NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Prostate cancer: diagnosis and management

Draft for consultation, October 2021

This is an update to NICE guideline NG131 (published May 2019). We have:

- reviewed the evidence on the staging of prostate cancer
- updated recommendation 1.2.15 (previously recommendation 1.2.16) to refer to a 5-tier risk stratification model
- updated other recommendations to reflect the 5-tier risk stratification model.

Who is it for?

- Healthcare professionals
- Commissioners and providers of prostate cancer services
- People with prostate cancer, their families and carers

What does it include?

- the recommendations that have been updated
- related recommendations that have not been updated (shaded in grey and marked **[20XX]**), included here for context
- recommendations for research
- rationale and impact sections that explain why the committee made the 2021 recommendations and how they might affect practice.
- the guideline context.

Information about how the guideline was developed is on the guideline's webpage. This includes the evidence reviews, the scope, details of the committee and any declarations of interest.

Commenting on this update

We have reviewed the evidence on the staging of prostate cancer and updated recommendation 1.2.15 (previously recommendation 1.2.16), marked as **[2021]**. We have also amended some recommendations without carrying out an evidence review. These are marked as **[2008, amended 2021]**, **[2014, amended 2021]** and **[2019, amended 2021]**. You are invited to comment on the new and updated recommendations.

We have not reviewed the evidence for the recommendations shaded in grey, and cannot accept comments on them. In some cases, we have made minor wording changes for clarification.

Sections of the guideline that have had no changes at all have been temporarily removed for this consultation and will be re-instated when the final guideline is published. See the existing short version of the guideline.

See update information for a full explanation of what is being updated.

Full details of the evidence and the committee's discussion on the 2021 recommendations are in the evidence reviews. Evidence for the 2019 recommendations is in the full version of the 2019 guideline.

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Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

Recommendations

1.2 Assessment and diagnosis

Staging

CT for histologically proven prostate cancer

1.2.14 Consider CT for people with histologically proven prostate cancer for whom MRI is contraindicated if knowledge of the T or N stage could affect management. **[2014]**

Risk stratification for localised and locally advanced prostate cancer

1.2.15 Urological cancer MDTs should assign a risk category (see table 1) to all people with newly diagnosed localised or locally advanced prostate cancer. **[2021]**

Table 1 Risk stratification for people with localised or locally advanced prostate cancer

Cambridge Prognostic Group (CPG)	Criteria
1	Gleason score 6 (grade group 1) **and** prostate specific antigen (PSA) less than 10 microgram/litre

Cambridge Prognostic Group (CPG)	Criteria
	and Stages T1–T2
2	Gleason score 3 + 4 = 7 (grade group 2) **or** PSA 10 microgram/litre to 20 microgram/litre **and** Stages T1–T2
3	Gleason score 3 + 4 = 7 (grade group 2) **and** PSA 10 microgram/litre to 20 microgram/litre **and** Stages T1–T2 **or** Gleason 4 + 3 = 7 (grade group 3) **and** Stages T1–T2
4	One of: Gleason score 8 (grade group 4), PSA more than 20 microgram/litre, Stage T3
5	Two or more of: Gleason score 8 (grade group 4)PSA more than 20 microgram/litre, Stage T3 **or** Gleason score 9 to 10 (grade group 5) **or** Stage T4

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on risk stratification for newly diagnosed prostate cancer.

Full details of the evidence and the committee's discussion are in evidence review I: risk stratification for localised and locally advanced prostate cancer.

Bone scans for newly diagnosed prostate cancer

1.2.16 Do not routinely offer isotope bone scans to people with Cambridge Prognostic Group (CPG) 1 localised prostate cancer. **[2008, amended 2021]**

For a short explanation of how the committee amended this recommendation to take into account the 5-tier CPG risk model, see the rationale and impact section on bone scans for newly diagnosed prostate cancer.

Full details of the committee's discussion on how the recommendations were amended to take into account the 5-tier CPG risk model are in evidence review I: risk stratification for localised and locally advanced prostate cancer.

1.2.17 Offer isotope bone scans when hormonal therapy is being deferred as part of watchful waiting to asymptomatic people who are at high risk of developing bone complications. **[2008]**

1.3 Localised and locally advanced prostate cancer

Treatment options for localised and locally advanced prostate cancer

1.3.7 When discussing treatments options with people with CPG 1, 2 and 3 localised prostate cancer, use box 2 to discuss the benefits and harms with them **[2019, amended 2021]**.

Box 2 Factors to consider when discussing active surveillance, radical prostatectomy or radical radiotherapy as treatment options for people with CPG 1, 2 and 3 localised prostate cancer, using evidence from a large UK trial

What are the treatment options for people with localised prostate cancer?

