

Putting NICE guidance into practice

Resource impact report: Prostate cancer: diagnosis and management (update) (NG131)

Published: May 2019

Summary

This guideline [Prostate cancer: diagnosis and management](#) is an update of NICE guideline CG175 (published January 2014) and will replace it.

The guideline covers diagnosing and managing prostate cancer. The recommendations most likely to have a substantial resource impact are:

- Recommendations 1.2.2-1.2.5, which recommend offering multiparametric MRI (mpMRI) as the first-line investigation for people with suspected clinically localised prostate cancer and the decision to diagnose with a further biopsy based on the mpMRI Likert score.
- Recommendation 1.3.24, on discussing the option of docetaxel chemotherapy with people who have newly diagnosed non-metastatic prostate cancer.

The full recommendations are given in paragraphs [3.1](#) and [3.2](#).

Financial impact

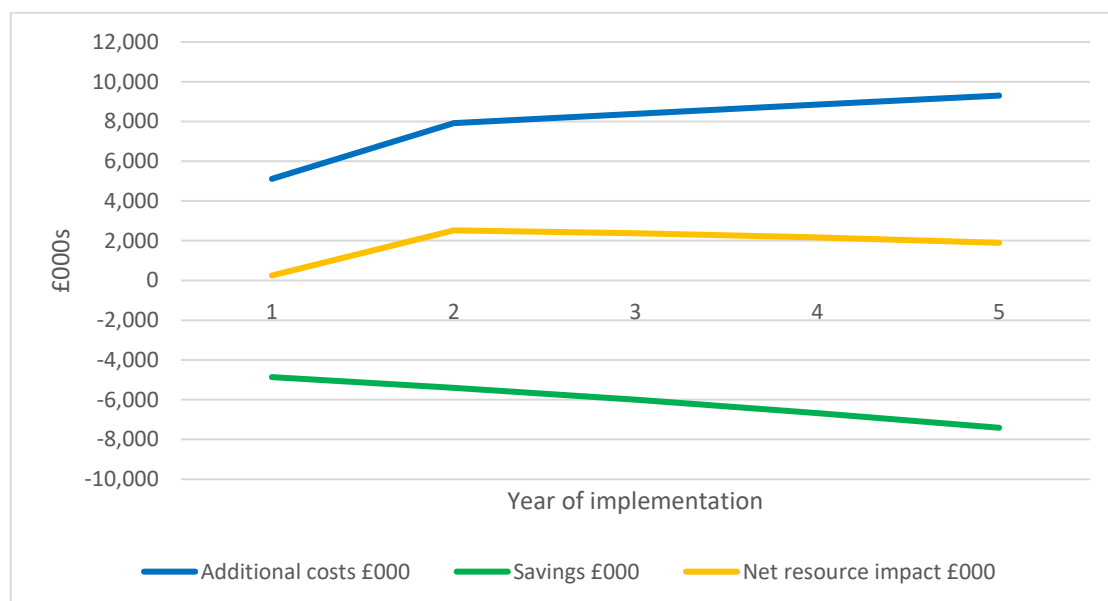
The estimated financial impact of implementing this guideline for England in the next 5 years is a cost of £5.1m in 2019/20 rising to £9.3m in 2023/24.

These costs may be offset by savings of £4.9m in 2019/20 rising to £7.4m in 2023/24, giving a net impact of £0.3m in 2019/20 rising to £1.9m in 2023/24 as set out in table 1 and figure 1 below.

Table 1 Estimated budget impact of implementing the guideline

Recommendation	2019/20 (£000)	2020/21 (£000)	2021/22 (£000)	2022/23 (£000)	2023/24 (£000)
Costs					
Recommendation 1.2.2-1.2.5	2,761	3,221	3,681	4,141	4,601
Recommendation 1.3.24	2,352	4,704	4,704	4,704	4,704
Total costs	5,113	7,925	8,385	8,845	9,305
Savings					
Recommendation 1.2.2-1.2.5	(4,861)	(5,402)	(6,002)	(6,669)	(7,410)
Net budget impact	252	2,523	2,383	2,176	1,895

