

## Brachytherapy for Prostate Cancer

Webcast

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### **Introduction**

#### **Andrew Schorr:**

Hello and welcome to Patient Power. I'm Andrew Schorr. Thank you for joining us. We do this every two weeks with leading experts from M. D. Anderson and always inspiring patients. You know, I guess I'm a middle aged man, maybe I'm getting more than that, 58 years old, one of the things I think about is prostate cancer of course, and so every time I go for a checkup I want to know what's my PSA, has it changed? Does the doctor, if he does one of those delightful digital rectal exams, do they feel anything? And fortunately everything has been good for me. Now, it wasn't for my dad. And so he lived for a long time, but he did have prostate surgery and various hormonal therapy much later on. He lived to be 92, but he did die of complications of prostate cancer so I personally think about it, and I think it's something that many men as they get older worry about.

Well, Doug Byers, from the Woodlands area of Houston went in for his physical in 2007. And Doug, tell us, there was something to worry about then. What happened?

#### **Doug:**

Yes. As I went in for my exam, my annual physical, which was much different than everything else, the first reaction I had when I got the results is--to be honest, as anybody, as you hit 50, I'm 51 years old, is to get a recommendation for a colonoscopy. The last news that I expected to have was that I potentially had prostate cancer from an elevated PSA. A shock to me at that age. So going through the recommendations, and that was originally diagnosed from a GP, as a lot of people would do. Was referred to different doctors in the Woodlands, ended up really down at M. D. Anderson with a radiation oncologist, Dr. Frank, who really laid out the options.

#### **Andrew Schorr:**

We're going to meet Dr. Frank in a second. We should mention and what the focus of this program is you ended up choosing with discussion with Dr. Frank and thinking about it, what was right for you, basically having radiation seeds or brachytherapy. And we're going to learn about that during our program and you're

going to help us understand how you made that decision. But what I hear you saying is after the terror of the diagnosis you actually researched it and sought different opinions to decide what was right for you.

**Doug:**

Yes, Andrew. Correct. Looking at it, it was something I did not know much about prostate cancer other than it could kill you, so that was very concerning to me. So, yes, I did do some research and really tried to evaluate as going through what would be the best treatment for me long term, short term, long term, obviously that wouldn't lead to anything else and that cancer would not be the end of my life.

**Andrew Schorr:**

Now, we should mention you're a pretty active guy. I know you do cycling and running, and you've got three kids. That will keep you busy. And you were telling me that you have a couple of kids who play baseball so you're their regular batting practice pitcher. So your goal was to put the cancer behind you and not be suffering side effects from treatment, right?

**Doug:**

Correct. If I can say it, my first maybe opinion was not knowing a lot about prostate cancer I had a relation to maybe, well, this is just like an appendix. Take it out and I'll be done with it. You have to really research all the different options that is best for you. But, as you said, my goal was to be treated here and maintained and get back to a normal lifestyle and basically just say, not really think about it much more in the future. Just let's get it done, move on. Very positive that I could beat it. In my family I also have a mother and father who have been affected with cancer and also been successfully treated. But at the end of that I also have two grandparents that it did eventually kill them.

**Andrew Schorr:**

Unfortunately, we all have that in our families as we look around. So we should mention that your PSA when you got that first result on Valentine's Day, uh, 2007, was 4.8. You had successful treatment at M. D. Anderson that we're going to learn about. And what's your PSA now?

**Doug:**

0.5.

**Andrew Schorr:**

Wow. And you're leading a full life.

**Doug:**

Leading a full life. Basically I could say probably after the week, two weeks, got back to everything being normal. Obviously a little sore, but that's normal when you have surgery, but within three days, totally back to the active lifestyle and no

change. Surgery in April, was back throwing batting practice to my boys in March, way before that--or, excuse me, not in March, in April. I couldn't go back, but I've been throwing all year.