There are 3 options for treatment:

- active surveillance (the trial used the intention-to-treat method of analysis and some of the patients in the active surveillance arm may therefore have undergone prostatectomy or radiotherapy during the follow-up period)
- radical prostatectomy
- radical radiotherapy.

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, prostatectomy or radical radiotherapy.

People who had not died of prostate cancer were:

- 98 out of 100 patients offered active surveillance
- 99 out of 100 patients offered radical prostatectomy
- 99 out of 100 patients offered radical radiotherapy.

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

There is good evidence that both prostatectomy and radiotherapy reduce 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 radical prostatectomy
- 8 out of 100 patients offered radical radiotherapy.

The trial defined disease progression as:

- evidence of metastases or
- diagnosis of clinical T3 or T4 disease or
- need for long-term androgen deprivation therapy or
- rectal fistula or the need for a urinary catheter owing to local tumour growth.

Disease progression was suspected if there was:

- any rise in prostate-specific antigen (PSA) of more than 20% between consecutive measures at any time during follow up or
- any rise in PSA level of 50% or more in any 12-month period confirmed by repeat tests or
- any indication of the appearance of symptomatic systemic disease.

What effect does each treatment option have on the rate of development of distant metastases at 10 years?

There is good evidence that both prostatectomy and radiotherapy reduce 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 radical prostatectomy

- 3 out of 100 patients offered radical radiotherapy.

What effect does each treatment option have on urinary function?

There is some evidence that urinary function is better for people offered active surveillance or radiotherapy than those offered prostatectomy.

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

- 39 out of 100 patients offered active surveillance
- 71 out of 100 patients offered radical prostatectomy
- 38 out of 100 patients offered radical 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 radical prostatectomy
- 49 out of 100 patients offered radical 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 radical prostatectomy
- 6 out of 100 patients offered radical 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 radical prostatectomy
- 5 out of 100 patients offered radical radiotherapy.

What effect does each treatment option have on erectile dysfunction?

There is some limited evidence that sexual function is better for people offered active surveillance or radiotherapy than those offered prostatectomy.

At 6 months, moderate or severe problems with erectile dysfunction were reported in:

- 29 out of 100 patients offered active surveillance
- 66 out of 100 patients offered radical prostatectomy
- 48 out of 100 patients offered radical radiotherapy.

At 6 years, moderate or severe problems with erectile dysfunction were reported in:

- 40 out of 100 patients offered active surveillance
- 50 out of 100 patients offered radical prostatectomy
- 36 out of 100 patients offered radical 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 prostatectomy 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 radical prostatectomy
- 5 out of 100 patients offered radical 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 radical prostatectomy

- 4 out of 100 patients offered radical 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 radical prostatectomy
- 10 out of 100 patients offered radical 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 radical prostatectomy
- 2 out of 100 patients offered radical radiotherapy.

1.3.8 For people with CPG 1 localised prostate cancer:

- offer active surveillance
- consider radical prostatectomy or radical radiotherapy if active surveillance is not suitable or acceptable to the person. **[2019, amended 2021]**

1.3.9 For people with CPG 2 localised prostate cancer, offer a choice between active surveillance, radical prostatectomy or radical radiotherapy if radical treatment is suitable. **[2019, amended 2021]**

1.3.10 For people with CPG 3 localised prostate cancer:

- offer radical prostatectomy or radical radiotherapy **and**
- consider active surveillance (in line with recommendation 1.3.9) for people who choose not to have immediate radical treatment. **[2019, amended 2021]**

1.3.11 Do not offer active surveillance to people with CPG 4 and 5 localised and locally advanced prostate cancer. **[2019, amended 2021]**

1.3.12 Offer radical prostatectomy or radical radiotherapy to people with CPG 4 and 5 localised and locally advanced prostate cancer when it is likely the person's cancer can be controlled in the long term. **[2019, amended 2021]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on treatment options for localised and locally advanced prostate cancer.

Full details of the evidence and the committee's discussion are in evidence review G: active surveillance, radical prostatectomy or radical radiotherapy in people with localised prostate cancer. Full details of the committee's discussion on how the recommendations were amended to take into account the 5-tier CPG risk model are in evidence review I: risk stratification for localised and locally advanced prostate cancer.