Figure 1 Estimated budget impact of recommendations 1.2.2-1.2.5 and 1.3.24



1 Introduction

- 1.1 The guideline offers best practice advice on [diagnosing and managing prostate cancer](#).
- 1.2 This guideline is an update of NICE guideline CG175 (published January 2014) and will replace it. There is new evidence on magnetic resonance imaging and biopsy, in assessment and diagnosis, and when to recommend docetaxel chemotherapy for people with different stages of prostate cancer.
- 1.3 This report discusses the resource impact of implementing our guideline on prostate cancer in England. It aims to help organisations plan for the financial implications of implementing the NICE guideline.
- 1.4 We encourage organisations to evaluate their own practices against the recommendations in the NICE guideline and assess costs and savings locally. Organisations can input estimates into the local resource impact template to reflect local practice and estimate the impact of implementing the guideline.
- 1.5 Prostate cancer services are commissioned by clinical commissioning groups, except for radiotherapy, chemotherapy and specialist interventions such as specialist surgery, which fall under specialised commissioning and are commissioned by NHS England. Providers are NHS hospital trusts.

2 Background

- 2.1 Prostate cancer is the most common cancer in males in the UK, accounting for 26% of all new cancer cases in males in 2015 ([Prostate cancer statistics \(2015\) Cancer Research UK](#)). There were over 40,000 new diagnoses of prostate cancer in England in 2016 ([Cancer registration statistics, England 2016](#)).

- 2.2 Incidence rates for prostate cancer are projected to rise by 12% in the UK between 2014 and 2035, to 233 cases per 100,000 males by 2035 ([Prostate cancer statistics \(2015\) Cancer Research UK](#)).

3 Recommendations with potential resource impact

3.1 Multiparametric MRI

The guideline recommends:

Offer multiparametric MRI as the first-line investigation for people with suspected clinically localised prostate cancer. Report the results using a 5-point Likert scale. **[2019] (recommendation 1.2.2).**

Offer multiparametric MRI-influenced prostate biopsy to people whose Likert score is 3 or more. **[2019] (recommendation 1.2.3).**

Consider omitting a prostate biopsy for people whose multiparametric MRI Likert score is 1 or 2, but only after discussing the risks and benefits with the person and reaching a shared decision. If a person opts to have a biopsy, offer systematic prostate biopsy. **[2019] (recommendation 1.2.4).**

Do not offer mapping transperineal template biopsy as part of an initial assessment, unless as part of a clinical trial. **[2019] (recommendation 1.2.5).**

Background

- 3.1.1 The previous NICE guideline on prostate cancer, CG175, recommended that men requiring a repeat biopsy, after an initial negative biopsy, should be offered a multiparametric MRI (mpMRI) before their repeat biopsy. If their mpMRI is negative, they should not be offered a second biopsy.
- 3.1.2 Using mpMRI before first biopsy in men with suspected prostate cancer moves the investigation to the start of the pathway. Men

who may not need a biopsy are identified and can be removed from the pathway, often to primary care follow-up, with more confidence than current practice which is based on Transrectal Ultrasound (TRUS) Guided Biopsy of Prostate biopsy results.

Population

3.1.3 There are around 70,000 men each year in England with suspected malignant neoplasm of prostate. See table 2 for the number of men with suspected malignant neoplasm of prostate.

Table 2 Men with suspected malignant neoplasm of prostate

Variables	%	Number
Adult male population of England		21,262,109
Men with suspected malignant neoplasm of prostate	0.33%	70,546

Costs

3.1.4 Table 3 sets out the current costs of mpMRI and biopsies for men with suspected prostate cancer.

Table 3 Current costs of mpMRI and biopsies of men with suspected prostate cancer

Variables	Number	Unit cost (£)	Total cost per annum £000s
Men with suspected prostate cancer who have a mpMRI	35,978	157	5,649
Men having a TRUS biopsy	54,010	332	17,931
Men having a transperineal template biopsy of prostate	7,365	1,163	8,558
Total			32,138

3.1.5 The guideline [evidence reviews for diagnosing and identifying clinically significant prostate cancer](#), showed that mpMRI is useful in identifying lesions before biopsy, and the combination of mpMRI with prostate biopsy leads to better identification of clinically

significant prostate cancer than systematic prostate biopsy alone. The committee recommended using a 5-point Likert scale because this scale takes into account clinical factors and not just the lesion size, improving the diagnostic ability of mpMRI.