## **Individual Treatment Options**

### **Andrew Schorr:**

Right. Well, we're going to hear more from you, Doug Byers, in a few minutes, but let's meet two of the physicians who have played a role for you and for so many others from M. D. Anderson. First, let's meet Dr. David Swanson. Dr. Swanson is a urologist, so he's a clinical professor in the department of urology at M. D. Anderson. Dr. Swanson, this diagnosis of prostate cancer strikes terror in all of us men, and I know it's very variable whether you have treatment at all or when, whether you have surgery and what kind, whether you have radiation and how is it delivered, whether you have drug therapy. So I would imagine that you as a urologist dealing with this you have to help people really understand what their personal situation is.

### **Dr. Swanson:**

Well, that's true, Andrew. There's really a myriad of options out there for the patient to select among. We try to use a team approach and invite the patients to discuss their options with a radiation oncologist and a surgeon, and even the medical oncologist gets involved sometimes. It's tough to choose. I think patients need to be informed so they can know what's going to work best for them. Patients sometimes ask me, well, what's the best treatment. And I tell them it depends on how they define the word "best."

Certainly we want to consider the tumor characteristics. Some tumors are a higher grade, that is they have the potential to be a little bit more aggressive. We want to consider the PSA. Mr. Byers was lucky to have a low PSA that was high enough to lead to the biopsy but didn't really put him in a different risk group. As a matter of fact when he was first seen at M. D. Anderson I believe it was even a little bit lower than that, which placed him in a very good category. You want to consider the patient's overall health, and you want to consider, as Doug mentioned, the goals of therapy, not only the potential for eradicating the cancer, that is cancer control, but the patient's concern about side effects. And so we do everything in our power to walk the patient through all that have information so that they can make an informed decision, one that they will be happy with even years afterwards and have satisfactory cancer control.

### **Andrew Schorr:**

And one of the things I found as a cancer survivor, happy to be a long-term one after leukemia, having gone from Seattle to M. D. Anderson, is I really felt that the doctors were going over options with me with no vested interest. They really wanted what was best for me, and if it was an area that they didn't particular do

but there was a colleague who did or another specialist, that was fine with them. And I know there's a lot of different options and combinations of approaches in the area of prostate cancer, and so the patient and a team of doctors like at M. D. Anderson really work actively to have it be what's right for you.

**Dr. Swanson:**

Thank you for mentioning that, Andrew, because this is my thirty-third year at M. D. Anderson.

**Andrew Schorr:**

Wow.

**Dr. Swanson:**

And having been a salaried employee of the state of Texas, I've always felt helped make a difference I think. I believe there probably are circumstances out in the communities when somebody will advocate for a treatment where they're more likely to benefit personally, not to say that they're offering a bad treatment to the patient, but it's sometimes hard to divest yourself from some bias. And I truly believe that we're in a position where we can help that patient make a decision that's best for him, and it's not going to make any difference to us or even our department in terms of how we're doing in the financial end.

**Candidates for Brachytherapy**

**Andrew Schorr:**

Right. Good point. Well, let's bring in another team member, and this is Dr. Steven Frank, and he's an assistant professor in the department of radiation oncology. Dr. Frank is a specialist in this approach that Doug Byers chose, and that brachytherapy or implanting radiation seeds right in the prostate.

So, Dr. Frank, welcome to the program. Help us understand how Doug was a good candidate and how you evaluate who is brachytherapy right for and where that fits in with other ways of delivering radiation.

**Dr. Frank:**

Thank you, Andrew. The program that we have developed here at M. D. Anderson is with the goal of helping men with a one-day evaluation to determine if their disease is appropriate for a brachytherapy implant. So when patients come initially to see us they have their pathology reviewed, we perform a history and full physical examination, and I perform an ultrasound study myself, which is important to evaluate and determine if I can give the patient an appropriate and adequate treatment. I then evaluate the volume of their prostate, and I use that information to actually plan their treatment as well.