Radical treatment

1.3.17 Commissioners of urology services should consider providing robotic surgery to treat localised prostate cancer. **[2014]**

1.3.18 Commissioners should base robotic systems for the surgical treatment of localised prostate cancer in centres that are expected to perform at least 150 robot-assisted laparoscopic radical prostatectomies per year to ensure they are cost effective. **[2014]**

1.3.19 For people having radical external beam radiotherapy for localised prostate cancer:

- offer hypofractionated radiotherapy (60 Gy in 20 fractions) using image-guided intensity modulated radiation therapy (IMRT), unless contraindicated **or**
- offer conventional radiotherapy (74 Gy in 37 fractions) to people who cannot have hypofractionated radiotherapy. **[2019]**

1.3.20 Offer people with localised and locally advanced prostate cancer receiving radical external beam radiotherapy with curative intent planned treatment techniques that optimise the dose to the tumour while minimising the risks of normal tissue damage. **[2008]**

1.3.21 Offer people with CPG 2, 3, 4 and 5 localised or locally advanced prostate cancer a combination of radical radiotherapy and androgen deprivation therapy, rather than radical radiotherapy or androgen deprivation therapy alone. **[2014, amended 2021]**

1.3.22 Offer people with CPG 2, 3, 4 and 5 localised or locally advanced prostate cancer 6 months of androgen deprivation therapy before, during or after radical external beam radiotherapy. **[2014, amended 2021]**

1.3.23 Consider continuing androgen deprivation therapy for up to 3 years for people with CPG 4 and 5 localised or locally advanced prostate cancer, and discuss the benefits and risks of this option with them. **[2014, amended 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]**

1.3.26 Discuss the option of docetaxel chemotherapy with people who have newly diagnosed non-metastatic prostate cancer who:

- are starting long-term androgen deprivation therapy and
- have no significant comorbidities **and**
- have high-risk disease, as shown by:
  - T3/T4 staging **or**
  - Gleason score 8 to 10 **or**
  - PSA greater than 40 nanogram/ml.

Explain the benefits and harms (see box 3) and make a shared decision about whether the person should have this treatment. **[2019]**

In May 2019, this was an off-label use of docetaxel. See NICE's guidance on prescribing medicines for further information.

1.3.27 For people having docetaxel chemotherapy:

- start treatment within 12 weeks of starting androgen deprivation therapy
- use six 3-weekly cycles at a dose of 75 mg/m^2 (with or without daily prednisolone). **[2019]**

1.3.28 Do not offer high-intensity focused ultrasound and cryotherapy to people with localised prostate cancer, other than in the context of controlled clinical trials comparing their use with established interventions. **[2008]**

NICE's interventional procedures guidance on high-intensity focused ultrasound for prostate cancer, cryotherapy for recurrent prostate cancer and cryotherapy as a primary treatment for prostate cancer evaluated the safety and efficacy of cryotherapy and high-intensity focused ultrasound for the treatment of prostate cancer. NICE guidelines provide guidance on the appropriate treatment and care of people with specific diseases and conditions within the NHS. Because there was a lack of evidence on quality-of-life benefits and long-term survival, these interventions are not recommended in this guideline.

Box 3 Factors to consider when discussing the option of docetaxel chemotherapy for people with high-risk, non-metastatic prostate cancer

What does treatment with docetaxel involve?

Docetaxel chemotherapy is given at 6 appointments, each 3 weeks apart. It is given as an intravenous infusion that takes about 1 hour.

What are the benefits of docetaxel treatment for people with high-risk, non-metastatic prostate cancer?

There is clear, high-quality evidence that docetaxel chemotherapy delays disease progression in people with high-risk, non-metastatic disease.

In a large UK randomised trial (James et al. 2016), the average person who did not receive docetaxel experienced disease progression about 5 years after the start of the trial, whereas the average person receiving docetaxel experienced disease progression after about 6 years.

We do not yet know whether docetaxel improves survival in people with high-risk, non-metastatic disease and we will only be confident about whether it does when trials have been running for longer.

In a large UK randomised trial, 80 out of 100 people with high-risk disease who did not receive docetaxel were still alive after 5 years compared with 84 out of 100 people who did. However, this difference could be because of chance.

What are the risks associated with docetaxel treatment?

A large UK randomised trial found that:

- 15 out of 100 people who took docetaxel developed febrile neutropenia (that is, they got a fever because the chemotherapy had reduced their white blood cells' ability to fight infection).

- 1 out of 100 people who took docetaxel died because of infections that, in the opinion of the investigators, they might not have developed if they had not received docetaxel.
- 8 out of 100 people who took docetaxel felt unusually weak or tired.
- 8 out of 100 people who took docetaxel experienced gastrointestinal symptoms (including diarrhoea, abdominal pain, constipation and/or vomiting).
- 5 out of 100 people who took docetaxel experienced respiratory symptoms (including breathlessness and/or chest infections).
- 4 out of 100 people who took docetaxel experienced problems with their nervous systems (for example, numbness or weakness).
- 1 out of 100 people who took docetaxel experienced problems with their nails that were serious enough to interfere with their daily lives.