3.1.6 The committee made a recommendation to consider omitting prostate biopsy for people whose mpMRI Likert score is 1 or 2 because there was some evidence that this is safe to do. However, there is a small risk that in some cases significant cancers may be missed, so the committee recommended clinicians discuss the risks and benefits with the man.

3.1.7 Table 4 sets out the estimated future costs of mpMRI and biopsies for men with suspected prostate cancer.

Table 4 The estimated cost of mpMRI and biopsies for men with suspected prostate cancer from year 5 onwards

Variables	Number	Unit cost (£)	Total cost per annum £000s
Men with suspected prostate cancer who have a mpMRI	65,283	157	10,249
Men having a TRUS biopsy	36,480	332	12,111
Men having a transperineal template biopsy of prostate	4,974	1,162	5,780
Total			28,140

3.1.8 The estimated net resource impact over the first 5 years following publication is summarised in table 5 below. There is anticipated to be a net saving of £2,101,000 in 2019/20, increasing to £2,809,000 by 2023/24.

Table 5 Resource impact of offering mpMRI as the first-line investigation.

	2019/20 (£000)	2020/21 (£000)	2021/22 (£000)	2022/23 (£000)	2023/24 (£000)
Resource impact	(2,101)	(2,181)	(2,321)	(2,528)	(2,809)

Assumptions made

- 3.1.9 The number of men with suspected malignant neoplasm of prostate of 70,56 is taken from the [national prostate cancer audit, annual report 2017](#), and health economic data in the [PROMIS study](#).
- 3.1.10 The proportion of men who currently have an mpMRI of 51%, with 37% of men have an mpMRI performed before a biopsy and 14% after a biopsy, is taken from the [national prostate cancer audit, annual report 2017](#).
- 3.1.11 The proportion of men who currently have a biopsy of 87% (calculated from 18,846/21,690), is taken from the [national prostate cancer audit, annual report 2017](#).
- 3.1.12 Based on clinical expert opinion, 92.5% of men with suspected prostate cancer will have an mpMRI before a biopsy in the future.
- 3.1.13 The proportion of men with Likert score 1 or 2 (27.4%) and with a Likert score 3 to 5 (72.6%) is taken from health economic data in the [PROMIS study](#).
- 3.1.14 The proportion of men with a Likert score of 3 to 5 who are expected to receive a biopsy of 87.5% is based on clinical expert opinion.
- 3.1.15 The proportion of men with a Likert score of 1 or 2 who are expected to choose a (TRUS) biopsy of 20% is based on clinical expert opinion.
- 3.1.16 Based on clinical expert opinion the rate of implementation of mpMRI as the first-line investigation in the prevalent population is expected to reach 60% in financial year 2019/20, and increase 10% each year between 2020/2021 and 2022/23, before reaching full impact from financial year 2023/24 onwards.

- 3.1.17 The mpMRI cost of £157 is taken from the [2019/20 national tariff](#) HRG code RD03Z: Magnetic Resonance Imaging Scan of One Area, with Pre- and Post-Contrast.
- 3.1.18 The cost of a TRUS biopsy £332 is taken from the [2019/20 national tariff](#) HRG code LB76Z: Transrectal Ultrasound Guided Biopsy of Prostate.
- 3.1.19 The cost of a transperineal template biopsy of prostate £1,162 is taken from the [2019/20 national tariff](#) HRG code LB77Z: Transperineal Template Biopsy of Prostate.
- 3.1.20 The proportion of TRUS and transperineal template biopsies is taken from the [national prostate cancer audit, annual report 2017](#), biopsy technique used to diagnose men with prostate cancer.

3.2 Docetaxel chemotherapy

The guideline recommends:

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 8–10 or
 - PSA greater than 40 ng/ml.

Explain the benefits and harms and make a shared decision about whether the person should have this treatment. **[2019] (recommendation 1.3.24).**

Offer the option of docetaxel chemotherapy to people with newly diagnosed metastatic prostate cancer who do not have significant comorbidities. **[2019] (recommendation 1.5.6).**

Background

- 3.2.1 Use of docetaxel in people diagnosed with hormone-sensitive metastatic prostate cancer is current practice, therefore the recommendation for the metastatic prostate cancer population is likely to have no impact.
- 3.2.2 However, offering docetaxel to men with high-risk non-metastatic prostate cancer is a change in practice and could result in an increase in the number of people with high-risk non-metastatic prostate cancer receiving docetaxel chemotherapy. Although this could result in an increase in some shorter-term costs to the NHS, the economic evidence showed a reduction in longer-term management costs.

