Prostate Cancer Research

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Prostate Cancer Screening: The Impact on the NHS

Evaluating the demand, costs and delivery of a national prostate cancer screening programme in the UK.

October 2025

ROACTIVE FOR YOUR PROSTATE

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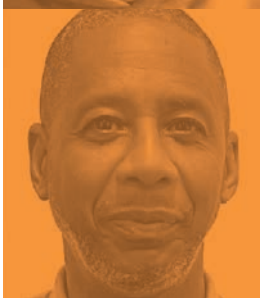
Foreword



Imagine a father, brother or grandfather sitting with his family, laughing at the dinner table, celebrating milestones, or simply being there when he is needed most. Every year prostate cancer takes that chance away from over 12,000 families across the UK. It is the most common cancer in men, and while survival is high when the disease is caught early, too many men are still being diagnosed too late – especially those at highest risk.

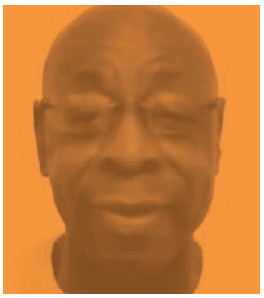
Black men are twice as likely to die from it. Men with a family history of the disease are also at higher risk. Access to timely diagnosis varies by region and socioeconomic background, with poorer outcomes for men in more deprived areas. Yet despite these dangers, there is still no screening programme. Instead, we rely on men to come forward and ask for a test – a system that is entrenching inequalities and failing to save lives.

This report shows that change is not only possible, but practical. A targeted screening programme for high-risk men aged 45–69 would save lives, reduce inequalities and ease late-stage pressures on the NHS. The cost is modest – around £25 million a year, around 0.01% of the NHS budget – and the workforce implications are small. Compared with the scale of the benefits, these demands are minimal.

Earlier diagnosis means more men cured and fewer families devastated. Reflex blood tests, AI-assisted MRI scans, polygenic risk scores, digital pathology and other emerging technologies are already being piloted – or should be considered – in the NHS. These promise even greater accuracy, fewer unnecessary procedures and the foundation for an eventual population-wide programme. The Government's investment in the TRANSFORM study may provide clear answers on the most clinically effective pathway, but evidence-based steps can save lives now.

Some argue case finding is not feasible. This report shows otherwise. Ethnicity and age are reliably recorded in primary care, while outreach and patient engagement can identify those with a family history of the disease. With the right systems and communication, case finding is achievable.

This vision also aligns with the NHS 10-Year Plan, which places prevention and community care at its heart. Targeted screening would catch cancer earlier and reduce the burden of costly late-stage treatment.



It's high time we act. Every year we delay, thousands face the prospect of being told their cancer has been found too late. This report sets out how a targeted screening programme is a sensible first step we can, and should, take now – to save lives, reduce inequalities and protect families across the UK. We call on policymakers, clinicians and communities to work with us to deliver this change.

Oliver Kemp MBE
Chief Executive
Prostate Cancer Research

Executive Summary

Our findings suggest:

A targeted screening programme for men of Black ethnicity and men with a relevant family history will:

- **cost the NHS an extra ~£25 million annually (around 0.01% of the NHS budget);**
- **involve a ~23% increase in the number of PSA tests, MRIs and biopsies delivered;**
- **require an uplift in NHS workforce FTE roles from 0.01%–0.4%;**
- **reduce entrenched inequalities for Black men, those with a family history of prostate cancer and those in areas with high levels of deprivation.**

Evaluating and adopting innovations such as reflex blood tests, AI-enabled MRI, polygenic risk scores, digital pathology and other emerging technologies will reduce pressures on services and help pave the way for future whole population screening.

Why Screening Matters

Prostate cancer is the most common cancer in men in the UK, with more than 63,000 new cases reported annually.[1] Early diagnosis is critical: the 10-year survival rate is over 90% for men diagnosed at stages I–II, 80% for stage III and just 18.6% at stage IV.[2]

High-risk groups such as Black men and those with a family history of prostate cancer face a disproportionate burden, yet there is currently no national screening programme to address this. Instead, there is a reliance on opportunistic and symptomatic testing, which fails to detect many avoidable later stage cancers.

Access to diagnostic services varies significantly by region, with Black men and men in deprived areas often the least well served. A national screening programme would reduce this unwarranted variation, ensuring more consistent access – regardless of geography or background.

Why Now?

In the absence of a whole population screening programme, the National Screening Committee is currently considering six different approaches to screening. These include whole population, risk-stratified and targeted screening for prostate cancer. The Committee is due to make its recommendation before the end of 2025.

The socio-economic impacts of a screening programme have previously been examined in a report commissioned by Prostate Cancer Research (PCR). However, NHS capacity for the implementation of a screening programme was not included in that report.[3] This report seeks to estimate the impact of a targeted screening programme on the NHS and the additional capacity that would be required to meet the demand created by such a programme.

Scenarios Considered in This Report

This report focuses on three distinct scenarios:

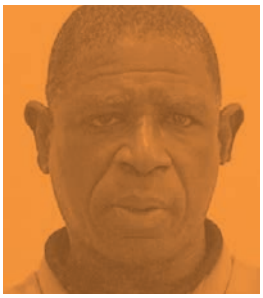
1. **All men aged 50–69;**
2. **Black men aged 45–69;**
3. **Men with a relevant family history and those who carry BRCA1/2 pathogenic variants, aged 45–69 (the latter are considered throughout this report to be a subset of those with a family history of the disease).**

Methodology at a Glance

This report draws on Hospital Episode Statistics (HES) and the Diagnostic Imaging Dataset (DIDS), which provide detailed data on MRI scans and biopsies in England by ethnicity, and for biopsies by age.

These data were analysed to establish a baseline of current NHS diagnostic capacity and extrapolated to the UK level. Using this baseline, the study modelled the additional capacity and costs of a targeted screening programme.

HES/DIDS data have known limitations, so all totals are indicative. Furthermore, service provision is not uniform; UK uplifts from England data should be read in that context.



Additional Demand on NHS Services

Summary Table 1: Anticipated additional demand of future screening programmes across the UK

Pathway process	Existing activity (baseline)	Additional activity required in scenario 1: all men aged 50–69	Additional activity required in scenarios 2 and 3: men of Black ethnicity and those with family history of the disease, aged 45–69
PSA tests	870,367	1,156,830	197,752
MRI scans	133,851	177,905	30,901
Biopsies	81,082	107,768	19,025

Source: Hospital Episode Statistics; Diagnostic Imaging Dataset; CF analysis; Prostate Cancer Research, Socio-economic Impact of Prostate Cancer Screening.

Around 140,500 men in the target populations already received a PSA test last year, showing baseline uptake of ~8% (Black men) and ~11% (family history).

A targeted screening programme, with 20% being invited to screening each year and 72% responding to the invitation to screen, would generate approximately 198,000 additional PSA tests, leading to ~31,000 MRI scans and, for patients requiring further investigation, ~19,000 biopsies on an annual basis. A targeted screening programme would therefore require a ~23% increase in the number of PSA tests, MRIs and biopsies currently being delivered in the UK.

Costs of Targeted Screening

This report modelled the estimated annual costs that each scenario would place on the NHS, using current unit costs and comparing it with other screening programmes.

This report found that to introduce a targeted prostate cancer screening programme for men of Black ethnicity and men with a family history of the disease will cost the NHS an extra £25 million, annually – around 0.01% of the UK's NHS budget of ~£220 billion.

The introduction of reflex testing in the future could further reduce annual costs by ~33% to ~£17m, while improving accuracy and reducing unnecessary investigations.

The cost of a targeted prostate cancer screening programme is broadly in line with the cost of existing national programmes, such as in breast cancer, bowel cancer, diabetic eye and cervical cancer.

Summary Table 2: Screening programmes with their estimated cost per eligible individual

Screening programme	Estimated cost per eligible individual
Abdominal aortic aneurysm	£3
Bowel cancer	£12
Cervical cancer	£12
Diabetic eye	£17
Prostate cancer (targeted)	£18
Breast cancer	£22

Adult Screening Programmes in England; ONS latest release, Estimates of the population for the UK, England, Wales, Scotland, and Northern Ireland Mid-2023 edition of this dataset; Diabetes UK; CF analysis.

Workforce Impact of Targeted Screening

Workforce statistics have been analysed to determine the increase in workforce FTE required to deliver a screening programme.