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For a short explanation of why the committee made the recommendations on radiotherapy and how they might affect practice, see the rationale and impact section on radiotherapy.

Full details of the evidence and the committee's discussion are in evidence review C: radical radiotherapy. Full details of the committee's discussion on how the recommendations were amended to take into account the 5-tier CPG risk model are in evidence review I: risk stratification for localised and locally advanced prostate cancer.

For a short explanation of why the committee made the recommendations on docetaxel chemotherapy and how they might affect practice, see the rationale and impact section on docetaxel chemotherapy.

Full details of the evidence and the committee's discussion are in evidence review B: docetaxel in people with hormone-sensitive prostate cancer.

Terms used in this guideline

Active surveillance

This is part of a 'curative' strategy and is aimed at people with localised prostate cancer for whom radical treatments are suitable, keeping them within a 'window of curability' whereby only those whose tumours are showing signs of progressing, or those with a preference for intervention are considered for radical treatment. Active surveillance may thus avoid or delay the need for radiotherapy or surgery.

Clinically significant prostate cancer

For the purpose of this guideline, this included any prostate cancer of Gleason score 7 and above.

External beam radiotherapy (EBRT)

This is radiotherapy given by using ionising radiation (for example, high-energy X-rays) produced in a machine and directed at the tumour from outside the patient.

Grade group

This refers to the 2019 International Society of Urological Pathology grade groupings for prostate cancer.

Hormone-relapsed (also known as hormone-resistant, hormone-refractory and castrate-resistant) prostate cancer

Refers to prostate cancer after failure of primary androgen deprivation therapy.

Locally advanced prostate cancer

For the purposes of this guideline, this includes: CPG 4 and 5 prostate cancer (PSA over 20 milligram/litre, or Gleason score 8 to 10, or clinical stage T2c or more); T3 and T4, N0 prostate cancer.

Localised prostate cancer

Cancer that has been staged as T1 or T2 (confined to the prostate gland).

Multiparametric MRI (mpMRI) of the prostate

An MRI study that incorporates anatomical and functional information about the prostate. The minimum functional information includes T2-weighted, diffusion-weighted imaging and dynamic contrast-enhanced imaging.

Multiparametric MRI-influenced prostate biopsy

The information from the mpMRI scan taken before prostate biopsy is used to determine the best needle placement. In rare cases, the biopsy may be MRI-guided (the needle is inserted within the MRI machine). In most cases, the biopsy that follows the mpMRI will be ultrasound guided, but the specific area(s) targeted will be predetermined by the mpMRI data.

Prostatectomy

Surgery to remove part, or all of the prostate gland. Radical prostatectomy aims at the removal of the entire prostate gland and lymph nodes. This can be done by an open approach or by keyhole technique (laparoscopic or robotically assisted laparoscopic prostatectomy).

Prostate biopsy

Template biopsy and mapping template biopsy

A template biopsy is normally done under a general anaesthetic, and involves taking transperineal core biopsies using a grid system. This might involve taking multiple cores from multiple sites, but usually 2 to 3 cores from 8 sites. A mapping template biopsy is when 20 sites are systematically sampled, with 2 or 3 cores per site, sometimes meaning over 50 core biopsies are taken.

Local anaesthetic transperineal biopsy

This is sampling 6 or 8 sites from the prostate using a transperineal route under local anaesthetic.

Transrectal ultrasound-guided biopsy (TRUS)

This is when core biopsies of the prostate are taken via the rectum under local anaesthetic.

Systematic versus MRI-influenced (targeted) biopsy

The site for biopsy can be targeted based on mpMRI findings, or systematically but not guided by MRI. Most often there is a combination of both targeted and systematic MRI. The method used for the biopsy can be either transperineal or TRUS.

Watchful waiting

This is part of a strategy for 'controlling' rather than 'curing' prostate cancer and is aimed at people with localised prostate cancer who do not ever wish to have curative treatment, or it is not suitable for them. Instead, it involves the deferred use of hormone therapy. Watchful waiting avoids the use of surgery or radiation, but implies that curative treatment will not be attempted.

Recommendations for research

The guideline committee has made the following recommendations for research.

As part of the 2021 update, the guideline committee made an additional research recommendation on the diagnostic accuracy of staging investigations for CPG 2 and 3 prostate cancer.

Key recommendations for research

1 Follow up during active surveillance

What is the most suitable surveillance protocol (including the role of digital rectal examination [DRE] and prostate-specific antigen [PSA] measures) for people for whom active surveillance is appropriate, as assessed by multiparametric MRI and biopsy, when there are no clinical concerns during follow-up?