We also perform a pubic arch evaluation to make sure that when I take the patient to the operating room that technically I can give them high quality treatment. And the final study that we consider doing is doing an MRI, which also verifies that there's no evidence of any gross extracapsular extension of disease from the prostate or into the seminal vesicles.

With this information it allows me to sit down with the patient in the afternoon and discuss where they fall within the risk stratification of having their disease potentially return after they are treated. And we look at men and separate them into low, intermediate and higher risk sub categories to determine whether following treatment their risk of the PSA coming back is low or high. There are a myriad of treatment options, as Dr. Swanson alluded to, and over the course of discussion even after that full one-day evaluation a third of patients are not good candidates for brachytherapy, and I end up discussing with them other potential options including the option for surgery, active surveillance, or external beam radiation therapy.

**Andrew Schorr:**

Now, Doug, you were interested in brachytherapy when you sat down and went through this evaluation with Dr. Frank. Why was that desirable to you? Knowing that radiation was a good choice, why not external radiation that so many men have?

**Doug:**

I think at the end of the day when you are evaluated, and I asked the questions, and again you have to choose the best treatment, as Dr. Frank said, for yourself, and asking the questions was eradicating the cancer a better success rate with brachytherapy or the seeds or external beam. They were the same. And I think for anybody when you start evaluating what your lifestyle is and as long as the treatment results would be the same I obviously chose, being active, obviously still travelling and having a full work schedule, to have a one-day surgery which would have the same results versus going--one of my options was the external beam was the other recommended for nine weeks, five days a week. Not that that's bad, but for my lifestyle I wanted to maintain and get back to the normal life as quickly as possible with the same results, which was getting rid of the cancer.

**Andrew Schorr:**

Dr. Frank, just help us briefly understand, when you have brachytherapy versus having many treatments of external beam, what's involved from the patient's point of view as far as time at M. D. Anderson?

**Dr. Frank:**

So generally for patients, they again come to see me on one day. I do an evaluation in the morning time and then discuss all of their potential options in the afternoon. Following that if they choose that this is a good option for them and it's

technically a good option for them, then the next time they come it is for preoperative evaluation and then their one-day outpatient procedure. The procedure itself generally takes approximately an hour, and following that procedure they have a CT scan which I use to verify and evaluate the quality of the treatment.

**Andrew Schorr:**

We're going to learn much more about brachytherapy and hear the latest, hear who it's right for, what are the decisions that go into it and who is it right for as you want to go on with your life, like Doug Byers. That's all coming up as we continue our discussion with our leading experts from M. D. Anderson and Doug Byers who made the decision to go forward with radiation seeds. We'll be right back.

**The Procedure**

**Andrew Schorr:**

Welcome back. Andrew Schorr here with our experts from M. D. Anderson and patient Doug Byers as we continue our discussion about brachytherapy for men with prostate cancer where there are radioactive seeds that are implanted in the prostate. We're going to learn the details about that now as we go back to Dr. Steven Frank. This is what he does, brachytherapy for men with prostate cancer.

Dr. Frank, so tell us how do you do it. And Dr. Swanson, as a urologist, feel free to jump in. What happens? So somebody like Doug then shows up at M. D. Anderson after they have had all this testing and evaluation. They have made a decision with you, the healthcare providers there, this is right for them. What happens on that day?

**Dr. Frank:**

On that day we then discuss with the patient appropriate time to perform the implant. I take the treatment volume from the ultrasound which I have performed that day, and then I go ahead and plan an individualized, personalized treatment for the patient, dictating how much activity and how many radioactive seeds will go into the patient's prostate to provide effective and adequate cancer control. The seeds then will come on the day prior to the surgery, and they will be in preloaded needles which we will then implant into the prostate on the day of the procedure. It can be anywhere from 80 to 110 seeds, depending on the size of the patient's prostate, and those seeds are implanted in a very unique defined pattern which we call a modified peripheral loading pattern to maximize the treatment for the prostate while minimizing any radiation to normal critical structures around the prostate, like the penile bulb, like the urethra, like the rectum and the bladder.

