

Patient Decision Aid Website

Communicating the Smorgasbord of Treatment Options for Prostate Cancer



Background

In July 2021 **NHS England** recommended Brachy Boost be made available to intermediate and high risk localised prostate cancer patients.



**Clinical Commissioning Policy:
Brachytherapy dose escalation with external beam radiotherapy
for intermediate- and high-risk localised prostate cancer (adults)
(210502P) [URN 1831]**

Publication date: July 2021 **Version number:** 1.0

<https://www.england.nhs.uk/wp-content/uploads/2021/07/1831-Policy-for-publication-Final-1.pdf>

Prostate cancer: diagnosis and management

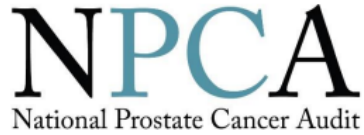
NICE guideline [NG131] Published: 09 May 2019 Last updated: 15 December 2021

This is in line with the updated guidelines issued by **NICE** in 2021

- 1.3.24 Consider brachytherapy in combination with external beam radiotherapy for people with CPG 2, 3, 4 and 5 localised or locally advanced prostate cancer. **[2019, amended 2021]**
- 1.3.25 Do not offer brachytherapy alone to people with CPG 4 and 5 localised or locally advanced prostate cancer. **[2008, amended 2021]**

The updated guidelines also implemented new risk stratification definitions – Cambridge Prognostic Groups CPGs 1 to 5.

And updated the specific treatment recommendations for each CPG



Using the Cambridge Prognostic Groups for risk stratification of prostate cancer in the National Prostate Cancer Audit:

How could it impact our estimates of potential 'over-treatment'?

NPCA: Short Report

Date of publication: 11th February 2021

In Feb 2021 the ***National Prostate Cancer Audit*** published a research paper and report exploring the utility and impact of the CPG system and showed that it resulted in better reporting of risk and treatment rates. The NPCA have since adopted CPG as their new standard for reporting outcomes.

East of England regional initiative to implement the NHS England recommendations

Identified issues with regional implementation of brachy boost :

- Patient information/ informed consent
- Clinical Nurse Specialist (CNS) education

Proposed solution - an app/webpage for improved information for brachy boost.

Soon became evident that this easily extended to translate the NICE guidelines into a complete Prostate Patient Choice project

Cancer Alliance agreed to fund the development of a patient decision aid website that could be used on their platform.





Already available:

- Predict Prostate <https://prostate.predict.nhs.uk/> - Online patient / clinician tool where the outcomes from conservative management are compared with radical treatment (surgery or radiotherapy).
- Many webpages with comprehensive information – Prostate UK, CancerresearchUK
- The NICE published guidelines.

However, we felt there was still need for a simple, patient friendly tool that :

- advised on all the individual treatment options available including brachy or ADT and which are relevant at each CPG level.
- based on NICE data.
- aimed at all patients – including those with high stage or grade group
- aimed to complement and expand on the information in Predict Prostate

The Result:

