the older man to actually maybe decrease the sensitivity, but increase the specificity of trying to find a prostate cancer that could be aggressive.

**D** Dr. Halena Gazelka 06:49  
And so, when you talk about the specificity, that means that just because the PSA is high, it does not mean we have found prostate cancer, it can be high for other reasons. Would that be correct?

**D** Dr. Jeffrey Karnes 07:00  
That's correct, right.

**D** Dr. Halena Gazelka 07:01  
Okay.

**D** Dr. Jeffrey Karnes 07:02  
So, a PSA of, you know, between 2.5 and 10, or 4 and 10, you know, a minority of those cases do have a prostate cancer. So, that means the majority actually have an elevated PSA for other reasons. And usually, it's what we call BPH or just enlargement of the

prostate.

**D** Dr. Halena Gazelka 07:19  
Okay, which you said is more common as people age?

**D** Dr. Jeffrey Karnes 07:23  
Correct.

**D** Dr. Halena Gazelka 07:25  
Jeff, I am aware that there are differences in prostate cancer and how aggressive different cancers can be just as there are with many different types of cancer. How do you know when you diagnose someone with prostate cancer, which sort they have?

**D** Dr. Jeffrey Karnes 07:38  
Yeah, so you know, we obviously use PSA, we use exam, we can use MRI to determine the risk or how aggressive the prostate cancer is. But really, what holds true now for really over 50 years, has been the grading system for prostate cancer. It's a different type of grading system that we have in other cancers, where other cancers they tend to use the individual look of the cells, or what we call the nuclear grade the nucleus of the cells. But for prostate cancer, the grading depends on an architecture or a pattern of the glands and how they look. And there are really three grades of prostate cancer, there's really a grade three, a grade four, and a grade five. There are typically or usually are multiple foci or different parts of the prostate cancer that are seen under the microscope by our pathologist. So, there's a primary grade and a secondary grade. So, if it's a lower grade tumor, the primary grade would be a three, but the secondary pattern would also be a three if they don't see any other higher grade.

**D** Dr. Halena Gazelka 08:47  
How interesting, I never knew that before.

**D** Dr. Jeffrey Karnes 08:50  
Right, so.

D Dr. Halena Gazelka 08:52  
I love to learn something new every day, Jeff.

D Dr. Jeffrey Karnes 08:55  
It really is Donald Gleason's grading system, even though we've moved away from calling it sometimes Gleason grade, but actually grade groups really still rings true today in terms of prognostication, or how patients do, or what really is an aggressive prostate cancer. Certainly, it really, it's more important than the PSA. So, you know, even if the PSA would be 20, if the grade of the cancer is a, say a three plus three or three plus four, that's not as aggressive as a grade five plus four equals nine with a PSA of two. That's a more aggressive tumor because we know from tons of research that the higher the grade, irrespective of the PSA, the more aggressive the cancer is.

D Dr. Halena Gazelka 09:45  
Interesting. Jeff, how do you know if the cancer has spread out into the body outside of the prostate, and is it important to know that before you treat someone?

D Dr. Jeffrey Karnes 09:55  
It's very important, Dr. Gazelka, to know that their clinical stage. Certainly, as I mentioned earlier, the MRI which we're doing now more commonly prior to a biopsy can actually suggest whether there's cancer, you know, outside the lining of the prostate, and in any adjacent regional organs or even in lymph nodes and actually can sometimes even look at bones. But certainly, once a diagnosis of prostate cancer happens, we risk stratify them. If it's a lower grade tumor, we usually don't require anything else. If it's a higher grade tumor and or a very high PSA, we usually still will do a bone scan, or a CT scan. Or in the last few months, there has been FDA approval for a special PET scan, called a PSMA scan, which is a nuclear medicine scan, very similar to the PET scans that are done for other cancers. This is more tailored and specific to prostate cancer. And it's been FDA approved for initial staging of prostate cancer. The PSMA, which stands for prostate specific membrane antigen, which is a protein expressed on prostate cells and prostate cancer cells is usually overexpressed in at least 80 to 90% of all prostate cancers. So, it could be a good staging system, and a recent study done has shown that it improves staging by about a third of cases over our traditional CT and bone scans. So, I think we will continue to evolve in our evaluation of newly diagnosed men and start using the PSMA PET scans more commonly, especially for men with higher risk features like I mentioned that greater the prostate tumor, or you know, a very high elevated or PSA.

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Dr. Halena Gazelka 11:53

How interesting. How do you then go on to treat prostate cancers?