The workforce implications involved in the implementation of a targeted screening programme are small in percentage terms and appear manageable with planning; the greatest increase, required of pathologists, would be 0.4% of the current workforce. Given existing shortages in radiology and pathology, investment in training and modernised and AI-supported workflows will be essential to help absorb added demand.

Summary Table 3: Existing NHS Workforce FTE counts for the UK, with the additional demand screening programmes would require, and percentage increase

Workforce (consultant, specialty doctor, specialty registrar)	UK FTE	Additional annual FTE required for scenarios 2 and 3	Increase
GP (fully qualified)[4]	34,153	15	0.04%
Nurse[5]	450,232	26	0.01%
Pathologist[5]	2,481	10	0.4%
Radiographer[6]	48,874	13	0.03%
Radiologist[5]	6,882	4	0.07%
Urologist[5]	2,286	4	0.15%
Sonographer[7]	1,945	0.3	0.01%
Anaesthetist[5]	14,278	3	0.02%

Source: Workforce sources are referenced 4-7. Additional annual FTE and increase based on workforce modelling by CF.

Implementing Targeted Screening

Case finding is a key enabler for any targeted screening programme, allowing health systems to proactively identify the target population. Ethnicity and age are well recorded in primary care, making it feasible to identify Black men, but family history is less reliably captured and often requires self-reporting.

Evidence from UK pilots shows that data searches must be supplemented with community outreach and direct communications. While a national rollout would need more consistent GP system recording and better data quality, a targeted screening programme is achievable within existing systems and with the right funding framework.

Whole Population Screening

Whole population prostate cancer screening remains the goal if we are to stop thousands of men dying from prostate cancer every year. However, we recognise that significant NHS capacity issues would have to be addressed.

- **PSA, MRI and biopsy demand would increase ~130% from the current demand;**
- **Workforce growth would be six times higher than for a targeted programme;**
- **Annual costs would be five and a half times those of a targeted programme.**

That is why this report focuses on targeted screening for high-risk men – a practical first step that is affordable and deliverable, and that will save lives and reduce inequalities now.

Recommendations

PCR recommends that:

1. **The UK National Screening Committee recommends a national programme targeted at screening for prostate cancer in high-risk men aged 45–69 to reduce inequalities and save lives.**
2. **The Department of Health and Social Care, and health departments in the devolved nations, ensures funding and workforce plans to implement a targeted screening programme, recognising its affordability (~£25m annually) and deliverability.**
3. **NHS bodies across the UK and relevant devolved governments strengthen case finding and data, standardising how ethnicity and family history are recorded and supporting this with national and community outreach.**
4. **National funders should enable NHS-led piloting, implementation and evaluation of emerging technologies – such as reflex tests, AI-assisted MRI, polygenic risk scores and digital pathology – to generate the evidence needed for adoption and future whole population screening.**

About this report

This report was commissioned by Prostate Cancer Research (PCR) and authored by Carnall Farrar Ltd (CF). CF is a leading consultancy dedicated to making an enduring impact on health and healthcare. CF works with leaders and frontline teams to improve health, transform healthcare, drive adoption of innovation and create value through investment. It was written by CF, in collaboration with PCR.

Experts in health

Introduction

Prostate Cancer in the UK

Prostate cancer is the most common cancer in men in the UK, with more than 63,000 new cases reported annually. Prostate cancer accounts for 26% of all diagnosed male cancers, 14% of male cancer deaths, 13% of total cancer diagnoses and 7% of total cancer deaths in the UK.[1]

Prostate cancer primarily affects men over the age of 50, but high-risk groups (men of Black ethnicity, men with a family history of prostate cancer and men who carry pathogenic variants in BRCA1/2) are at a greater risk from a younger age. In most stage I, II and III cases, prostate cancer progresses slowly and will not cause morbidity or mortality during a man's natural lifetime. Based on Cancer Research UK's (CRUK) Early Diagnosis Hub most recent statistics, 10-year survival for stage I was 100%, stage II was ~85% and stage III had a rate of 80%. However, the 10-year survival rate at stage IV dropped to 18.6%.[8] The data are also given by stage of prostate cancer diagnosis for each of the devolved nations, although the most recent data vary between country:

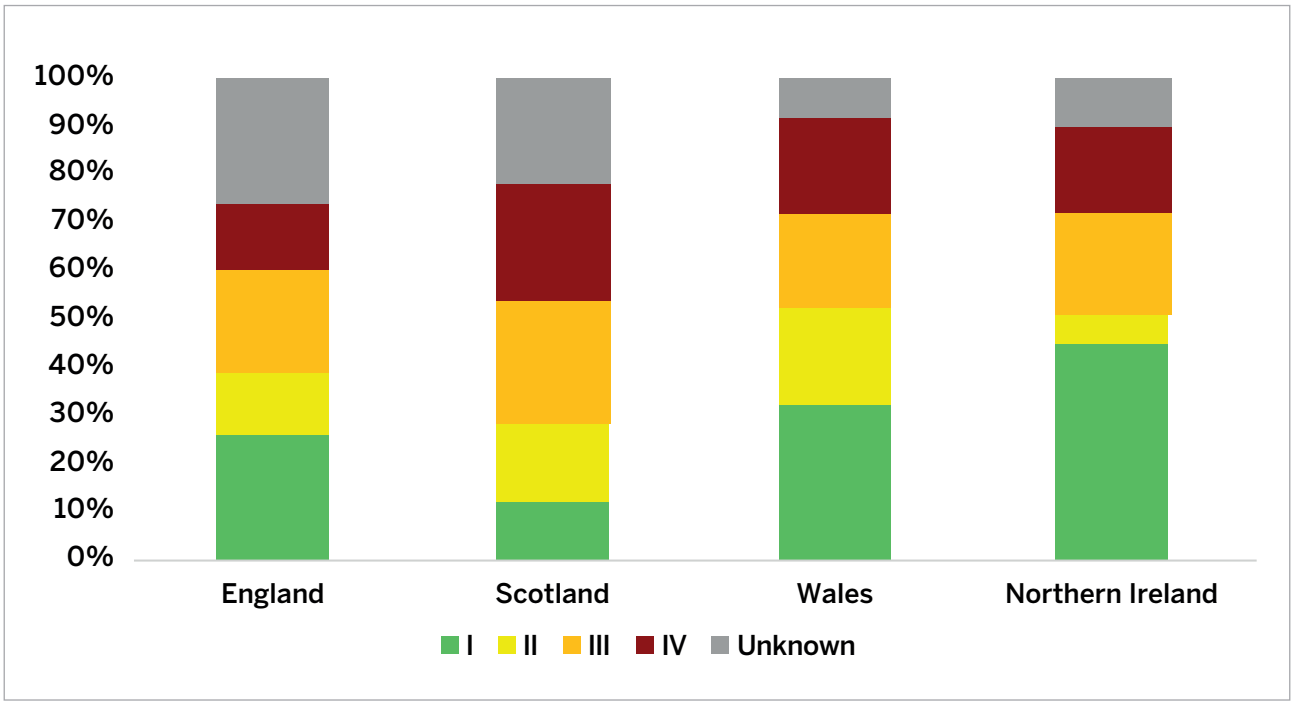


Figure 1: Distribution of prostate cancer diagnoses in each devolved nation by stage; years vary

* England and Scotland based on 2022 data; Wales based on 2019–2021 data; Northern Ireland based on 2018–2022 data

Source: Cancer Research UK, Prostate Cancer Statistics accessed July 2025; CF analysis.

The standard process for diagnosing prostate cancer begins with a Prostate-Specific Antigen (PSA) blood test, which is sometimes accompanied by a Digital Rectal Examination (DRE), depending on individual GP practices, followed by an MRI scan and biopsy, if needed. Treatment options depend on the stage and grade of the cancer, with some form of monitoring (such as Active Surveillance or Watchful Waiting) recommended for the least aggressive cancers or where curative treatment will not bring any gains. Treatment is recommended for the more aggressive cancers, or those that have metastasised.

Current Policy and Screening Context

While there are screening programmes in the UK for other cancers, notably breast, bowel, lung and cervical cancer, there is currently no whole or targeted population screening programme for prostate cancer in the UK.[9] The UK National Screening Committee (UK NSC) last considered a screening programme for prostate cancer in 2020; the Committee did not recommend implementing a screening programme at that point in time for the following stated reasons:[10]

UK NSC's 2020 Screening Recommendation

(The text below has been reproduced from the UK NSC's website)

Screening for prostate cancer is currently not recommended in the UK. This is because:

The Test

The PSA test is not accurate enough to detect prostate cancer that needs treatment. It can falsely find men who do not have prostate cancer. It can also miss some cancers. This means that many men might have to undergo unnecessary and often unpleasant tests and/or unnecessary treatment.