For a short explanation of why the committee made this recommendation for research, see the rationale on multiparametric MRI for active surveillance.

2 Follow-up after radical treatment

What is the most clinically and cost-effective follow-up protocol for people with prostate cancer who have had radical treatment, with specific regard to risk stratification, duration of follow-up, frequency of follow-up appointments, the type of examination or blood tests, and the roles of primary and secondary care in follow-up?

For a short explanation of why the committee made this recommendation for research, see the rationale on follow-up.

3 Diagnosis of clinically significant cancer

What is the most clinically and cost-effective pathway for diagnosing clinically significant prostate cancer?

For a short explanation of why the committee made this recommendation for research, see the rationale on MRI and biopsy.

4 Progression of cancer

What is the most clinically and cost-effective pathway for excluding the clinically significant progression of cancer in people with CPG 1, 2 and 3 prostate cancer?

For a short explanation of why the committee made this recommendation for research, see the rationale on multiparametric MRI for active surveillance.

5 Natural history of prostate cancer

What is the natural history of people with a Likert score on MRI of less than 3 without biopsy at long-term follow-up?

For a short explanation of why the committee made this recommendation for research, see the rationale on MRI and biopsy.

Other recommendations for research

Staging investigations for CPG 2 and 3 prostate cancer

What is the diagnostic accuracy of staging investigations for CPG 2 and 3 prostate cancer?

For a short explanation of why the committee made this recommendation for research, see the rationale on risk stratification for localised or locally advanced prostate cancer.

Diagnosing prostate cancer

In patients with negative MRI (Likert score 1 or 2), what is the next best diagnostic investigation to rule out clinically significant prostate cancer?

What is the diagnostic accuracy of transperineal mapping biopsy compared with transperineal non-mapping biopsy in the diagnosis of clinically significant prostate cancer?

Zoledronic acid

What is the effectiveness and cost effectiveness of different scheduling of zoledronic acid in the prevention and reduction of skeletal events in people with hormone-refractory prostate cancer?

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice. They link to details of the evidence and a full description of the committee's discussion.

Risk stratification for localised or locally advanced prostate cancer

Why the committee made the recommendations

Recommendations 1.2.15

The 2019 guideline used a 3-tier model for risk stratification. The committee agreed that newer evidence shows 5-tier risk stratification models are better at predicting prostate cancer-specific mortality than 3-tier models. More accurate prognosis will mean that more people are given the most effective treatment. The committee recommended the 5-tier CPG model over other 5-tier models because it has been tested in UK populations.

Impact on other recommendations

The committee considered the impact of recommending the CPG risk stratification model on other recommendations in the guideline. Recommendations were amended as necessary, taking into account the original evidence for each recommendation and the committee's knowledge and experience.

How the recommendations might affect practice

The committee were confident that recommending the 5-tier CPG risk stratification model would not have a significant resource impact. This was because the same information is used to calculate both the CPG model and the previously recommended 3-tier model. However, MDTs will need to be aware of the new 5-tier model when assessing patient risk.

Under the 5-tier CPG risk stratification model more people would be in the lowest risk group (CPG1) than were previously categorised as "low-risk". The previous "intermediate-risk" group now consists of some people in CPG1, and all people in CPG2 and CPG3, and recommendations that were previously for people at "intermediate-risk" would now apply to a smaller group. CPG4 and CPG5 directly align to the previous "high-risk" group, so the number of people in this category would not change. These changes are not expected to affect treatment choices in a way that would have a significant resource impact.

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Bone scans for newly diagnosed prostate cancer

Recommendations 1.2.16

Why the committee made the recommendations

The 2019 guideline recommended that bone scans should not be used for people with low-risk prostate cancer. This recommendation was amended to refer to the CPG 1 population. The committee were aware that this population is broader than the original low-risk population, but agreed that it was in line with current practice not to offer bone scans to this group. The committee highlighted the lack of evidence on when to offer staging investigations to the CPG 2 and 3 groups and the potential resource impact of the investigations, and made a research recommendation in this area.

How the recommendations might affect practice

Recommendations where low risk was replaced with CPG 1 are likely to apply to a broader population due to the inclusion of T2b patients. However, the committee agreed that the associated resource impact of this change would be minimal because although there is more emphasis on active surveillance, the other treatment options are still available.

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Treatment options for localised and locally advanced prostate cancer

Recommendations 1.3.7 to 1.3.12

Why the committee made the recommendations

Choosing between treatment options

The committee agreed that active surveillance, radical radiotherapy and radical prostatectomy may be suitable for different people. Therefore, it included a preference decision box for clinicians to use to help people with prostate cancer make the right choice for themselves. The information in the box comes from the UK ProtecT trial which included people with CPG 1 to 3 prostate cancer. However, the

committee noted that people with CPG 3 prostate cancer comprised a small proportion of the people this trial and so the information in the box might not directly apply to this group, although it may still be useful when discussing the risk of side effects for different treatment options.