**Andrew Schorr:**

All right. Hold on for one second and I'll picture this, if you will. Dr. Swanson, how do you get those seeds in there?

**Dr. Swanson:**

Well, nowadays we have the patient up in a lithotomy position which exposes the region between the scrotum and the rectum, and with an ultrasound unit in the rectum it allows us to see the prostate. We then use a grid to help direct needles through the skin into the prostate in a predetermined location. Each needle has been loaded with a different number of seeds specific for that patient and specific for the plan that has been devised by some very, very sophisticated software. And truly I think that's one of the biggest differences since my first brachytherapy case done 30 years ago, where we made an open incision, we exposed the prostate, and we blindly stuck a few seeds in.

**Andrew Schorr:**

So how long a procedure is it? And it's under general anesthetic, right?

**Dr. Swanson:**

It usually takes about one hour for us to get all the seeds in their predetermined location. We take an x-ray at the end and then use that x-ray picture of where the seeds lie and compare it to the planned location that we had devised before the surgery. And if they look pretty similar we finish the procedure, and when the patient wakes up he gets a CT scan just to allow us to confirm that indeed everything was put as close as possible to where we had planned it.

**Andrew Schorr:**

All right. Back to Doug Byers. You went through this. You probably have no memory of the procedure, I'm sure. How big a deal was this? And how was the recovery afterwards?

**Doug:**

The recovery afterwards was quick. No, I don't have any memory. It was a general anesthesia which in my personal case was obviously the way to go. After surgery I guess I'd say I really don't know how long in the recovery room. An hour or two. My wife was there. I went out, which I didn't think I really needed but I know by policy out in a wheelchair. Slept fine that night. Next day a little sore. Two days later I was up and moving, and I was up and moving the next day. And I was back at work. I took one day off and then the following day--I think the surgery was Tuesday and I was back at work on Thursday.

**Andrew Schorr:**

Now, Dr. Frank, different from external beam radiation, where they fire radiation there over many sessions but then you're done with it, these seeds stay in there. So what does that mean for a patient to have them stay in there forever?

**Dr. Frank:**

Well, what I sort of tell patients is that these seeds are going to sort of be their best friend. The radiation itself is emitted from these seeds over anywhere from approximately 300 days--which represents almost 97 percent of all the radiation from these seeds. We typically use iodine in this institution. But palladium and the new kid on the block is cesium can also be used, and they have different half lives which emit their radiation over a different varying time. The radioactive seeds do stay in the prostate, but once the radiation has been emitted those seeds themselves have no individual effect on the patient in their life.

**Andrew Schorr:**

Now, back to you, Dr. Swanson. I just want to understand. In the range of treatment some men need external radiation, some men need surgery, and some men as we discussed might even need other therapies, systemic therapies. So if you would just help me understand today where we are, what would be the PSA of a man who might be a candidate and where the cancer would be, candidate for brachytherapy. And also in the research view at M. D. Anderson is it possible that there may be a wider group of men that this might be made available to?

**Dr. Swanson:**

Well, as Dr. Frank mentioned earlier, it is more typically used, the implant alone without any additional therapy, for men at low risk, that is they have a well differentiated tumor and their PSA is under 10. Our particular research interest right now is seeing if it is just as effective for men at intermediate risk, that is if they have a Gleason 7 tumor, a little higher grade, but a PSA still under 10, or a Gleason 6 with a PSA between 10 and 15. Historically these patients have been treated with an implant plus five weeks of external beam radiation, but as Doug mentioned, that starts to get pretty inconvenient. And we believe that with modern technology and modern treatment philosophy enabling us to give a consistently high quality implant that we can treat these patients very effectively with no increase in side effects with an implant alone. We can actually deliver as much radiation to the prostate itself with the implant as we can with those eight to nine weeks of radiation from a linear accelerator.