It is still unclear if other tests such as an MRI scan, with or without PSA, are accurate enough. Research is also currently looking at whether a method for predicting prostate cancer risk using a combination of a blood test and other information about a man could be more accurate. But more studies are necessary to confirm the early results.

The Intervention

At present, there is no single treatment that is definitely better for patients with early-stage prostate cancer, as the effectiveness of treatments needs to be weighed up against their side effects.

The Screening Programme

It is unclear how PSA screening impacts deaths due to prostate cancer.

A PSA-based screening programme could harm men as some of them would be diagnosed with a cancer that would not have caused them problems during their lifetime. This would lead to additional tests and treatments that can also have harmful side effects.

The UK NSC is currently reviewing prostate cancer screening anew, including the possibility of whole population screening alongside five targeted approaches. Currently, in the UK, under the Prostate Cancer Risk Management Programme (PCRMP), asymptomatic men over 50 can ask their general practitioner (GP) for a test to measure their PSA levels. Before they are given the test, the guidelines state that they are to be counselled on the pros and cons of the test and what may happen if the test results are above a certain threshold. With this information they are then considered able to make an informed choice on whether to proceed with the test.

Some local public awareness programmes have increased the numbers of men requesting PSA tests, while publicity generated by charities and public figures who have been diagnosed with prostate cancer is also considered to be a big driver of the increased numbers of men coming forward for testing in recent years. There is growing clinical, public and political support for a prostate cancer screening programme, particularly one that begins with high-risk groups. This is driven by, among other things, advances in MRI scanning, the increased use of monitoring for slower-growing cancers and newer biopsy techniques. Together, these improvements reduce the risk of potential overtreatment of early-stage, slow-growing cancers. The development of new reflex blood tests is expected to improve the accuracy and the overall cost-effectiveness of the diagnostic pathway.

Scope of This Report

The socio-economic impact of both whole population and targeted screening programmes has been examined in a report commissioned by Prostate Cancer Research.[3] However, NHS capacity for implementation of a screening programme was not included in the study. This report seeks to estimate the impact of screening on the NHS and the additional capacity that would be required to meet the demand created by such a programme, with a particular focus on a targeted screening programme.

This report looks at a prostate cancer screening programme in the UK for all men aged 50–69 (c.8 million) and two proposed target groups: Black men aged 45–69 (c.373,000) and men aged 45–69 with a family history of prostate cancer (c.1 million). The cohorts' sizes are based on 2025 population data and used in PCR's 2024 report on the Socio-economic Impact of Prostate Cancer Screening. The family history cohort was estimated on the assumption that ~10% of men in the 50–69 age group have a father or brother with prostate cancer.[3]

The data sources for this report include Hospital Episode Statistics (HES) data and the Diagnostic Imaging Dataset (DIDS), which provide detailed information on the numbers of MRI scans and biopsies performed in England by ethnicity and, for biopsies, by age. These data sources have been analysed to establish the current situation and base case for NHS capacity to test and diagnose men with suspected prostate cancer across the UK. This study has used these data and the results of previously published studies to model the additional NHS capacity requirement and resulting costs if either whole population screening or a targeted screening programme for Black men aged 45–69 and men with family history of the disease, aged 45–69, were implemented.

The numbers invited to screening are estimated from the cohort population sizes, with 20% being invited to screening each year and 72% responding to the invitation to screen and therefore having a PSA test. Inviting 20% of the cohort has been suggested as a proportion that could be managed by the NHS, and reflects the real-world implications and administrative task that would be required.

While HES and DIDS data provide the most comprehensive national datasets available, they do have known limitations and they may not fully reflect clinical workloads, particularly in diagnostic and outpatient services. Total figures should therefore be interpreted as indicative rather than definitive. Furthermore, service provision is not uniform across England, with significant regional variation in diagnostic capacity, workforce availability, and care pathways. Extrapolations from national or regional datasets should therefore be read in this context.

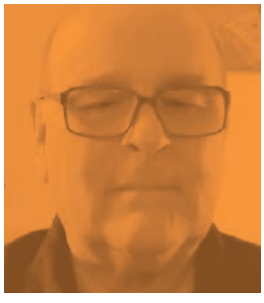
Current Prostate Cancer Diagnosis Pathway, Activity and Costs

Prostate Cancer Diagnostic Pathway

In the UK, prostate cancer diagnosis begins in primary care, either through men presenting with symptoms or through an informed choice approach guided by the Prostate Cancer Risk Management Programme (PCRMP). Symptomatic diagnosis occurs when men present to their GP with concerns, which are then recognised as potential indicators of prostate cancer, and a prostate-specific antigen (PSA) blood test can be offered. This often occurs after other urinary tract infections have been ruled out. The informed choice approach is where asymptomatic men aged 50 and over can request a prostate-specific antigen (PSA) blood test and may be given one after discussing the risks and benefits with their GP. In both cases, if the PSA level is elevated and/or a digital rectal exam is abnormal, the patient receives an urgent suspected cancer referral to urology, usually under the two-week-wait cancer pathway. The next step is a diagnostic MRI scan, which helps to determine whether a biopsy is necessary. If the MRI reveals suspicious areas (a PI-RADS score of 3 or higher), a biopsy, usually transperineal, and less commonly transrectal, is performed. This typically includes both targeted and systematic cores to maximise diagnostic accuracy and minimise risk. The biopsy confirms the diagnosis, determines disease staging and guides treatment planning. If the MRI is negative (a PI-RADS score of 2 or lower), the patient will usually be discharged and a biopsy will not need to be performed.

Biopsy and MRI Scanning Data Sources

Hospital Episode Statistics (HES) data shows that approximately 68,000 biopsy procedures were performed on men in England during the 2024/25 financial year. Biopsy activity is recorded across both inpatient and outpatient datasets, with inpatient biopsies captured in the Admitted Patient Care dataset (at a granularity of age band, Integrated Care Board (ICB), ethnicity and IMD decile), and outpatient biopsies recorded in the Outpatient dataset (at a granularity of age band, ICB and IMD decile). Diagnostic MRI scans used to support prostate cancer diagnosis are recorded in the Diagnostic Imaging Dataset (DIDS), which provides scan counts by ICB, ethnicity and IMD decile, but does not include age bandings. Given that HES biopsy data shows less than 1% of all prostate cancer biopsies are performed on men under the age of 45, MRI activity in this age group is assumed to be negligible. As such, the DIDS data has been analysed as representing men aged 45 and over. Additionally, a proportion of current prostate MRI scans and biopsies are conducted as part of Active Surveillance, where men with low-risk prostate cancer undergo routine monitoring, often with annual scans and, if necessary, biopsies. While it is not possible to distinguish between MRI scans conducted for diagnostic purposes and those used for ongoing monitoring within the available data, both are included in the recorded NHS activity. Importantly, only scans that identify potentially concerning findings would lead to a subsequent biopsy.