CPG 1 prostate cancer

The 2019 guideline recommended that a choice of active surveillance, radical radiotherapy or radical prostatectomy should be offered to people with low-risk prostate cancer (equivalent to the CPG 1 group in the 5-tier model that is now recommended). The committee noted that since the 2019 guideline was published, practice in this area has changed and there is now more concern about overtreatment of low-risk cancer. They noted that the UK ProtecT trial, which is most applicable to the population with CPG 1 prostate cancer, showed statistically significant benefit from radical treatment and a higher risk of adverse events. It was therefore recommended that active surveillance should be offered to people with CPG 1 prostate cancer and radical treatment considered if active surveillance is not acceptable or unsuitable.

CPG 2 prostate cancer

In the 2019 guideline radical treatment was recommended for people with intermediate risk prostate cancer, with active surveillance considered if this was unacceptable to the person with prostate cancer. The CPG model divides this intermediate risk group into CPG 2 and CPG 3 prostate cancer and the committee made different recommendations for these groups because they have different risks of prostate cancer related mortality. The committee recommended that people with CPG 2 prostate cancer should be offered a choice of radical prostatectomy, radical radiotherapy or active surveillance. The ProtecT trial included people with CPG 2 prostate cancer. However, the risk of prostate cancer-related mortality is higher in the CPG 2 population that in people with CPG 1 prostate cancer and so the choice between active surveillance and radical treatment is more finely balanced.

CPG 3 prostate cancer

Radical prostatectomy or radical radiotherapy was recommended for people with CPG 3 prostate cancer, in line with the 2019 recommendation for people with

intermediate risk prostate cancer. This is because the risk of prostate cancer-related mortality is higher for this group than for people with CPG 2 prostate cancer and the committee thought that the side effects of radical treatment were likely to be outweighed by a survival benefit. The committee also recommended that active surveillance could be considered if radical treatment is unsuitable or unacceptable to the patient, in line with the 2019 recommendation.

CPG 4 and 5 prostate cancer

The 2019 recommendation not to offer active surveillance to people with high-risk prostate cancer was updated to refer to CPG groups 4 and 5. The committee agreed that these groups were equivalent, and that active surveillance would not be a suitable treatment option for these people.

How the recommendations might affect practice

Recommendations where low-risk was replaced with CPG 1 are likely to apply to a broader population due to the inclusion of T2b patients. However, the committee agreed that the associated resource impact of this change would be minimal because although there is more emphasis on active surveillance, the other treatment options are still available.

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Radiotherapy

Recommendations 1.3.19 and 1.3.21 to 1.3.25

Why the committee made the recommendations

The 2014 and 2019 recommendations on hormone treatment and brachytherapy for intermediate and high-risk prostate cancer were amended to cover the CPG 2 to 5 groups. The committee agreed these groups are broadly equivalent to the groups in the 2019 guideline and reflect the populations that will have radical radiotherapy. The recommendations for high-risk prostate cancer were amended to CPG 4 and 5 as these are the equivalent groups.

In 2019, the committee considered a large body of evidence showing that hypofractionated radiotherapy and conventional radiotherapy were equally effective. The committee noted that hypofractionated radiotherapy is associated with higher rates of acute gastrointestinal toxicity, but overall it could enable people to have a better quality of life because they would need to make fewer clinic visits. Fewer clinic visits for hypofractionated radiotherapy would also mean fewer resources were needed compared with conventional radiotherapy treatment. Therefore, hypofractionated radiotherapy was recommended as the first option.

The committee agreed that 60 Gy in 20 fractions was the optimal dose for people having hypofractionated radiotherapy. This was the dosage used in the large UK CHHiP trial that was associated with greater efficacy compared with a 57 Gy schedule, although the 60 Gy schedule did also show slightly greater toxicity.

The 2019 committee considered evidence from a large trial that showed a reduction in biochemical failure (for example, local recurrence or distant metastases) associated with the use of low-dose brachytherapy plus external beam radiotherapy for people with high-risk localised prostate cancer (now updated to the equivalent CPG 4 and 5 groups in the recommendation). As a result, the committee amended the 2014 recommendation so it was not limited to high-dose brachytherapy. The committee also agreed that as most centres do not offer both types of brachytherapy, the advice gives clinicians a choice of either high-dose or low-dose rate brachytherapy.

How the recommendations might affect practice

As hypofractionated radiotherapy is already routinely used in practice (alongside other non-radiotherapy treatment options) for people with localised prostate cancer, these recommendations are unlikely to have an impact on resources.