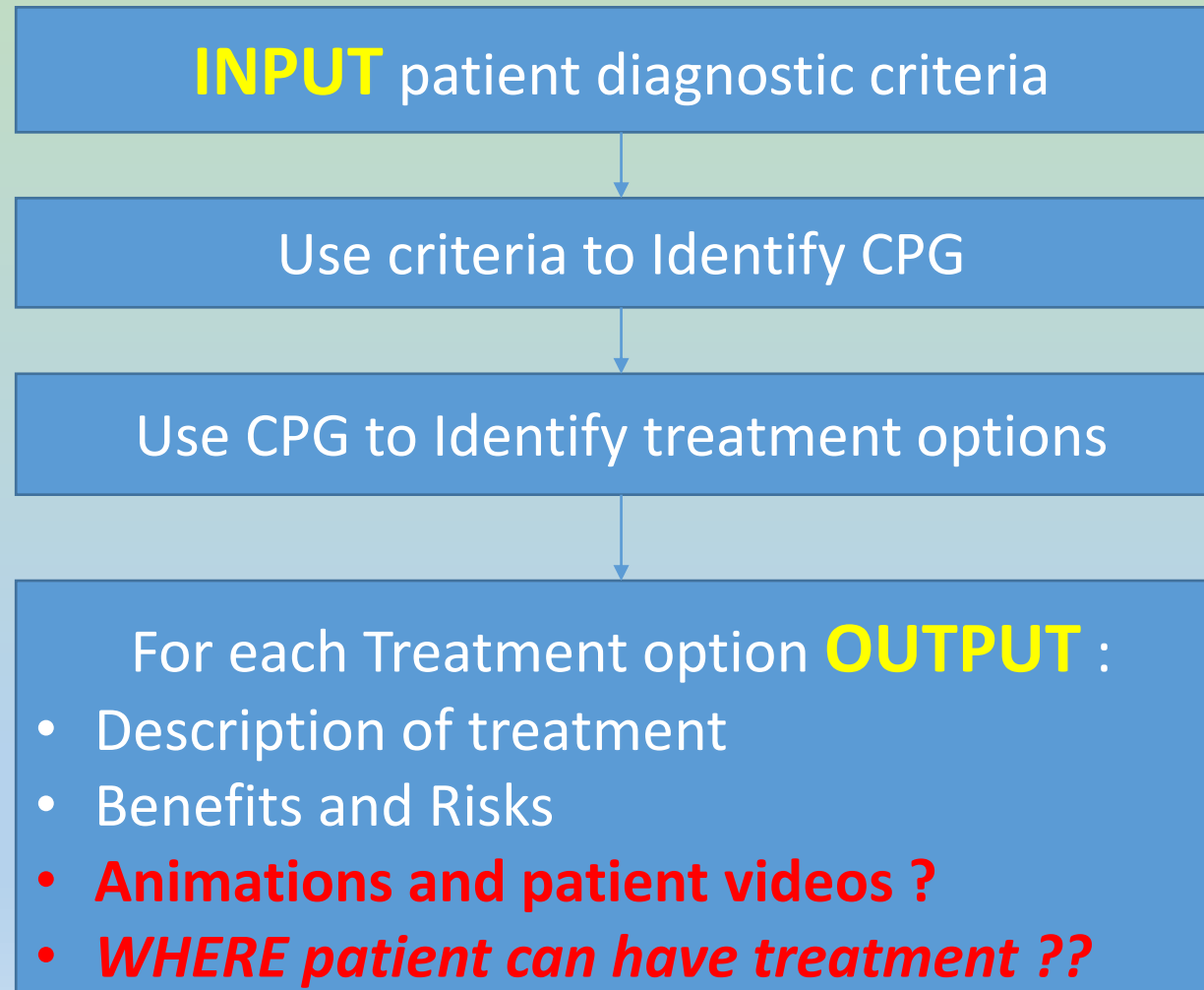


Prostate cancer: Knowing your options

A guide to the National Institute of Health and Care Excellence recommendations for managing prostate cancer

The first tool that provides men "direct to patient" information on NICE guidance recommendations in an easy to understand format they can access independently

Prostate treatment decision making tool Flowchart



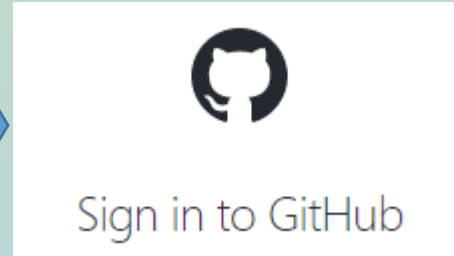
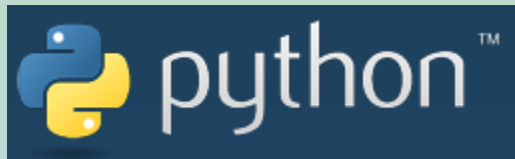
Use diagnostic criteria to Identify CPG

CPG		Grade Group	PSA	Stage
1		GG1	P<10	T1, T2
2		GG1	P10-20	T1, T2
		GG2	P<10	T1, T2
3		GG2	P10-20	T1, T2
		GG3	P<10, P10-20	T1, T2
4		GG1, GG2, GG3	P>20	T1, T2
		GG1, GG2, GG3	P<10, P10-20	T3a, T3b
		GG4	P<10, P10-20	T1, T2
5		GG1, GG2, GG3	P>20	T3a, T3b
		GG1, GG2, GG3	P<10, P10-20, P>20	T4
		GG4	P>20	T1, T2, T3a, T3b, T4
		GG4	P<10, P10-20	T3a, T3b, T4
		GG5	P<10, P10-20, P>20	T1, T2, T3a, T3b, T4

