PSA Screening Decision Aid

Hi, I'm Doctor Mike Evans. Today I'm going to walk you through the pros and cons of the prostate specific antigen or PSA test for prostate cancer. And I know this sounds simple, I mean what could be more obvious than a test for cancer? Take the test, find it early, and have a better outcome. Easy, peasy.

Well, as you will see, what seems like an easy decision is actually pretty nuanced. A decision that challenges our preconceptions of test, medical interventions, and even cancer itself. My sense is that most men taking the PSA test, do so without really understanding the different decisions they will be facing if the test is positive. There are three main reasons why the discussion of PSA is complicated. Number one has to do with how prostate cancer generally affects men. Secondly is the accuracy of the PSA test itself. It's a mixed message and its quite complicated to explain. And thirdly is what these results tend to trigger in the healthcare system and in you.

Okay, let's start with how prostate cancer actually plays out in men. Most people think cancer has one trajectory: you get it, you need to treat it. If you don't, it will get larger or spread and shorten your life. It turns out this viewpoint does not describe prostate cancer that well. An analogy that might be helpful is to imagine yourself as a farmer wanting to screen in a paddock on a farm with three animals in it: a turtle, a rabbit and a bird. The turtle represents prostate cancer that is never going to harm a patient. You will not have symptoms or die of the turtle cancer as it never leaves the paddock. The screen really doesn't make a difference with the turtle cancer. The rabbit represents prostate cancer that can cause some symptoms but is very unlikely to spread widely and cause death. The screen does help with the rabbit cancer as it can get out of the paddock. Sometimes the rabbit can roam far but mostly it stays close by. The bird represents a very aggressive cancer. The screen does not contain the bird as it is highly mobile. The bird cancer form of prostate cancer is rare, say 2 to 3 percent, but unfortunately it's spread around the body and finding it will not cure the cancer. It's easy to tell these three animals apart but it can be more difficult to know which prostate cancers need aggressive treatment and which don't. Several different factors are used. These include the PSA level, what if anything is felt on the prostate and how aggressive the cancer looks under the microscope where pathologists use a scoring system known as the Gleason Score.

Another counter-intuitive part of the story is that if we look hard enough we can actually find cancer in many with age being the biggest risk factor by far. So if we took a group of men that were feeling fine but had a car crash and died and we did autopsies, we could find prostate cancer in approximately one-third of men in their 40s, almost half the men in their 50s, two-thirds of men in their 60s, and eight out of ten men in their 70s. In other words, there are a lot of turtles out there. In the real world we don't find all these prostate cancers as most men simply die of other causes and it's never found. This understanding is key from a testing perspective as a coin flip test for further testing would look good as it would often find something. So you see, prostate cancer doesn't happen in one way. It's not a rare event with an automatic death sentence or one trajectory, but more of a common occurance that gets more common as we age that plays out in a variety of ways for that one in six men that get diagnosed.

There's an increased risk for black men and men who have a father and or a brother with prostate cancer, especially at an early age, but there is limited data about special screening strategies for these groups. Most men with prostate cancer will do well. The five year survival rate is over 99 percent, 98 percent for 10 years and 93 percent for 15 years. Because it is slow growing most of the time, especially

as we get older, we have seen a shift in the practice of urologists, the specialists who so often take care of men with prostate cancer, towards more systematic monitoring of patients after careful initial evaluation, what we call active surveillance or watchful waiting.

Okay, this leads us to our second key question. How accurate is the PSA test and does it lead to fewer men dying of prostate cancer? Two large trials have been completed recently. One was done in the USA that did not show that PSA screening saved lives. The other larger trial was done in Europe where they did PSAs approximately every four years and showed some benefit, but the advantage was small. To give you numbers, approximately one in a thousand men needed to be screened for about ten years to save one man from dying from prostate cancer. As you might imagine, these results and what we should do about them have been hotly debated in the medical community. Concerns about the trials have included the fact that some men actually had PSAs who weren't supposed to, especially in the US trial which may have skewed results towards no benefit, that the European trial was really seven slightly different studies in seven countries where five countries did not show a significant benefit and that the overall results were largely swayed by the substantial benefits found in the Dutch and Swedish trials. Finally there were length of follow up. Clinicians wonder if slow growing prostate cancer requires more time than the 11-year studied so far in the two big trials. This was supported when researchers followed up on a group from Sweden that has followed men for 14 years and showed better outcomes. However, another Swedish trial that followed men for 20 years showed no advantage for PSA testing. Meta-analysis where we pull all the trials together has failed to show that PSA screening made a difference.

This leads us to our third question. What might happen if you had a PSA test done? It is estimated that half of men treated for PSA detected prostate cancer would not have had clinical symptoms during their lifetime. We call this phenomenon over-diagnosis. What I find interesting here is that all of the 110 men who were diagnosed would likely feel they had been, quote, "saved by the test," when in fact we simply turned many of these men into patients unnecessarily and may have led them to treatments that are often unpleasant and perhaps do harm. So if you're only slightly confused by now you're either gifted in statistics or have rewinded multiple times. But likely you will have come to realize that a simple blood test is actually not so simple and why as clinicians we feel intimidated embarking on this complicated conversation, but also regretful that our patients don't understand all these nuances.

Expert bodies have weighed in on the PSA. So for instance, the United States preventative task force looked at the pros and cons of the research on PSA testing sometimes in combination with a digital rectal exam and decided against recommending either of these tests for screening. Many urological associations recommend offering the PSA along with counseling in men aged 50 to 69 in good health. The over 70 crowd is tricky. In general, we don't order PSA in this age group. We definitely don't want to give up on people but in men over 70 the PSA test becomes more inaccurate and the chances of the test actually worsening quality of life are actually higher. These mixed messages have inspired various counter arguments from it doesn't seem worth it to, well, even if there's a small chance of saving a life, we can't abandon people, we should do PSAs; It's the only test we have, to different screening strategies. Let's just do it once in your late 40s, to priority setting.

We like to test for things but maybe we should prioritize the interventions that clearly show an advantage. It might be helpful to think about your own personal values and what you would do with a positive test. So for example, you might get that PSA testing could start a chain reaction of biopsies and treatments that in the end could harm you unnecessarily, but you're the type that needs to know and

would just want that cancer treated even if it's a turtle cancer, and maybe that's your reason to go ahead. On the other hand, if taking the test for the small chance of saving a life doesn't seem worth the higher chances of unnecessary harm, false reassurance and possibly knowing about a slow growing cancer that you would just watch doesn't seem worth it, you may decide not to have the test.

I'll just finish by stepping back a bit. I find all this a bit counterintuitive and in a way sad. I wish this talk was shorter and pointed to a test that was obvious. On the other hand, I think it's important people know the science no matter how messy and make a more informed decision. This story will certainly evolve and your situation may change, but I'm hoping that you've learned something today. So have a look at this again and discuss the test with your doctor or other people you trust and make a call. Thanks and take care.