For brachytherapy (high-dose rate or low-dose rate), the committee agreed that only a small number of people (typically those with CPG 4 and 5 prostate cancer) would currently have brachytherapy, so the changes to the recommendations are unlikely to have a significant impact on current practice.

Recommendations where intermediate risk was replaced with CPG 2 and 3 are likely to apply to a smaller group of people. Therefore, the committee agreed that the changes were unlikely to result in an increased use of resources.

Recommendations for high-risk prostate cancer were changed to be for CPG 4 and 5, but because these groups are equivalent there would be no resource impact.

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Context

Prostate cancer is the most common cancer in men, and the second most common cancer in the UK. In 2014, there were over 46,000 new diagnoses of prostate cancer, which accounts for 13% of all new cancers diagnosed. About 1 in 8 men will get prostate cancer at some point in their life.

Prostate cancer can also affect trans women, as the prostate is usually conserved after gender-confirming surgery, but it is not clear how common it is in this population.

More than 50% of prostate cancer diagnoses in the UK each year are in men aged 70 years and over (2012), and the incidence rate is highest in men aged 90 years and over (2012 to 2014). Out of every 10 prostate cancer cases, 4 are only diagnosed at a late stage in England (2014) and Northern Ireland (2010 to 2014). Incidence rates are projected to rise by 12% between 2014 and 2035 in the UK to 233 cases per 100,000 in 2035.

A total of 84% of men aged 60 to 69 years at diagnosis in 2010/2011 are predicted to survive for 10 or more years after diagnosis. When diagnosed at the earliest stage, virtually all people with prostate cancer survive 5 years or more: this is compared with less than a third of people surviving 5 years or more when diagnosed at the latest stage.

There were approximately 11,000 deaths from prostate cancer in 2014. Mortality rates from prostate cancer are highest in men aged 90 years and over (2012 to 2014). Over the past decade, mortality rates have decreased by more than 13% in

the UK. Mortality rates are projected to fall by 16% between 2014 and 2035 to 48 deaths per 100,000 men in 2035.

People of African family origin are at higher risk of prostate cancer (lifetime risk of approximately 1 in 4). Prostate cancer is inversely associated with deprivation, with a higher incidence of cases found in more affluent areas of the UK.

Costs for the inpatient treatment of prostate cancer are predicted to rise to £320.6 million per year in 2020 (from £276.9 million per year in 2010).

This guidance was updated in 2014 to include several treatments that have been licensed for the management of hormone-relapsed metastatic prostate cancer since the publication of the original NICE guideline in 2008.

Since the update in 2014, there have been changes in the way that prostate cancer is diagnosed and treated. Advances in imaging technology, especially multiparametric MRI, have led to changes in practice, and new evidence about some prostate cancer treatments means that some recommendations needed to be updated.

Since the update in 2019 there has been new evidence on risk categorisation models for localised and locally advanced prostate cancer. Therefore recommendations on risk categorisation and subsequent recommendations on treatments for different risk categories needed to be updated.

Finding more information and committee details

You can see everything NICE says on this topic in the NICE Pathway on prostate cancer.

To find NICE guidance on related topics, including guidance in development, see the NICE webpage on prostate cancer.

For full details of the evidence and the guideline committee's discussions, see the evidence reviews. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice, see resources to help you put NICE guidance into practice.

Update information

October 2021

We have reviewed the evidence on risk stratification for people with newly diagnosed prostate cancer.

Recommendations are marked **[2021]** if the evidence has been reviewed.

Recommendations that have been changed without an evidence review

We propose to delete some recommendations from the 2019 guideline. Table 1 sets out these recommendations and includes details of replacement recommendations. If there is no replacement recommendation, an explanation for the proposed deletion is given.

For recommendations ending **[2008, amended 2021]**, **[2014, amended 2021]** or **[2019, amended 2021]**, we have made changes that could affect the intent without reviewing the evidence. Reasons for the changes are given in table 2.

For recommendations shaded in grey we have not reviewed the evidence. In some cases minor changes have been made – for example, to update links, or bring the language and style up to date – without changing the intent of the recommendation. Sections that have not been changed have been temporarily removed. Minor changes are listed in table 3.