Use CPG to Identify treatment options

CPG	Treatment Options	
1	Offer: Consider: Consider:	Active Surveillance Radical Prostatectomy Radical Radiotherapy / brachytherapy monotherapy
2	Offer: Offer: Offer: Offer: Consider:	Active Surveillance Radical Prostatectomy Radical Radiotherapy with 6 months androgen deprivation therapy Brachytherapy Radical Radiotherapy with brachytherapy boost
3	Offer: Offer: Consider: Consider:	Radical Prostatectomy Radical Radiotherapy with 6 months androgen deprivation therapy Radical Radiotherapy with brachytherapy boost Active Surveillance
4 and 5	Offer: Offer: Consider: Consider:	Radical Prostatectomy Radical Radiotherapy with 6 months androgen deprivation therapy Radical Radiotherapy with 3 years androgen deprivation therapy Radical Radiotherapy with brachytherapy boost
5 only	Consider:	Docetaxel chemotherapy

Pilot Web App with Python Flask



- Install Python 3.7 or above
- Create virtual environment
- Install Flask
- Use Python script to create Flask App
- Write .html docs for website content

- Create Github account
- Create a repository
- Push project to repository

- Create Azure account
- Create app service
- Connect to Github
- Locate source data
- Deploy!

LIVE demo of WEBSITE

<https://www.canceralliance.co.uk/prostate>

Issues encountered:

- 30 day limit on azure website deployment for the prototype
- NICE has sparse brachy information.
- PROTECT trial considered by some to be outdated.
- Local success rates may differ from NICE quoted values.

Future work:

- Animations and Videos
- Potentially regional information: where patients can get treatment
- Survey results
- CNS training – training video made and regional webinars booked.

Acknowledgements

- Professor Vincent J Gnanapragasam, Professor of Urology University of Cambridge. Honorary Consultant Urologist, Cambridge University Hospitals
- Professor Peter Hoskin, Consultant in clinical oncology at Mount Vernon, Professor in Clinical Oncology in the University of Manchester and Honorary consultant in clinical oncology at the Christie Hospital.
- East of England Cancer Alliances.
- East of England Radiotherapy Network.
- Together Against Cancer, NNUH
- Mike Smith and Umesh Patel, frank. design limited, Manchester.

**EMERGENCY
SCREENSHOTS
IF WEBLINK FAILS**

Prostate cancer: Knowing your options

A guide to the National Institute of Health and Care Excellence recommendations for managing prostate cancer

This website is for patients with a new diagnosis of Prostate Cancer that has not spread.

It gives clear information about treatments and the risks and benefits of each option.

The options given are based on guidelines issued by National Institute for Health and Care Excellence (NICE).

It should be used in consultation with a healthcare professional.

[More about us](#) →

Please enter the diagnostic criteria from your healthcare professional below:

Enter Grade Group

GG1



Enter PSA in $\mu\text{g/L}$

10

Enter Staging

T2



[Submit](#) →

This [link](#) will explain the three diagnostic criteria in more detail

Your prognostic category is – CPG 2.

Your prognostic category was based on the criteria you input on the previous page. (Please check).

Grade Group	PSA	Stage
GG1	10	T2

 [Reset diagnostic attributes](#)

The prognosis from a CPG2 cancer is good and your risk of dying of prostate cancer is low compared to your risk of dying of other causes. The risk that the cancer may spread (metastasis) is also usually low. Immediate curative treatment may be of some benefit to you but needs to be weighed against the risk of side effects and complications. The alternative is active surveillance and then treatment if there are signs of change in the cancer.

The National Institute for Health Care Excellence currently recommends that men diagnosed with CPG2 cancer are offered a choice between active surveillance and treatment.

This, however, depends on how old you are, your general state of health and your other medical conditions.

Other factors may also need to be considered, such as the amount of cancer in the biopsies or if there are any unusual features from your investigations.

For more accurate and personalised information of the likely benefit from treatment you can [visit this website](#).