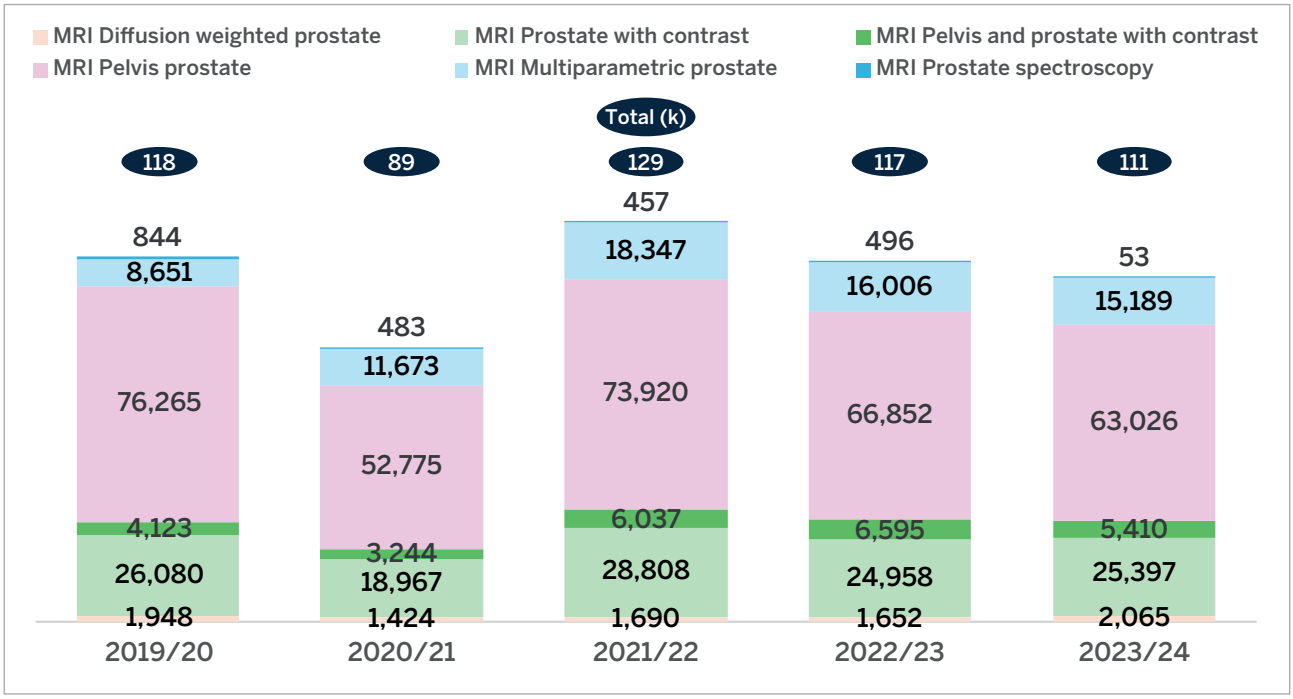


Diagnostic MRI Scans for Prostate Cancer

The Diagnostic Imaging Dataset (DIDS) enables differentiation between types of MRI scans used, offering valuable insights into technological trends since 2019. However, the dataset faces limitations in quality and consistency that should be considered when interpreting the findings.

As shown in the chart below, the total number of MRI scans used to diagnose prostate cancer declines from 2021/22 onwards. This trend is likely influenced by incomplete data capture, as it has recently been confirmed that DIDS entries were missing from the Hospital Episode Statistics (HES) dataset for parts of 2023/24. While this limits the completeness of the most recent year's figures, the overall trends remain reliable and the analysis provides a robust and indicative view of diagnostic activity across the period.

Figure 2: Bar chart of total count of diagnostic scans for men, all ages 45+, by scan type, England, FY 2019/20 to 2023/24



Source: Diagnostic Imaging Dataset; CF analysis.

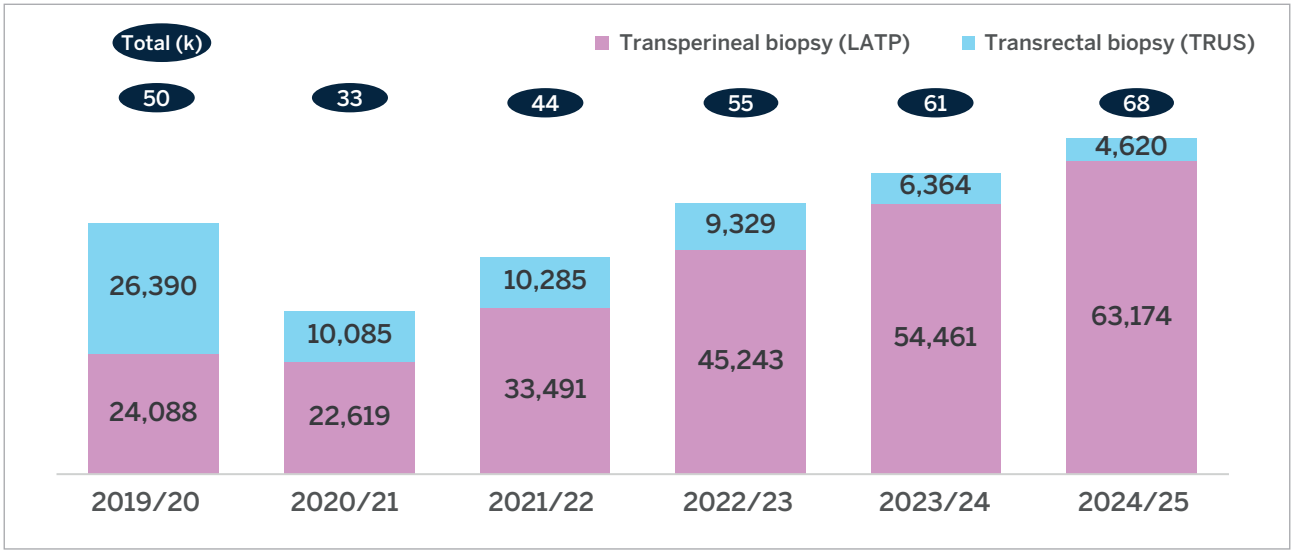
The data, despite known gaps in recent records, indicates a growing adoption of multiparametric MRI (mpMRI) scans for prostate cancer diagnosis since 2019/20. This shift aligns with findings from the PROMIS study, which demonstrated that mpMRI significantly improves the detection of clinically significant prostate cancers while reducing the need for unnecessary transrectal ultrasound (TRUS) biopsies by up to 27%.[11] It also aligns with NICE guidelines, which were updated in 2019 and which recommend the use of mpMRI for diagnosing prostate cancer.[12] In contrast to standard MRI, mpMRI combines multiple imaging sequences to generate a highly detailed and multi-planar view of the prostate. This not only enhances diagnostic accuracy but also enables more precise, targeted biopsy procedures by identifying suspicious areas with greater clarity.

Multiparametric MRI scans require a clinician to be present due to the need for an injection of contrast, which could potentially cause an allergic reaction. Recent evidence has been published of the non-inferiority of biparametric MRI (bpMRI) scanning to mpMRI, when diagnosing clinically significant prostate cancers;[13] the TRANSFORM study is taking this research further to confirm the findings that bpMRI could replace mpMRI.[14] Biparametric scans do not require contrast, making them faster, safer and more cost effective than mpMRI scans. Additionally, these scans can be performed in mobile scanning units, enabling them to take place in community diagnostic centres outside of the secondary care setting. This improves accessibility, enabling more diverse patient groups to access testing. Therefore, if the TRANSFORM study confirms bpMRI effectiveness, the MRI testing stage for prostate cancer could be safer, faster, less clinical-resource intensive and more accessible to the men who need it most.

Biopsy Tests for Prostate Cancer

Through admitted patient care records and outpatient records in HES data, the trend in biopsies to diagnose prostate cancer can be determined, by type of biopsy, age band, ethnicity, IMD decile and ICB, across England.

Figure 3: Bar chart of total count of biopsies for all men, 45+, by biopsy type, England, FY 2019/20 to 2024/25



Source: Hospital Episode Statistics; CF analysis.

Biopsy volumes in England have increased substantially over the past five years, with total activity rising by more than 25% since 2019/20, despite an initial reduction in biopsy procedures during the COVID-19 pandemic, as shown in Figure 3. There has also been a trend towards transperineal (LATP) biopsies, at the expense of transrectal (TRUS) biopsies, since 2019. The shift reflects a clinical consensus that transperineal biopsies offer greater safety: they carry a lower risk of infection (as they avoid the rectal wall), and they improve sampling of the anterior prostate, where some aggressive cancers may be missed by transrectal biopsies. The transition in biopsy technique, similar to improved MRI scanning, shows that new techniques and approaches are continuing to be developed and implemented in prostate cancer diagnosis, reducing the risks of overdiagnosis.

Table 1: Total count of biopsies by cohort, England, FY 2024/25

Group	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	CAGR
Black men 45–69	1,552	1,015	1,634	1,972	2,091	2,411	9%
All men 45–69	29,620	18,839	24,568	31,715	35,278	39,719	6%
Black men 70+	350	215	351	409	449	496	7%
All men 70+	20,581	13,677	18,944	22,605	25,226	27,648	6%
All men 45+	50,478	32,704	43,776	54,572	60,825	67,794	6%

Source: Hospital Episode Statistics; CF analysis.