But we do have to select our patients, and Dr. Frank mentioned some of the things that would prevent us from doing it. Too large a prostate, inability to empty their bladder completely, interference from their bony pelvis, these are the things that would lead us to recommend to a patient that he either get external beam or a surgical procedure.

**Andrew Schorr:**

Dr. Frank, yes, go ahead.

**Dr. Frank:**

I just wanted to add to Dr. Swanson's comments. I think it's also important to realize that the historical significance of combination therapy with external beam for five weeks and an implant does have potentially more side effects. And so if a patient also were to get external beam at our institution we typically provide hormone therapy in addition to that external beam. Brachytherapy is the most conformal form of radiation, and being the most conformal it allows us to provide radiation doses higher than any other form of external beam radiation therapy, including IMRT and proton therapy.

**Andrew Schorr:**

Right. So I want to make that a little bit more understandable for all of us who are not MDs. So when you say "conformal," you're able to put the dose of radiation you want to put there as best you can to have the best chance of killing the cancer right where you want it, and these other modalities, it's hard to target it quite so much, and also maybe you can't do quite as high a dose. Did I say it back to you right?

**Dr. Frank:**

That's perfect.

**Changes in Brachytherapy**

**Andrew Schorr:**

Okay. There we go. Now we all understand. So, Dr. Frank, Dr. Swanson was saying he's been at this a long time in urology, and it sounds like this is sort of not like your father's brachytherapy. In other words it's changed a lot, the precision of it, the techniques of it, even the actual form of radiation has changed so that it really continues to evolve.

**Dr. Frank:**

Dr. Swanson has been involved in the first generation of brachytherapy where, as he mentioned, it was done with an open procedure, and that predated even the PSA test in itself. The second generation as we describe it came and was derived from Seattle and John Blasko when the ultrasound was used with the needles going through the perineum, as Dr. Swanson had previously mentioned. The third generation then was developed with CT based treatment planning and a modified peripheral loading technique which allowed to decrease the morbidity associated the urinary obstructive symptoms.

So here we are almost 30 years, 30-plus years later with brachytherapy, and while we still call it brachytherapy we are in a vastly different generation, a different technique, and provides patients with extremely high quality of life, allowing them

to not be incontinent, not wear any daily pads, allow men to potentially preserve their erectile function, not have rectal bleeding and have the potential for high cancer control rates.

When you look at brachytherapy overall, it looks--it appears to be somewhat of a grand slam treatment. It is low cost. It's the most convenient treatment, it's a one-day outpatient procedure, and it provides high cancer control rates and an excellent quality of life. And while the focus of our research here at M. D. Anderson is to try to continue to minimize the risk of side effects for patients with this treatment modality, to try to standardize it, to not only nationally but internationally, using improved imaging techniques and to make this openly available to a wide array of patients.

**Andrew Schorr:**

Wow. I wish you all the best as you really consider and study can this be expanded to a wider group of patients.

I want to go back to Doug Byers. Doug, so there are men listening to this program who maybe have been just diagnosed with prostate cancer, trying to understand their situation. When you went to M. D. Anderson, they went it seems like the extra mile to help you and them understand completely what was your prostate cancer situation, had it spread, had it not, how advanced was it, and then started talking about the modalities that could work for you. Is that what men truly deserve then? And what would you say to them if so for them to get it?

**Doug:**

I think, Andrew, saying that when I got to M. D. Anderson saying as I mentioned before I had obviously been to other places by looking at it. When I got to M. D. Anderson the extent of the testing which I didn't know exactly, I knew what the causes were from the cancer, but as the emptying of the bladder and being tested for the brachytherapy that I would be a good candidate and the extent of the testing was far beyond my dreams of what I did. What that meant for me was at the end of the day was the big result was, yes, I had prostate cancer but it had not spread out anywhere else into my body. So the treatment was strictly going to be for prostate cancer and there was no risk that the cancer had spread. That was a big relief to me. That was a big comfort to my family to get back through.