Based on the NICE recommendations you are likely to be offered:



Active surveillance



Surgery



Radiotherapy



Hormone therapy



Brachytherapy



[Read the NICE guidance in full](#)

Active surveillance means that you are carefully monitored by your doctor or nurse. You don't have treatment straight away. You have the option to start treatment if:

- there is any sign that your cancer is beginning to change or grow
- your doctor advises you to
- you wish to

For more accurate and personalised information of the likely benefit from treatment you can [visit this website](#).

predict
prostate

Benefits and risks of Active Surveillance





Benefit:

To avoid or delay unnecessary treatment and its side effects. Quality of life may be better in this time. You will be carefully monitored for any changes and offered treatment if / when they occur.

Urinary function:

At 6 months, problems with urinary continence were reported in 39 out of 100 patient

At 6 years, problems with urinary continence were reported in 50 out of 100 patients

At 6 months, moderate to severe urinary incontinence problems were reported in 4 out of 100 patients

At 6 years, moderate to severe urinary incontinence problems were reported in 8 out of 100 patients

Bowel function:

At 6 months, problems with faecal incontinence more than once per week were reported in 2 out of 100 patients

At 6 years, problems with faecal incontinence more than once per week were reported in 3 out of 100 patients

At 6 months, moderate to severe impact of bowel habits on quality of life was reported in 3 out of 100 patients

At 6 years, moderate to severe impact of bowel habits on quality of life was reported in 4 out of 100 patients

Sexual function:

At 6 months, moderate or severe problems with sexual function were reported in 29 out of 100 patients

At 6 years, moderate or severe problems with sexual function were reported in 40 out of 100 patients

[Comparing the benefits and risks of your treatment options →](#)

The information given on survival, disease progression and side effects is taken from the NICE guidelines and is based on evidence from a large UK trial (Protect).

[Visit the protect trial.](#)

Comparing the benefits and risks of your treatment options

Survival and Disease progression



Side Effects – urinary function



Side Effects – bowel function



Side Effects – Sexual function



The information given on survival, disease progression and side effects is taken from the NICE guidelines and is based on evidence from a large UK trial (Protect).

[Visit the protect trial.](#)

[← Return to CPG page](#)



What effect does each treatment option have on survival at 10 years?

The evidence does not show a difference in the number of deaths from prostate cancer among people offered active surveillance, surgery to remove the prostate or radiotherapy.

People who had not died of prostate cancer were:

- 98 out of 100 patients offered active surveillance
- 99 out of 100 patients offered surgery to remove the prostate
- 99 out of 100 patients offered radiotherapy.

What effect does each treatment option have on the cancer returning or growing (disease progression) at 10 years?

There is good evidence that both surgery to remove the prostate and radiotherapy reduce the risk of the cancer returning or growing (disease progression) compared with active surveillance.

Signs of disease progression were reported in:

- 21 out of 100 patients offered active surveillance
- 8 out of 100 patients offered surgery to remove the prostate
- 8 out of 100 patients offered radiotherapy.

How is disease progression defined?



What effect does each treatment option have on the risk of the cancer spreading (distant metastases) at 10 years?

There is good evidence that both surgery to remove the prostate and radiotherapy reduce the risk of the cancer spreading (the rate of development of distant metastases) compared with active surveillance.

Distant metastases were developed in:

- 8 out of 100 patients offered active surveillance
- 3 out of 100 patients offered surgery to remove the prostate
- 3 out of 100 patients offered radiotherapy.



There is some evidence that urinary function is better for people offered active surveillance or radiotherapy than those offered surgery to remove the prostate.

At 6 months, problems with urinary continence were reported in:

- 39 out of 100 patients offered active surveillance
- 71 out of 100 patients offered surgery to remove the prostate
- 38 out of 100 patients offered radiotherapy.

At 6 years, problems with urinary continence were reported in:

- 50 out of 100 patients offered active surveillance
- 69 out of 100 patients offered surgery to remove the prostate
- 49 out of 100 patients offered radiotherapy.

At 6 months, moderate to severe urinary incontinence problems were reported in:

- 4 out of 100 patients offered active surveillance
- 19 out of 100 patients offered surgery to remove the prostate
- 6 out of 100 patients offered radiotherapy.