Table 1 shows in greater detail the increasing numbers of biopsies performed since 2019/20. Despite the drop in biopsies caused by the COVID-19 pandemic, there has been notable compound annual growth (CAGR) in the count of biopsy tests for all groups, suggesting increases in PSA testing across the cohorts, and therefore a likely increase in awareness surrounding prostate cancer. Both age ranges of men with Black ethnicity show higher rates of compound annual growth in biopsies from 2019/20 to 2024/25, which suggests increased awareness among this cohort in total, and aligns with existing literature that suggests men with Black ethnicity are increasingly likely to undergo prostate cancer diagnosis, although still not at high enough levels to prevent avoidable deaths from prostate cancer.[15]

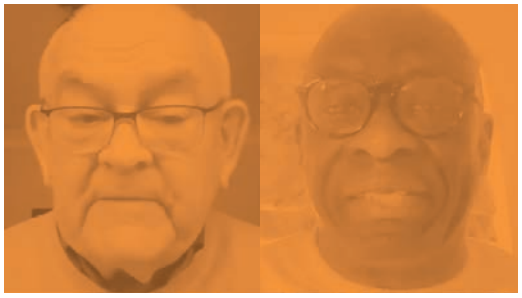
Part of the increase in biopsies within England from 2019/20 to 2024/25 is attributable to general population growth among older age groups, which ONS shows have increased within the 45+ male age group by ~3%. By standardising annual data to adjust for population changes and calculating the biopsy rate per 1,000 men aged 45 and above who enter the cancer diagnosis pathway, it becomes evident that the increase in biopsies is independent of population growth.

Table 2: Rate of biopsies per 1,000 men, all ages 45+, across England, FY 2019/20 to 2024/25

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	CAGR
Biopsies per 1,000 men, all ages 45+	4.25	2.74	3.64	4.51	4.99	5.50	5%

Source: Hospital Episode Statistics; CF analysis.

The non-demographically related increase in biopsies, as shown in Table 2, likely reflects greater public awareness and engagement with prostate cancer symptoms. High-profile individuals such as TV presenter Bill Turnbull, actor Sir Stephen Fry and Olympian Sir Chris Hoy have played a key role in this shift. Following Hoy's announcement about his prostate cancer diagnosis being incurable, in October 2024, the NHS website saw a 672% surge in visits to its prostate cancer symptoms page, rising from 1,876 visits to over 14,000 in just 48 hours. At its peak, the page was accessed every 10 seconds. This dramatic increase highlights how public figures can influence health-seeking behaviour, encouraging men to act on potential symptoms earlier. Increased awareness is likely the greatest contributing factor to the upward trend in biopsy rates seen in recent years.[16]



PSA Testing

Understanding the volume of PSA testing is fundamental to the analysis. However, the majority of data for this test currently reside in primary care, which is difficult to access at scale. Evidence-based estimates of current PSA testing levels have therefore been made, based on academic research and calculations using published conversion rates from PSA to MRI and biopsy and the available HES data. This has been aligned to previous modelling work undertaken on behalf of Prostate Cancer Research (PCR) by Deloitte.

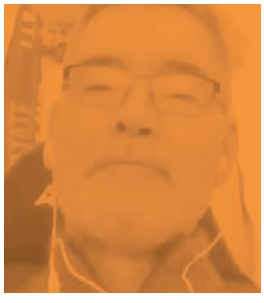
Baseline Modelling of PSA Testing Volumes and Conversion to MRI/Biopsy

Previous modelling has established that approximately 9.32% of men who undergo a PSA test proceed to biopsy.[3] Applying this conversion factor to the HES biopsy total suggests that approximately 730,000 PSA tests were carried out in England in 2024/25. Scaling this figure to the UK using a 19.6% population uplift, consistent with ONS population data, yields an estimated 870,000 PSA tests annually at a national level.

This estimate aligns closely with independent findings: a longitudinal BMJ study using data from the UK Clinical Practice Research Datalink (CPRD) found that ~6% of men receive a PSA test annually, almost entirely among those aged 45 and above.[17] Applying the 6% testing rate to the 2024 male population in England aged 45+ (12.2 million, ONS) results in an estimated 732,000 PSA tests.[18] The minimal difference between this figure and the modelled estimate based on biopsy data (730,000, <0.3% variance) suggests strong internal consistency and reinforces the validity of using the 9.32% conversion rate to model PSA testing activity across population subgroups.

Data specific to men aged 45–69 with a family history of prostate cancer is not identifiable within HES. To estimate PSA testing activity for this group, population projections previously published by PCR were used, in combination with testing rate assumptions drawn from studies, which show that men with a family history of prostate cancer are about twice as likely to undergo a PSA test. It is therefore estimated that 110,000 PSA tests are conducted each year in the UK for men in this high-risk group. Pathway conversion rates (15.5% to MRI; 9.32% to biopsy) were then applied to this to generate MRI and biopsy figures.[3]

The assumptions used in this modelling align with prior work commissioned by PCR to ensure consistency in methodology and interpretation. However, it is worth noting that lower PSA-to-MRI and PSA-to-biopsy conversion rates have been reported in two localised studies. A study commissioned by North of England Care System Support, published in June 2024, found that only 5% of men who had a PSA test were referred for an MRI: of 3,967 men tested, 288 were referred to secondary care and 200 ultimately received an mpMRI.[19] This study did not report biopsy data. Similarly, a study from Surrey and Sussex reported a 4% PSA-to-MRI conversion rate, with 803 MRI scans following 18,317 PSA tests. Of those who received an MRI, 343 (43%) proceeded to transperineal biopsy. If these lower conversion rates were observed within a national screening programme, the resulting MRI and biopsy volumes would be significantly reduced relative to the scenarios modelled here.



Overview of Current Diagnostic Activity

The below table provides an overview of the estimated current activity across the UK for prostate cancer diagnosis.

Table 3: Showing the UK-wide current levels of prostate cancer diagnosis and treatment activity for those with a diagnosis, in financial year 2024/25 (unless otherwise stated)

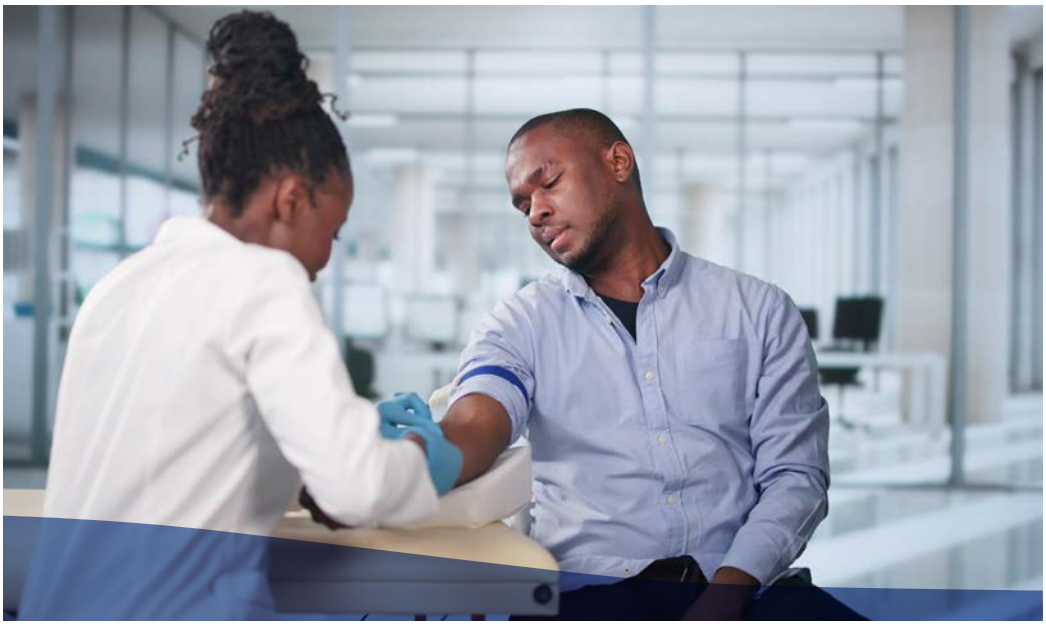
	Black men aged 45–69	Men with family history aged 45–69*	All men aged 50–69	All men 70+	Total (all ages)
Population	373,000[1]	1,000,000[1]	8,200,000[5]	4,200,000[5]	-
PSA test	c.30,500[4]	c.110,000[4]	c.440,000[4]	c.355,000[4]	870,000[4]
MRI scan (FY 2023/24)	5,400[4]	c.27,000[4]	77,700[4]	54,400[4]	134,000[2,3,4]
Biopsy	2,870[4]	c.16,700[4]	40,700[4]	33,000[4]	81,000[2,3,4]
Treatment activity**	8,870[4]	c.70,000[4]	172,700[2]	255,500[2]	430,700[2]

1. Socio-economic Impact report, PCR
2. Admitted patient care and outpatient data sets, HES
3. Diagnostic imaging dataset, HES
4. Estimated using HES data and modelling assumptions
5. ONS
6. CF analysis

* Men with family history of prostate cancer (including the subset of men with BRCA1/2 pathogenic variants) are not visible in any data sources, so there is overlap between that group and total men aged 50–69; estimates are based on the size of the population in PCR's Socio-economic Impact report and the research-based assumption that people with family history are twice as likely to enter the pathway

** Treatment activity includes all activity for new and existing patients within inpatient or outpatient care settings, with an ICD-10 diagnosis code of C61 (primary diagnosis of malignant neoplasm of the prostate)

A notable proportion of PSA testing continues to occur among men aged over 70, with approximately 355,000 tests performed in this age group, accounting for more than 40% of all PSA tests conducted in the 2024/25 financial year. Although the implementation of a targeted screening programme for men aged 45–69 in higher-risk groups may gradually reduce the proportion of testing in older men, this cohort is likely to remain a significant part of the prostate cancer diagnostic and management landscape. While most major screening trials and studies on prostate cancer[20] exclude men aged 70 and above from routine screening due to limited net benefit, diagnostic testing remains appropriate and clinically justified when symptoms are present.