See also the previous NICE guideline and supporting documents

Table 1 Recommendations that have been deleted

Recommendation in 2008 guideline:	Replaced with:

1.2.16 Urological cancer MDTs should assign a risk category (see table 1) to all newly diagnosed people with localised prostate cancer. [2008]	1.2.15 Urological cancer MDTs should assign a risk category (see table 1) to all people with newly diagnosed localised or locally advanced prostate cancer. [2021] *Amendment made to table 1 from 3 tier risk model to CPG model* See rationale and impact - Risk stratification for localised or locally advanced prostate cancer (page 47)

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2 **Table 2 Amended recommendation wording (change to intent) without an evidence**
3 **review**

Recommendation in 2008, 2014 and 2019 guideline	Recommendation in current guideline	Reason for change
1.2.17 Do not routinely offer isotope bone scans to people with low-risk localised prostate cancer. [2008]	1.2.16 Do not routinely offer isotope bone scans to people with Cambridge Prognostic Group (CPG) 1 localised prostate cancer.	See rationale and impact – bone scans for newly diagnosed prostate cancer (Page 48)
1.3.7 Offer a choice between active surveillance, radical prostatectomy or radical radiotherapy to people with low-risk localised prostate cancer for whom radical treatment is	1.3.8 For people with CPG 1 localised prostate cancer: •offer active surveillance •consider radical prostatectomy or radical radiotherapy if active	See rationale and impact - Treatment options for localised and locally advanced prostate cancer –

suitable. Use box 2 to discuss the benefits and harms with them. [2019]	surveillance is not suitable or acceptable to the person. [2019, amended 2021]	CPG 1 prostate cancer (Page 49)
1.3.12 For people with intermediate-risk localised prostate cancer: •offer radical prostatectomy or radical radiotherapy and •consider active surveillance (in line with recommendation 1.3.9) for people who choose not to have immediate radical treatment. Use box 2 to discuss the benefits and harms of each option. [2019]	1.3.9 Offer a choice between active surveillance, radical prostatectomy or radical radiotherapy to people with CPG 2 localised prostate cancer if radical treatment is suitable. 1.3.10 For people with CPG 3 localised prostate cancer: •offer radical prostatectomy or radical radiotherapy and •consider active surveillance (in line with recommendation 1.3.9) for people who choose not to have immediate radical treatment.	See rationale and impact - Treatment options for localised and locally advanced prostate cancer – CPG 2/CPG 3 prostate cancer (Page 49/50)
1.3.13 Do not offer active surveillance to people with	1.3.11 Do not offer active surveillance to people with	See rationale and impact - Treatment options for localised and

high-risk localised prostate cancer. [2019]	CPG 4 and 5 localised prostate cancer	locally advanced prostate cancer – CPG 4 and 5 prostate cancer (Page 50)
1.3.14 Offer radical prostatectomy or radical radiotherapy to people with high-risk localised prostate cancer when it is likely the person's cancer can be controlled in the long term. [2019]	1.3.12 Offer radical prostatectomy or radical radiotherapy to people with CPG 4 and 5 localised and locally advanced prostate cancer when it is likely the person's cancer can be controlled in the long term.	See rationale and impact - Treatment options for localised and locally advanced prostate cancer – CPG 4 and 5 prostate cancer (Page 50)
1.3.19 Offer people with intermediate- and high-risk localised prostate cancer a combination of radical radiotherapy and androgen deprivation therapy, rather than radical radiotherapy or androgen deprivation therapy alone. [2014]	1.3.21 Offer people with CPG 2, 3, 4 and 5 localised or locally advanced prostate cancer a combination of radical radiotherapy and androgen deprivation therapy, rather than radical radiotherapy or androgen deprivation therapy alone.	See rationale and impact - Radiotherapy – (Page 52)
1.3.20 Offer people with intermediate- and high-risk localised prostate cancer 6 months of androgen deprivation therapy before, during or after radical	1.3.22 Offer people with CPG 2, 3, 4 and 5 localised or locally advanced prostate cancer 6 months of androgen deprivation therapy before,	See rationale and impact - Radiotherapy – (Page 52)

external beam radiotherapy. [2014]	during or after radical external beam radiotherapy.	
1.3.21 Consider continuing androgen deprivation therapy for up to 3 years for people with high-risk localised prostate cancer, and discuss the benefits and risks of this option with them. [2014]	1.3.23 Consider continuing androgen deprivation therapy for up to 3 years for people with CPG 4 and 5 localised or locally advanced prostate cancer, and discuss the benefits and risks of this option with them.	See rationale and impact - Radiotherapy – (Page 52)
1.3.22 Consider brachytherapy in combination with external beam radiotherapy for people with intermediate- and high-risk localised prostate cancer. [2019]	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.	See rationale and impact - Radiotherapy – (Page 52)
1.3.23 Do not offer brachytherapy alone to people with high-risk localised prostate cancer. [2008]	1.3.25 Do not offer brachytherapy alone to people with CPG 4 and 5 localised or locally advanced prostate cancer.	See rationale and impact - Radiotherapy – (Page 52)

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