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Dr. Jeffrey Karnes 11:57

So, as I mentioned earlier, most prostate cancers are organ confined. And I think the real dilemma that we have is who to treat and who to not treat. But we still really treat, meaning that there is a concept called active surveillance, where it's not recommended if you have a lower grade tumor, you know, that grade group one or that three plus three prostate cancer, those men can be satisfactorily treated with active surveillance. Which means it's very different than watchful waiting, we don't wait for symptoms to arise or men to really suffer from consequences of advancing prostate cancer. But what we really do is we actually actively will get PSAs, exams and the MRI. MRI is exceptionally important as it comes to monitoring men for prostate cancer. That's why I think it's very important to also get baseline MRIs for those prostate cancers that could be actively surveyed. Those are the low grade, maybe the group twos, the three plus fours. Other cancers we know from grade, what we call high level evidence, do better with active treatment. And the two most commonly prescribed treatments in the U.S. and really around the world, and the really the two known cures for prostate cancer are surgery, and radiation. And surgery is what we call a radical prostatectomy. Radical means because we remove the entire prostate, and adjacent organs called the seminal vesicles. Radiation also usually encompasses radiating the entire prostate, sometimes the seminal vesicles. And obviously with both radiation and surgery, there are times we'll even treat the lymph nodes. For us, surgery that means taking the lymph nodes out. However, you know, in the last five years, there's been more enthusiasm. You know, again, I talked about some analogies with breast cancer. And where it used to be the surgery was complete removal of the breast and its tissue, now we're moving into more focal therapy. So, like a lumpectomy in women, where we just treat the prostate that if we can isolate it to a certain quadrant or region of the prostate, perhaps that man could go undergo focal therapy. It's still very controversial. I think we've done it under a research protocol, but it's certainly something that I've witnessed over the last five years or so. And we have providers at least here at Mayo Clinic Rochester that are working on focal therapy for men who maybe could be okay on active surveillance, but they have a very focal lesion, and they want to be aggressive. They don't want to do active surveillance for various reasons, and it provides another form of treatment that we have.

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Dr. Halena Gazelka 15:03

Are there other innovative treatments for prostate cancer?

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Dr. Jeffrey Karnes 15:07

There are a lot of innovative treatments for prostate cancer as it comes to more advanced disease. I mentioned the PSMA PET scan. There are certainly new studies using, you know, what we call radioactive particles, alpha particles, beta particles to treat prostate cancer that has spread and no longer responds to the hormonal therapy. So, it's PSMA directed kind of radiation to only the cells that sort of express the PSMA. So, that also is a novel treatment that has really only come to light in the last couple of years. It's been being done in Europe in some way for about 10 years, really under research protocol. We were active in such research here. Those studies have now been published, and it certainly is an active area for us in men who do suffer from more advanced prostate cancer. And, you know, we went for years. And, you know, one of the Nobel Prize winners in medicine was a urologist in Huggins, who actually discovered that prostate cancer responds to removing the hormonal fuel, testosterone. But now we have a handful of other drugs that we use for men who are failing that more traditional approach of hormonal deprivation or removing testosterone.

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Dr. Halena Gazelka 16:46

Wow, that's amazing. It sounds like you need to see someone who has a knowledge of the various treatment options if you're treated for prostate cancer.

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Dr. Jeffrey Karnes 16:56

Absolutely. Certainly, you know, I think most of us feel that, you know, once you have a diagnosis of an advanced prostate cancer, it's best to try to get a, you know, at least another opinion at a prostate cancer center of excellence.

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Dr. Halena Gazelka 17:10

How do people know, Jeff, if they're going to the right place? Or if it has the expertise that's needed?

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Dr. Jeffrey Karnes 17:17

That's a great question. I mean, I think that, you know, most people know the larger, you know, tertiary care centers, and there certainly are usually specialists in prostate cancer, whether it's urologists, whether it's radiation oncologists, or medical oncologists. You know, those are, you know, out on social media. You know, the most important thing, even when it comes to kind of clinically localized prostate cancer is to have a provider that has



a lot of experience in either performing radiation for prostate cancer, performing surgery for prostate cancer, or even in those situations where it's more advanced, what we call even metastatic disease, once it's spread to other organs, like the bone and prostate cancer, even to see a medical oncologist that has a specialty interest in prostate cancer, so he or she is up on the latest knowledge as it pertains to prostate cancer treatments.

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Dr. Halena Gazelka 18:22

What are the survival rates like for prostate cancer?

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Dr. Jeffrey Karnes 18:25

So, you know, I've alluded to it, I mean, you know, dilemma we have is who do we really need to treat? You know, do we sometimes do we over treat some men with prostate cancer? Or do we under treat some men for prostate cancer? But even in in more kind of locally, even locally advanced cases of prostate cancer, their survival rates at five years can be well over 90%, and even approach 100%, for some even advanced cases. So, the survival rates can be very good for prostate cancer, even for those cases that may have even spread outside the prostate. Certainly, we would like to catch those men sooner, to provide more of a curative approach to our therapies. But for those men who are diagnosed with advanced cases, the survival rates can still be very good. And, you know, we hope that even more advances in the future allow us to be even a chronic disease, and, you know, try to stay on top of it, and use the next therapy and don't necessarily pull all the arrows out and start shooting, but make sure we kind of do it more sequentially, logically and for the better of the patient.