Regional Analysis of Diagnostic Activity for Prostate Cancer

Across England there is variation in diagnostic activity, indicating geographical differences in prostate cancer diagnosis, and therefore access to treatment. To understand this disparity, HES data was used to examine the number of diagnostic MRI scans and biopsies across Integrated Care Boards (ICBs).

The following heat maps illustrate the geographic distribution of diagnostic activity across England. Darker shades indicate regions with higher activity, while lighter shades represent areas with lower activity.

Urban centres, such as the ICBs in London, and regions with large populations of men over 45, such as NHS North East and North Cumbria, NHS Kent and Medway, and NHS Hampshire and Isle of Wight, exhibit the highest MRI diagnostic scan volumes, reflecting a greater demand on imaging infrastructure and specialist services. In contrast, many rural and Midlands regions, including parts of the South West, East Midlands and West Midlands, show significantly lower usage.

Figure 4: Heat map of total count of diagnostic MRI scans, men over 45, by ICB, England FY 2023/24

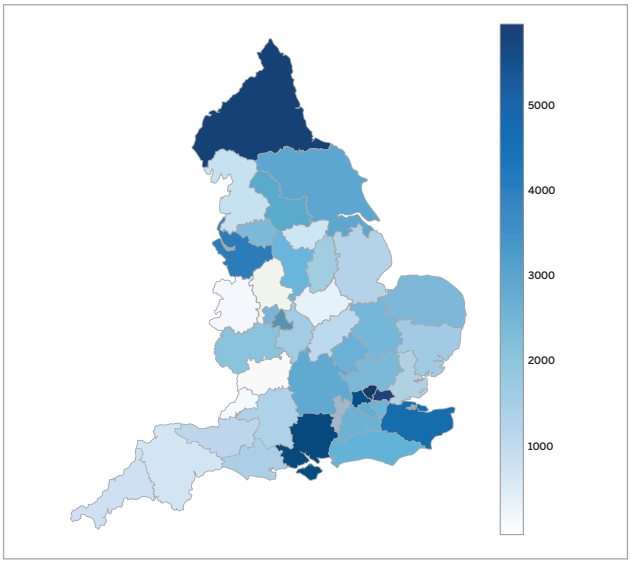
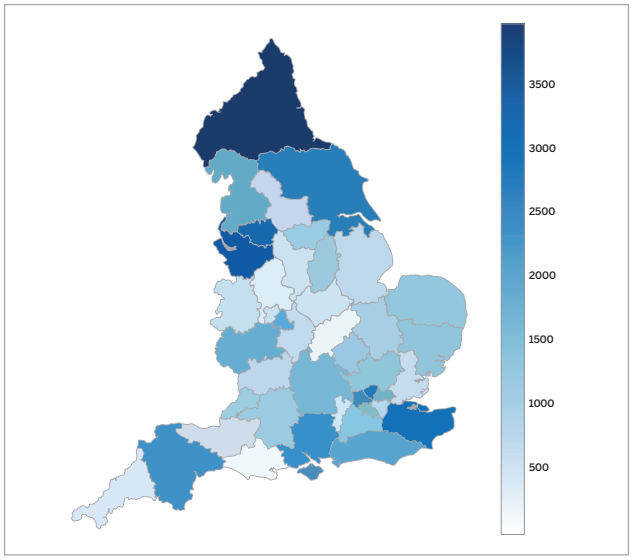


Figure 5: Heat map showing total count of biopsies, men over 45, by ICB, England, FY 2024/25



Source: Figure 4; Diagnostic Imaging Dataset. Figure 5; Hospital Episode Statistics; CF analysis.

The North East, North West and South East also show high volumes of biopsies, similarly reflecting the high levels of men within the targeted testing cohort age range. However, some regions, particularly NHS North East London, stand out for their high MRI activity but report relatively lower biopsy volumes, which may reflect more selective diagnostic MRI-to-biopsy conversion rates, or limitations to the data set.

Targeted analysis of the activity taking place among men with Black ethnicity was undertaken to develop an understanding of the cohort that a targeted screening programme might be aimed at.

Figure 6: Total count of diagnostic MRI scans, Black men, all ages 45+, by ICB, England, FY 2023/24

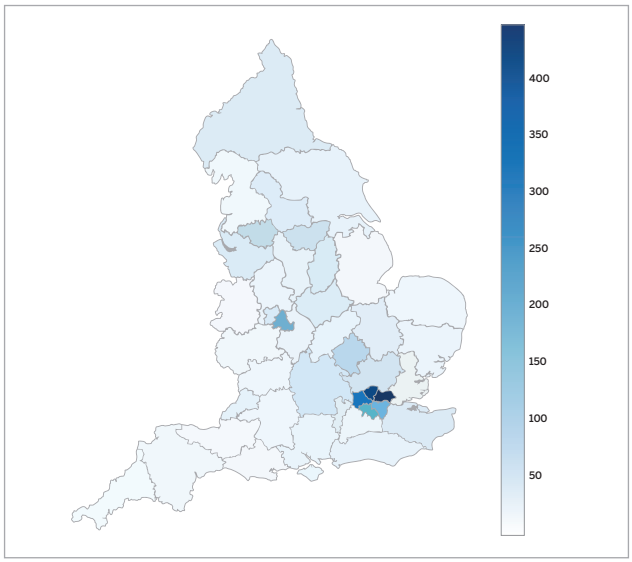
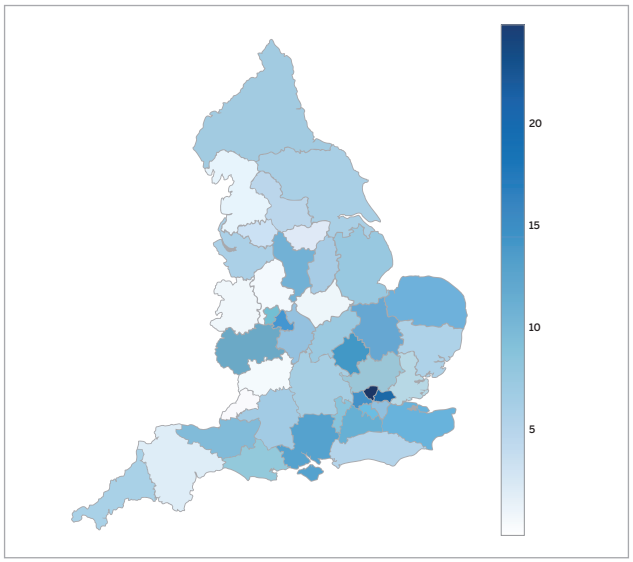


Figure 7: Total count of biopsy tests, Black men, all ages 45+, by ICB, England, FY 2024/25

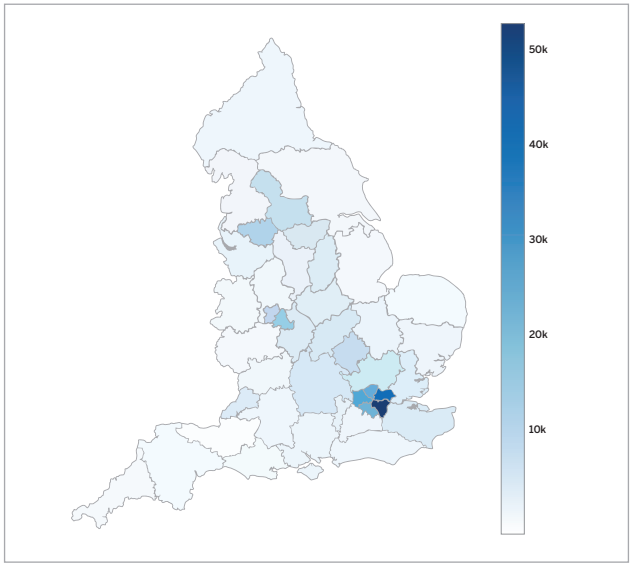


Source: Figure 6; Diagnostic Imaging Dataset. Figure 7; Hospital Episode Statistics; CF analysis.