Population

- 3.2.3 There are around 15,000 men in England who have newly diagnosed non-metastatic prostate cancer and who are at high risk. See table 6 for the number of men eligible for docetaxel chemotherapy who have non-metastatic prostate cancer and who are at high risk.

Table 6 Men with newly diagnosed non-metastatic prostate cancer and who are at high risk.

Variables	%	Number
Adult male population of England		21,262,109
Incidence of prostate cancer	0.19%	40,488
Proportion of men who are high risk	37%	14,981

Resource impact

- 3.2.4 The resource impact of providing additional docetaxel chemotherapy is summarised and profiled over 5 years in table 7.

Table 7 Estimated annual resource impact of additional docetaxel chemotherapy for men at high risk and the number of men affected.

	Current practice	2019/20	2020/21	2021/22	2022/23	2023/24
Percentage of men at high risk who have docetaxel chemotherapy	0%	13%	25%	25%	25%	25%
Men with non-metastatic prostate cancer having docetaxel chemotherapy	0	1,873	3,745	3,745	3,745	3,745
Total resource impact (£000)	0	2,352	4,704	4,704	4,704	4,704

Assumptions made

- 3.2.5 The proportion of men diagnosed with prostate cancer who have high risk prostate cancer of 37%, is taken from the [national prostate cancer audit, annual report 2017](#).
- 3.2.6 Based on clinical expert opinion 25% of men with high risk non-metastatic prostate cancer are expected to receive docetaxel chemotherapy in future.
- 3.2.7 Based on clinical expert opinion the rate of implementation for docetaxel chemotherapy in the prevalent population, is expected to reach 50% of peak uptake (12.5%) in financial year 2019/20, before reaching peak uptake of 25% from financial year 2020/21 onwards.
- 3.2.8 The annual drug cost for docetaxel has been calculated assuming that each cycle uses a 160mg vial over 6 cycles, with the price taken from the [drugs and pharmaceutical electronic market information tool \(eMIT\)](#).
- 3.2.9 The treatment cost for docetaxel includes delivering chemotherapy cost £142 for each cycle [NHS national tariff payment system 2019/20](#): HRG SB12Z: Deliver simple parental chemotherapy at first attendance.

- 3.2.10 There are likely to be savings from offering docetaxel to men with non-metastatic prostate cancer that are additional to the drug and administration costs included in the above analysis. These include lower monitoring costs and life-extending therapy costs, as well as reduced end-of-life-care costs. These have been excluded from this analysis because they are unlikely to be cash-releasing but are more likely to improve capacity and may shorten waiting times for other patients.

4 Implications for commissioners

- 4.1 Prostate Cancer UK in collaboration with a range of clinical experts has produced a guidance resource for Clinical Commissioning Groups: [Commissioning multi-parametric MRI before first biopsy for men with suspected prostate cancer.](#)
- 4.2 Feedback from consultation indicated that availability of radiologists to perform and report on the additional mpMRI scans discussed in section 3.1 of this report is likely to be an issue. The increase in scans modelled is assumed to take place over a period of 5 years to recognise the scale of change required. The [Health Education England cancer workforce plan \(2017\)](#) plans for a skills expansion over three years to support growth and transformation. This includes investment in 300 reporting radiographers by 2021 to support an increase the capacity for earlier diagnosis as part of a national programme to assure quality and consistency.
- 4.3 Feedback from consultation indicated that there is a lack of MRI scanners with the required configuration to produce high-quality mpMRI scans discussed in section 3.1 of this report is likely to be an issue. [Prostate Cancer UK](#) found that there has been a significant improvement in access to mpMRI before biopsy since 2016. The greatest increase has been seen across England where rollout of this technique has been prioritised by health commissioners. However, it has also found that 56% of areas

across the UK do not provide mpMRI scans to the highest evidence-based standards. The speed of uptake modelled in this analysis reflects this feedback.

- 4.4 Prostate cancer disease falls under programme budgeting category 02X (Cancer, Urological).

About this resource impact report

This resource impact report accompanies the NICE guideline on [prostate cancer: diagnosis and management](#) and should be read in conjunction with it. See [terms and conditions](#) on the NICE website.

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