D

Dr. Halena Gazelka 19:44

I think it's amazing when we can start talking about cancers as chronic diseases. Isn't that something? That's different than when I was a child and heard that someone was diagnosed with cancer.

D

Dr. Jeffrey Karnes 19:53

Right. I frequently use that analogy to especially some of the younger men who have advanced cases, I say, you know, we may not be able to cure this with one approach, or two approaches, but hopefully we can provide you a good quality of life and try to make this a chronic disease.

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Dr. Halena Gazelka 20:14

Jeff, does Mayo have ongoing studies for individuals who have prostate cancer? And if so, what are some of them?

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Dr. Jeffrey Karnes 20:21

So, we do have active studies, we have active studies and different types of imaging as possible cancer detection. We have active studies, like I mentioned in different types of focal therapy, for prostate cancer, where we don't necessarily treat the whole prostate but just part of it, you know, either with some form of radiation, some form of freezing of that particular part, or even nanoparticles, which are very small particles that can be injected. We have a lot of active research and biomarkers. And biomarkers are, you know, even an MRI can be a biomarker to determine the aggressiveness of disease. But you know, blood tests, urine tests, and we certainly work with our research partners to help them with their studies in more advanced cases of prostate cancer, and providing specimens biopsies, or surgically removed prostate cancers to help them study different approaches to those cases, again those that may be refractory or resistant to traditional hormonal treatment.

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Dr. Halena Gazelka 21:35

That's great. Dr. Karnes, are there any healthcare disparities related to prostate cancer that we should be aware of as physicians at Mayo that individuals should be aware of?

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Dr. Jeffrey Karnes 21:46

I think we should. I think the biggest disparity is the racial disparity when it comes to Caucasian men versus African American men. Why that is, we don't quite know. But we do know that the African American men are more likely to be diagnosed, more likely to have an advanced case when diagnosed, and more likely to die of prostate cancer, almost two-fold higher than a white male. And it may be a number of factors, what we call multifactorial, and may be related to socioeconomic, lack of access to different healthcare, even screening. You know, if you're an African American male, I think you should start screening at the age of 40. And most guidelines would also suggest more tailored screening for men at higher risk of prostate cancer, whether it's family history, or African American descent. It could also be genetics, you know, and I've been actively involved with some genetic, what I call genomic research, groups of genes that may explain why prostate cancer may be more aggressive in African Americans. It could be what I refer to as geography of the prostate cancer. Maybe they're more likely to actually have a prostate cancer in a region of the prostate cancer that historically has evaded

detection, like the front part of the prostate, which is not readily examined by a examine of the rectum, which is a, you know, can only feel the backside of the posterior side of the prostate. And there's research in that. Where it actually even may be fear of, you know, the healthcare system, and really not wanting to go to a doctor for fear of false information or other aspects as it relates to that. But, you know, I have colleagues who work with, you know, different avenues to increase awareness of prostate cancer in African American communities.

**D** Dr. Halena Gazelka 23:56

Well, I'm so glad that you came here to talk with us today on Prostate Cancer Awareness Month. You know, I see so much about breast cancer, and there's a lot of attention brought to breast cancer, appropriately so, it affects a high percentage of the population. But it seems that prostate cancer does as well, and I don't think I hear quite as much about it.

**D** Dr. Jeffrey Karnes 24:18

You don't. I mean, we don't have, you know, for whatever reason, we really don't have a voice like it's been seen in breast cancer. Just because men a lot of times are not willing to talk about it. And I think that's changed. I think we've empowered men, whether it's with research, to speak up about the disease, speak up about screening, and we certainly have different foundations across the country. And it's true that one in eight U.S. men will be diagnosed, but you know, it cannot, it's not always an aggressive or lethal disease. But still, it's, you know, the second leading cause of cancer death in U.S. men. And you know, not all prostate cancers can be ignored. And we certainly need to try to diagnose the ones early that do need to be treated and safely survey those that don't need to be treated. And that is a really active area of research of mine and many other prostate cancer experts.

**D** Dr. Halena Gazelka 25:26

Well, thank you for being here to educate us today.

**D** Dr. Jeffrey Karnes 25:30

Thank you Dr. Gazelka. It was really my pleasure.



Dr. Halena Gazelka 25:33

Yes, our pleasure. Our thanks to Dr. Jeff Karnes, urologist at Mayo Clinic in Rochester, Minnesota, for being here to discuss the important topic of how do you treat prostate cancer today. I hope that you learned something. I know that I did. And we wish each of you a very wonderful day.



Narrator 25:51

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