Although differences in diagnostic activity volumes across ICBs may appear pronounced, particularly in diagnostic MRI scan data, these variations largely reflect the underlying geographic distribution of Black men aged 45 and over, relative to the national distribution of all men in this age group.

Regions with higher concentrations of Black populations, such as London (Figure 8), report correspondingly higher numbers of diagnostic MRI scans, indicating that service provision is broadly aligned with local population demographics. A similar pattern is observed in biopsy activity. However, the regional variation in biopsy counts is less marked than that seen in MRI data or demographic heat maps. This may be partly explained by the lower overall volume of biopsy procedures, which allows for greater variability and nuance in the regional heat-mapping outputs.

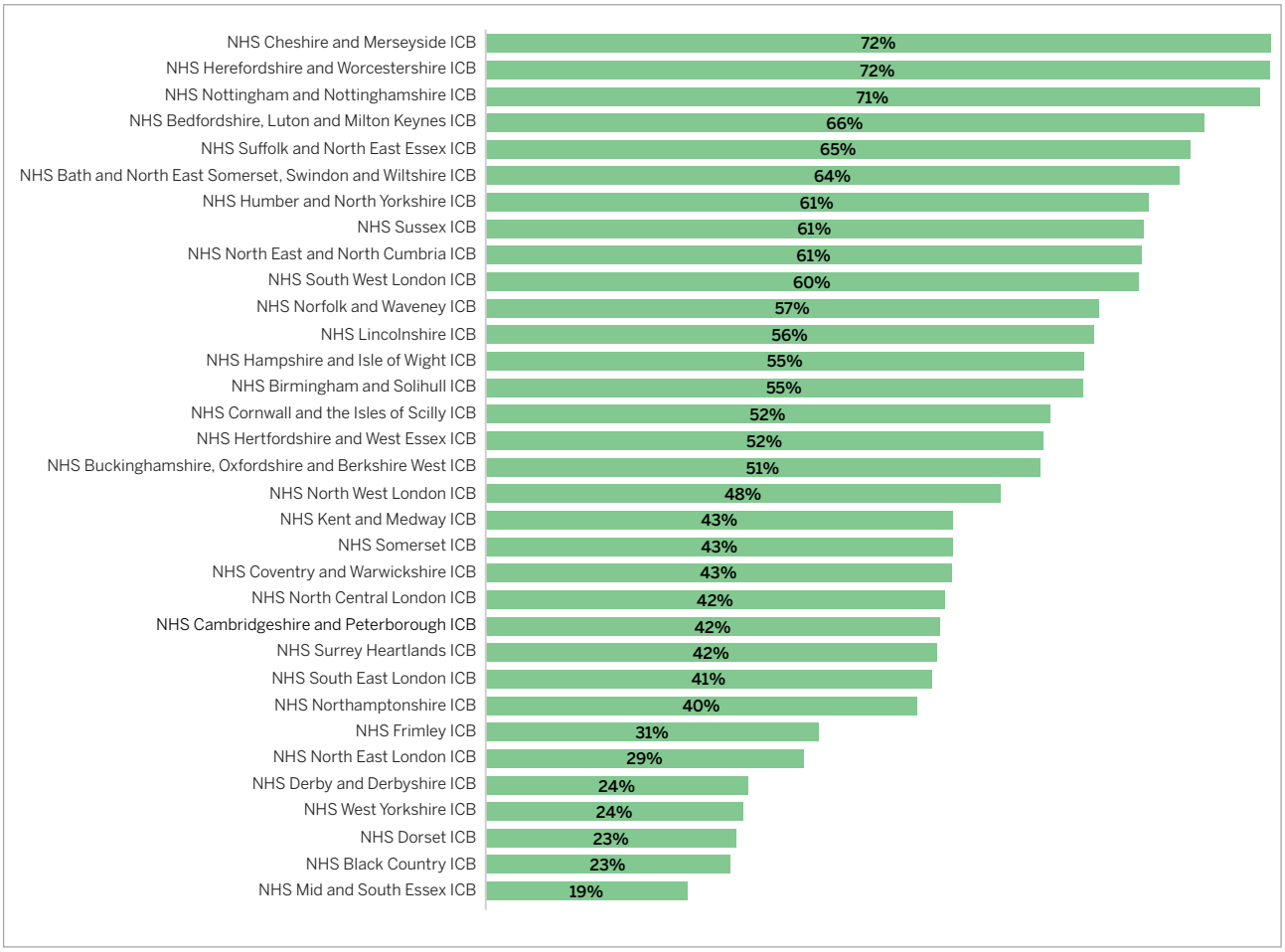
Figure 8: Heat map showing the population distribution of Black men over 45, by ICB, England, 2021 (latest ONS census records of age and ethnicity)



Source: ONS; CF analysis.

MRI-to-Biopsy Conversion Rates

Figure 9: Diagnostic MRIs to biopsy, all men 45+, by ICB, England, FY 2023/24



Source: Hospital Episode Statistics; Diagnostic Imaging Dataset; CF analysis.

Looking at all men across all ICBs (excluding, due to underreported MRI activity, NHS Shropshire, Telford and Wrekin, NHS Bristol, North Somerset and South Gloucestershire, NHS Lancashire and South Cumbria, NHS Leicester, Leicestershire and Rutland, NHS South Yorkshire, NHS Staffordshire and Stoke-on-Trent, NHS Greater Manchester and NHS Gloucestershire ICBs), there is a conversion rate of ~61% between diagnostic MRI activity and biopsy tests. However, significant discrepancy between ICBs is evident, suggesting regional variation in pathway processes, in addition to data-recording practices.

A targeted screening programme could help to reduce geographic variation and create a more uniform pathway that supports access for all men to the prostate cancer diagnosis pathway.

Per Capita Activity: All Men

It is important to contextualise the diagnostic activity by normalising the high-level activity count by the eligible population size (taken as men over 45 to include men of Black ethnicity and those with family history of prostate cancer). Standardising activity data by population size allows for a more accurate comparison between ICB performance, enabling a better identification of potential health inequalities, highlighting opportunities for improvement and indicating which regions might best benefit from targeted screening programmes.

Figure 10: Heat map showing the rate of prostate cancer MRI scans per 1,000 men over 45, by ICB, England, FY 2023/24

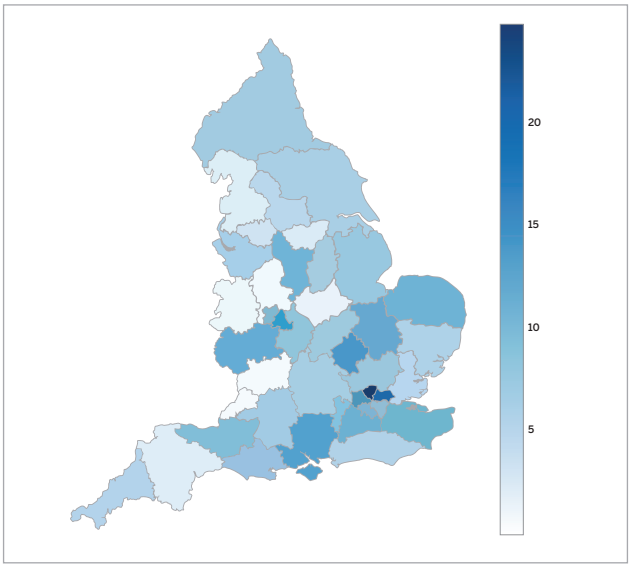
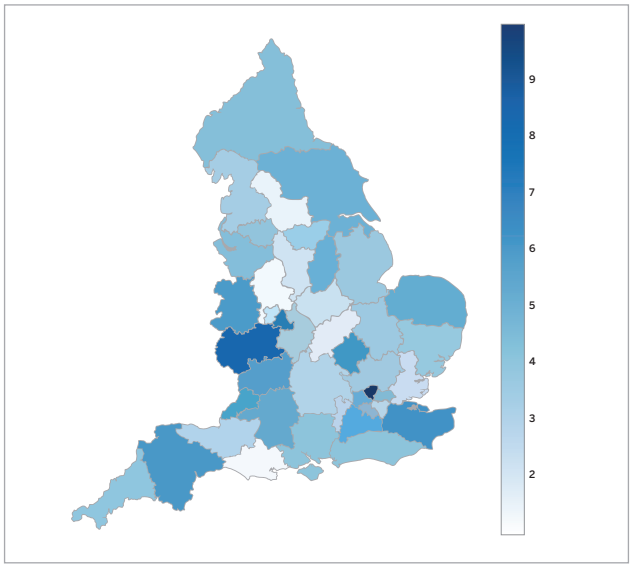


Figure 11: Heat map showing the rate of biopsies per 1,000 men aged 45–69, by ICB, England, FY 2024/25



Source: Figure 10; Diagnostic Imaging Dataset. Figure 11; Hospital Episode Statistics; CF analysis.