At 6 years, moderate to severe urinary incontinence problems were reported in:

- 8 out of 100 patients offered active surveillance
- 13 out of 100 patients offered surgery to remove the prostate
- 5 out of 100 patients offered radiotherapy.



What effect does each treatment option have on bowel function?

There is some evidence that bowel function is better for people offered active surveillance or surgery to remove the prostate than those offered radiotherapy in the short term.

At 6 months, problems with faecal incontinence more than once per week were reported in:

- 2 out of 100 patients offered active surveillance
- 1 out of 100 patients offered surgery to remove the prostate
- 5 out of 100 patients offered radiotherapy.

At 6 years, problems with faecal incontinence more than once per week were reported in:

- 3 out of 100 patients offered active surveillance
- 2 out of 100 patients offered surgery to remove the prostate
- 4 out of 100 patients offered radiotherapy.

At 6 months, moderate to severe impact of bowel habits on quality of life was reported in:

- 3 out of 100 patients offered active surveillance
- 3 out of 100 patients offered surgery to remove the prostate
- 10 out of 100 patients offered radiotherapy.

At 6 years, moderate to severe impact of bowel habits on quality of life was reported in:

- 4 out of 100 patients offered active surveillance
- 3 out of 100 patients offered surgery to remove the prostate
- 2 out of 100 patients offered radiotherapy.



What effect does each treatment option have on sexual function?

There is some limited evidence that sexual function is better for people offered active surveillance or radiotherapy than those offered surgery to remove the prostate.

At 6 months, moderate or severe problems with sexual function were reported in:

- 29 out of 100 patients offered active surveillance
- 66 out of 100 patients offered surgery to remove the prostate
- 48 out of 100 patients offered radiotherapy.

At 6 years, moderate or severe problems with sexual function were reported in:

- 40 out of 100 patients offered active surveillance
- 50 out of 100 patients offered surgery to remove the prostate
- 36 out of 100 patients offered radiotherapy.

The information given on survival, disease progression and side effects is taken from the NICE guidelines and is based on evidence from a large UK trial (ProtecT).

[Visit the protect trial.](#)



Brachytherapy

A form of internal radiotherapy to deliver radiation directly to the prostate to kill the cancer cells.

May be given alone, or as a “boost” in combination with External Beam Radiotherapy (EBRT)

1. low dose rate (LDR) permanent brachytherapy



Tiny radioactive seeds, about the size of a grain of rice, are implanted directly into the prostate in operating theatre. This is usually done as a day case and the patient will go home the same day. The seeds stay in the prostate and give a steady dose of radiation over a few months.

2. high dose rate (HDR) temporary brachytherapy



Thin tubes are placed into the prostate. Usually around 15 to 20 tubes. A source of radiation is passed down the tubes for a few minutes to destroy cancer cells. The source of radiation is then removed so no radiation is left in the body. This usually requires an overnight stay.

There is no clear evidence to recommend LDR or HDR brachytherapy over one another.

Both procedures are carried out under a general or spinal anaesthetic.

If given as a “Boost”, brachytherapy will be undertaken within 2 to 3 weeks before or after EBRT.

Benefits and risks of brachytherapy





Benefit:

Radiation kills cancer cells. Because the radiation in Brachytherapy is delivered directly to the prostate, a high dose of radiation can be given to the cancer cells within the prostate, whilst sparing the surrounding normal tissues.

Side Effects:

Urinary symptoms:

- Immediately after brachytherapy you may experience some mild soreness in the pelvis and blood in the urine. This discomfort is temporary and usually wears off within a day or two. A small number of patients may require the catheter to be replaced. It is very rare that patients require catheterisation for more than a few weeks.
- For several days to several months, you may experience frequent or painful urination, a sense of urgency and a weaker urinary stream. Often this does not occur at once, but gradually builds up in the first few weeks after brachytherapy. These symptoms will gradually decrease. This can take up to six to twelve months after brachytherapy.

Bowel Symptoms:

- Occasionally patients experience rectal symptoms such as a feeling of fullness and soreness. Less likely (in less than 5% of patients) is the possibility of some mucus discharge or bleeding from the back passage, and an urgency to open your bowels. This is seldom for longer than three to four months.