As far as the different treatments options were, it was being tested for those treatments that I would be eligible and I would get the best treatment. And my goal obviously was first to eradicate the cancer, and I think I mentioned that to Dr. Frank, if surgery was what I needed, then I would do it. I would take any treatment that I had to decide but also the recommendation of the doctors that was best for me in the long term of eradicating the cancer. Brachytherapy was the way

to go for me, and every man out there has to really judge that. But it was a one-day procedure, just as effective as anything else they could recommend, and I got back to the normal lifestyle very quickly.

And I guess I could say 18 months later I have had no side effects and I'm very happy with my treatment and I continue to go in the right direction as my PSA continues to come down. And I'm very confident that as I feel things out, as I think you mentioned in the beginning, it's a little shocking to a lot but to put down that you're a cancer survivor, which I am and I will continue to be.

**Andrew Schorr:**

Dr. Frank, now, Doug mentioned where his PSA is now. Is that where it's going to stay or could it continue to decline over time?

**Dr. Frank:**

Generally in our experience we see following brachytherapy that the PSA continues to decline over a period of three and a half to four years. It can nadir. We like to see that it gets down to the .1 to less than .1 range, and that's when we really feel that we can tell the patient that they have excellent cancer control. During the first two and a half years it's not uncommon for patients to have some fluctuations in their PSA, which is what we call PSA bounce, and that happens in 40 to 50 percent of men. They typically do just as well if not better than those who do not have it, and that's what the data has shown.

**Andrew Schorr:**

Okay. And so Doug may well get to a lower PSA.

**Dr. Frank:**

Correct.

**Andrew Schorr:**

Okay. Doug, any comment you want to make? Here we have two doctors who really played a key role for you and really for thousands of others. Any comments you want to make directly to them?

**Doug:**

I personally want to thank Dr. Frank and Dr. Swanson for the care I've gotten over the last 18 months, and in my checkups and my visits I'm very pleased as I said before on where my results were and where I'm going. And I said I'm a cancer survivor, will continue to be. And as I can honestly tell Dr. Frank, I'm the poster child for M. D. Anderson. I think it is a tremendous facility and the care is beyond comprehensive, how well you are treated down there and the results that you will get.

**Andrew Schorr:**

Wow. All the best to you, Doug. I'm sure you will be pitching batting practice for many years and I bet with grandchildren too, and that will be fun. So all the best to you. I want to thank also Dr. David Swanson, who is a urologist and very experienced in pushing the research envelope forward at M. D. Anderson. Dr. Swanson, thanks for your dedication to men with prostate cancer so that their options continue to expand. And Dr. Steven Frank, with your radiation oncology and specialization in great part in brachytherapy it's great to hear that this technology continues to advance. All the best to you.

**Dr. Frank:**

Thank you, Andrew. And I just wanted to thank Dr. Swanson. One thing he did not mention was that he has been a former chair of urology over the last 15 years before working together and developing what I consider to be one of the highest quality programs in the country.

**Andrew Schorr:**

Wow, Dr. Swanson.

**Dr. Frank:**

Thank you for your kind comments, Steven. But I also want to thank you, Andrew, for doing what you do. I think these programs are really, really terrific.

**Andrew Schorr:**

Well, thank you. And I will mention that if folks explore our library of programs on [mdanderson.org/patientpower](http://mdanderson.org/patientpower) we have had a number of folks from your department, Dr. Swanson, and from yours too, Dr. Frank, all working together to help men with prostate cancer get what's right for them. And it's a privilege and an honor really to be helping working with you as we do that.

Now, we do these programs every two weeks. So in two weeks we're going to discuss another cancer, and they're all difficult. This one is advances in the treatment of liver cancer, so that's our next program. And remember all our replays are posted on the web, and you can always refer other people to them as a wonderful resource because particularly in so many cancers but I hear it so much in prostate cancer, there are a lot of options, and knowledge truly can be powerful to you in making a decision.

I'm Andrew Schorr. Remember, knowledge can be the best medicine of all. Thanks for joining us.

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