

What does Joe Biden's prostate cancer diagnosis mean? What are the symptoms?

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Former US president Joe Biden has been diagnosed with an aggressive form of prostate cancer.

The Prostate Cancer Foundation of Australia says he has good prospects for survival thanks to recent medical advances.

The 82-year-old's office says his cancer has a Gleason score of nine, or a grade group five, with metastasis to the bone.

Here's what that means.

What is a Gleason score?

A Gleason Score is **a system for grading the aggressiveness of prostate cancer**, meaning how quickly it could spread.

However, the Prostate Cancer Foundation of Australia (PCFA) points out that the newer ISUP grade — which was referred to by Biden's office as a "grade group" score — system is more accurate and easier to understand.

They're both given after analysing a sample of a patient's prostate and are different to the cancer staging numbers.

"If prostate cancer is found in a biopsy sample, the pathologist will assign it a grade, which is based on how abnormal the cancer looks under the microscope," [the American Cancer Society's website explains](#).

"Higher-grade cancers look more abnormal, and they are more likely to grow fast."

The Gleason score system works by identifying the two most common patterns of cells, [the PCFA website says](#).

Those patterns are assigned a score from one to five — one is non-cancerous and five is the most aggressive.

"However, the one and two scores are rarely used anymore, so the lowest Gleason score pattern is three," the PCFA website explains.

Those two numbers are then added together to get a number between one and 10.

For example, a patient might have a sample scoring a three, while the other is a four, making their overall Gleason score a seven.

"The higher the Gleason score, the more likely that the cancer will grow and spread quickly," [the Prostate Conditions Education Council's website says](#).

How bad is a Gleason score of nine?

Mr Biden's Gleason score of nine means his cancer is **quite aggressive**.

Jeffrey Kuhlman, who was the White House physician from 2000-2013, [told the ABC](#) a Gleason score of nine was "the score you do not want to have".

Overall Gleason scores range from two to 10, with 10 being the most aggressive.

For context, doctors will generally say a person has prostate cancer if their score is between six and 10.

A grade group five is considered the most aggressive and highest risk.

What's Biden's prognosis?

His office didn't say.

"While this represents a more aggressive form of the disease, the cancer appears to be hormone-sensitive which allows for effective management," it said.

And this is good news for Mr Biden's prospects.

"We would **expect him to outlive his disease**," PCFA chief executive Anne Savage says.

"With immediate and effective treatment, he has very good prospects to outlive his disease."

Dr Kuhlman said the five-year survival rate for this type of metastatic prostate cancer was only about one in three.

But Ms Savage pointed out there were newer ways to treat cancers like Mr Biden's.

"We've recently seen the development of a whole new class of medicines which are increasingly effective at keeping the disease at bay and extending survival time," she says.

Compared to other cancers, prostate cancer has one of the highest survival rates if diagnosed early, [the Cancer Council NSW's website says](#).

"Prostate cancer often grows slowly — even aggressive cases of prostate cancer tend to grow more slowly than other types of

What does 'metastasis to the bone' mean?

"Metastasis to the bone" means the cancer has spread to the patient's bone.

This usually means the patient has what's described as "advanced or stage 4 cancer", [the Cancer Council says](#).

"Cancer cells can spread from the original cancer, through the bloodstream or lymph vessels, to any of the bones in the body," it says.

"Secondary bone cancer can't be cured, but treatment can reduce symptoms and improve quality of life.

"In some cases, treatment can keep secondary bone cancer under control for many years."

Dr Kuhlman said there was usually a lag time between the presentation of cancer and its spread to the bones.

"It is quite surprising to me that he presented as metastatic," he said.

"Only about 10 per cent of prostate cancer presents as metastatic and often it's in patients that don't have good access to care."

What is the treatment for prostate cancer?

There are a few different ways to treat prostate cancer:

- androgen deprivation therapy, which blocks testosterone
- additional hormone therapy
- chemotherapy
- radiation therapy
- surgery — the main type being a radical prostatectomy, which removes the prostate, part of the urethra and the seminal vesicles

But this all depends on the grade of prostate cancer.

And the type of treatment doctors recommend will also depend on the patient's age and overall health, the Cancer Council says.

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Hormone therapy can be used to treat prostate cancer that has spread to the bone, the Cancer Council says.

"This treatment uses synthetic hormones to block the effect of the body's natural hormones," it says.

"The aim is to reduce the hormones that the cancer cells receive.





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"This can help slow down the growth and spread of the cancer."

This kind of treatment could be administered via tablets or injections.

Ms Savage says Mr Biden could go with a combination of treatments, including newly-developed nuclear medicinal treatments, which are still at the trial stage in Australia.

The PCFA's website says [a new treatment called PSMA therapy](#) uses a radioactive molecule to target and kill cancer cells.

"PSMA therapy has shown promising results in prostate cancer trials and has the potential to have a major clinical impact on the diagnosis and treatment of prostate cancer, especially in those with aggressive forms of prostate cancer," the website says.

"Clinical trials are underway with more research needed to fully understand the effectiveness of this therapy."

However, the treatment is not yet approved by the Therapeutic Goods Administration and isn't available as a conventional treatment.

What are the symptoms of prostate cancer?

There usually aren't any symptoms for early stages of prostate cancer.

But here are the symptoms for advanced prostate cancer listed on [the Cancer Council's website](#):

Advanced prostate cancer symptoms can include:

- frequent urination
- pain while urinating
- blood in the urine or semen
- a weak stream
- pain in the back or pelvis
- weak legs or feet

If the cancer has spread, it may also cause pain, unexplained weight loss and fatigue.

How is prostate cancer diagnosed?

The most common way is via a blood test.

It's called a prostate-specific antigen test, but it's more commonly referred to as a PSA blood test.

From there, a biopsy might be taken, which involves removing small pieces of prostate tissue with the aid of a rectal ultrasound.

Digital rectal examinations (DRE) used to be part of the routine screenings, but this hasn't been the case for the past decade, Ms Savage says.

DREs are not recommended as a routine test for men who don't have prostate cancer symptoms.

When should men get tested for prostate cancer?

Once they hit 40, Ms Savage says.

This is earlier than the current guidelines that say men over 50 should be tested, but Ms Savage says new guidelines have been drafted and are out for public comment.

She says men should be asking their doctors for a PSA blood test.

"At its earliest stages, prostate cancer has no symptoms," Ms Savage says.

"Men cannot afford to be complacent."

How often should men be tested for prostate cancer?


That depends on their age, health and family history.

But Ms Savage says [men with a high risk of prostate cancer](#) should be tested once a year.


A family history of prostate, breast and ovarian cancer increases a man's risk of prostate cancer.

Men from families with BRCA1 or BRCA2 gene mutations are also at increased risk.

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