Sexual Function:

- Your sexual function may be affected by this procedure. This occurs in about 30% of patients but is often helped with drugs

[Other considerations specific to brachytherapy →](#)

Other considerations specific to brachytherapy

Radiation Safety

- HDR – No radioactive material stays in the patient system. Patients are NOT a radiation hazard following discharge from the hospital
- LDR (seeds) - Patients are NOT a radiation hazard following discharge from the hospital. However, there are some precautions which you will need to take, such as avoiding prolonged close contact with children and pregnant women for the first two months after the implant.
- Brachytherapy is given in specialist centers around the country. This means you may have to travel much further than your local hospital to receive the treatment.
- You may be having Brachytherapy in addition to External beam radiotherapy (EBRT). Risks and benefits of having a brachytherapy as a boost can be compared below.

[Comparing the benefits and risks of Brachytherapy Boost →](#)

Comparing the benefits and risks of Brachytherapy Boost

Survival



Disease progression



Side Effects – Urinary Function



Side Effects – Bowel Function



Side Effects – Sexual Function





The benefit of having EBRT plus brachytherapy is that you are likely to spend a longer amount of time after the treatment without signs that your cancer has returned.

What effect does Brachytherapy Boost have on survival at 10 years?

The evidence does NOT show a difference in the overall survival between people offered

- EBRT alone
- EBRT with Brachytherapy
- Surgery to remove the prostate

The information given on survival is taken from the NHS England clinical Commissioning Policy, based on thirteen studies.

[Link to publication](#)



The benefit of having EBRT plus brachytherapy is that you are likely to spend a longer amount of time after the treatment without signs that your cancer has returned.

What effect does Brachytherapy Boost have on cancer returning at 10 years?

There is good evidence that a brachytherapy boost reduces disease progression (cancer growth) compared with EBRT alone or surgery to remove the prostate.

This means that when blood tests are carried out, such as PSA, the rate at which they indicated the growth or return of the cancer, was lower in the patients receiving a brachytherapy boost

What effect does Brachytherapy Boost have on cancer spreading at 10 years?

There is good evidence that a brachytherapy boost reduces the risk of cancer spreading to other parts of the body (distant metastases) compared with EBRT alone or surgery to remove the prostate

The information given on disease progression is taken from the NHS England clinical Commissioning Policy, based on thirteen studies.

[Link to publication](#)

Side Effects – Urinary Function



A large, well respected scientific review of prostate trials and studies took place in 2015. This review concluded that there is **no difference** in side effects between EBRT alone and EBRT plus a brachytherapy boost for urinary function.

There has not been a proper study or trial to directly compare HDR boost with LDR boost.

There have been individual small studies looking at the side effects of HDR and LDR. The results from these smaller studies should be interpreted with care and with the help from a health professional.

[Results from smaller studies →](#)

[Link to publication](#)

Side Effects – Bowel Function



A large, well respected scientific review of prostate trials and studies took place in 2015. This review concluded that there is **no difference** in side effects between EBRT alone and EBRT plus a brachytherapy boost for bowel function.

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[Results from smaller studies →](#)

Results from smaller studies

The results from these smaller studies should be interpreted with care and with the help from a health professional.

Smaller studies have reported:

There is no difference in bowel side effects, such as increased frequency of stools, loose stools and passing blood, for patients treated with EBRT plus HDR boost or EBRT alone.

Patients are more likely to develop bowel symptoms between 6 months and 5 years when treated with EBRT plus LDR boost than with EBRT alone.

Out of 100 patients:

- 31 patients who had EBRT plus LDR boost had moderate bowel symptoms compared to 20 patients who had EBRT alone
- 8 patients who had EBRT plus LDR boost had more severe bowel symptoms compared to 3 patients who had EBRT alone

The information given on side effects is taken from the NHS England clinical Commissioning Policy, based on thirteen studies.

[Link to publication \(NHS\)](#)

Side Effects – Sexual Function



There is no difference in sexual function - between patients treated with EBRT plus Brachytherapy boost or EBRT alone.

There is some evidence that sexual function is better with EBRT plus Brachytherapy boost than having surgery to remove the prostate.

The information given on side effects is taken from the NHS England clinical Commissioning Policy, based on thirteen studies.

[Link to publication](#)