When rates of diagnostic activity are analysed, the apparent variation in MRI scan volumes across ICBs is still evident, with the most diagnostically active region, NHS North Central London, scanning around 20 more men per 1,000 than the least active four (with available data). Furthermore, by standardising the diagnostic MRI scans, it is clear that some regions reporting higher absolute numbers of MRI scans, such as NHS North East and North Cumbria, generally reflect larger underlying populations rather than higher per capita diagnostic activity. The average count of diagnostic MRI scans per 1,000 men was 9.80. A bar chart breakdown of this information is included in the Appendix.

A similar, albeit more muted, pattern emerges in biopsy activity among the target population of high-risk men aged 45–69: like diagnostic MRI imaging, the total biopsy counts vary substantially between regions, with the region performing the most (in total) performing 14 times as many as the least. When comparing the rate of biopsies per 1,000 men, the difference is slightly more muted: the most active ICB per capita, NHS North Central London, performs seven times as many biopsies per 1,000 men as the least. On average, ICBs perform 4.576 biopsies per 1,000 men. The regional differences indicate ongoing disparities in diagnostic access or referral practices.

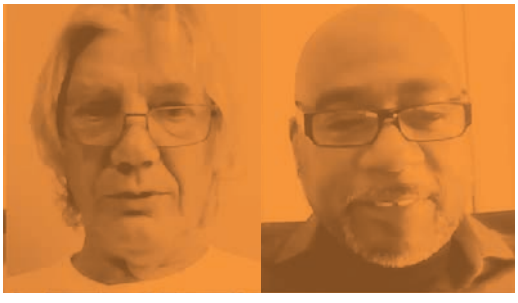
Some ICBs consistently perform well across both MRI and biopsy metrics. NHS North Central London, for instance, ranks among the highest in terms of both MRI scan rates and biopsy rates, suggesting an efficient and integrated diagnostic pathway. Other high-performing areas include NHS Bedfordshire, Luton and Milton Keynes; NHS Birmingham and Solihull; and NHS Herefordshire and Worcestershire.

For NHS Herefordshire and Worcestershire, higher testing rates may be partly explained by the above-average proportion of men aged 60–69 within the 45–69 population. This age group accounts for 40% of the cohort, compared to an ICB average of 37%. Men in this older age bracket may be more likely to enter the testing pathway than their younger counterparts. However, this explanation does not hold for NHS North Central London, NHS Bedfordshire, Luton and Milton Keynes, and NHS Birmingham and Solihull, where men aged 60–69 make up just 32%, 34% and 34% of the 45–69 population respectively – placing these ICBs in the bottom quartile nationally. This variation reinforces the conclusion that regional factors play a significant role in shaping testing activity.

In contrast, some ICBs show divergence between MRI and biopsy activity. NHS Frimley, for example, has a high MRI scan rate but falls into the lower half of regions for biopsy rates per capita. This discrepancy may reflect lower MRI-to-biopsy conversion rates, possibly due to more selective interpretation of mpMRI results. NHS Frimley accounts for 7% of all mpMRI scans but just 1% of all MRI scans leading to a prostate cancer diagnosis, suggesting a greater proportional use of mpMRI than other ICBs.

Conversely, areas such as NHS Devon and Shropshire show relatively high biopsy rates despite modest MRI usage. This could point to continued reliance on biopsy-first diagnostic approaches, a higher prevalence of abnormalities or under-reporting of MRI scans in the Diagnostic Imaging Dataset (DIDS).

Finally, differences between MRI rates per 1,000 men aged 45+ and biopsy rates per 1,000 men aged 45–69 may also be influenced by diagnostic activity in older men. While the DIDS dataset does not separate MRI scans by age group, Hospital Episode Statistics (HES) data for biopsies does distinguish between those aged 45–69 and those aged 70 and above. This granularity is important, as understanding variation within the 45–69 screening-eligible age group can help identify regional disparities that a national screening programme could aim to reduce and standardise.



Per Capita Activity: Men with Black Ethnicity

Analysis of per capita activity for Black men shows notable variation across ICBs. In MRI diagnostic imaging per 1,000 Black men, London ICBs have higher activity levels, while areas such as NHS Frimley and NHS Hampshire and Isle of Wight are similarly ranked when adjusted for the local Black male population size. The difference in MRI scans performed between the highest and lowest activity ICBs is substantial; the four most active ICBs conduct between 8.5 and 10 times more MRI scans per 1,000 men than the four least active. For biopsies, the disparity is larger, with the most active region conducting 45 more biopsies per 1,000 Black men compared to the least. On average, there are 16 diagnostic MRI scans and 14 biopsies per 1,000 Black men across ICBs.

Figure 12: Diagnostic MRI scans per 1,000 Black men, all ages 45+, by ICB, England, FY 2023/24

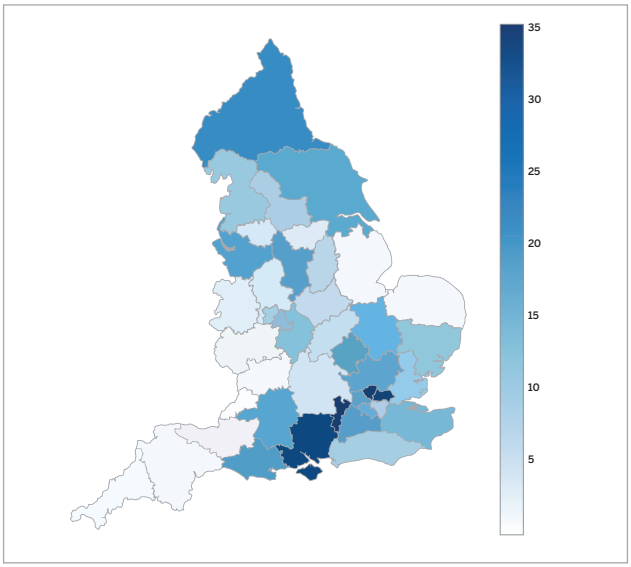
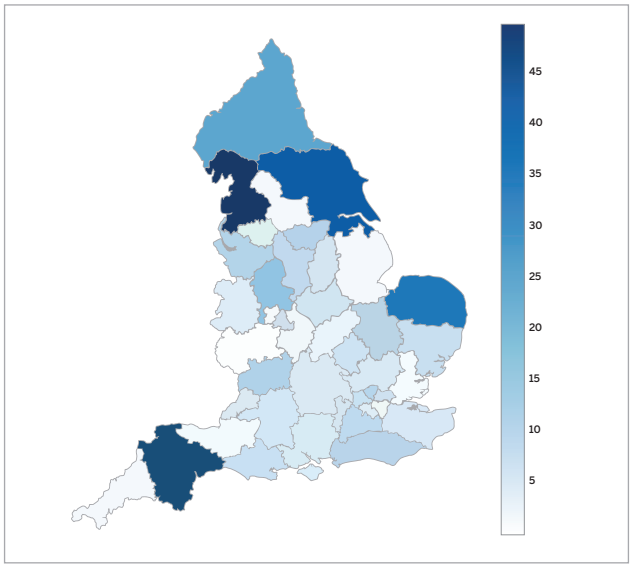


Figure 13: Biopsies per 1,000 Black men, 45–69, by ICB, England, FY 2024/25



Source: Figure 12; Diagnostic Imaging Dataset. Figure 13; Hospital Episode Statistics; CF analysis.

Several ICBs, including NHS North Central London, NHS Frimley and NHS North East London, perform strongly on both MRI and biopsy rates, indicating effective diagnostic pathways and good progression from imaging to tissue confirmation. However, discrepancies between scan and biopsy activity in other areas reveal variation in downstream follow-up and DIDS data quality issues.

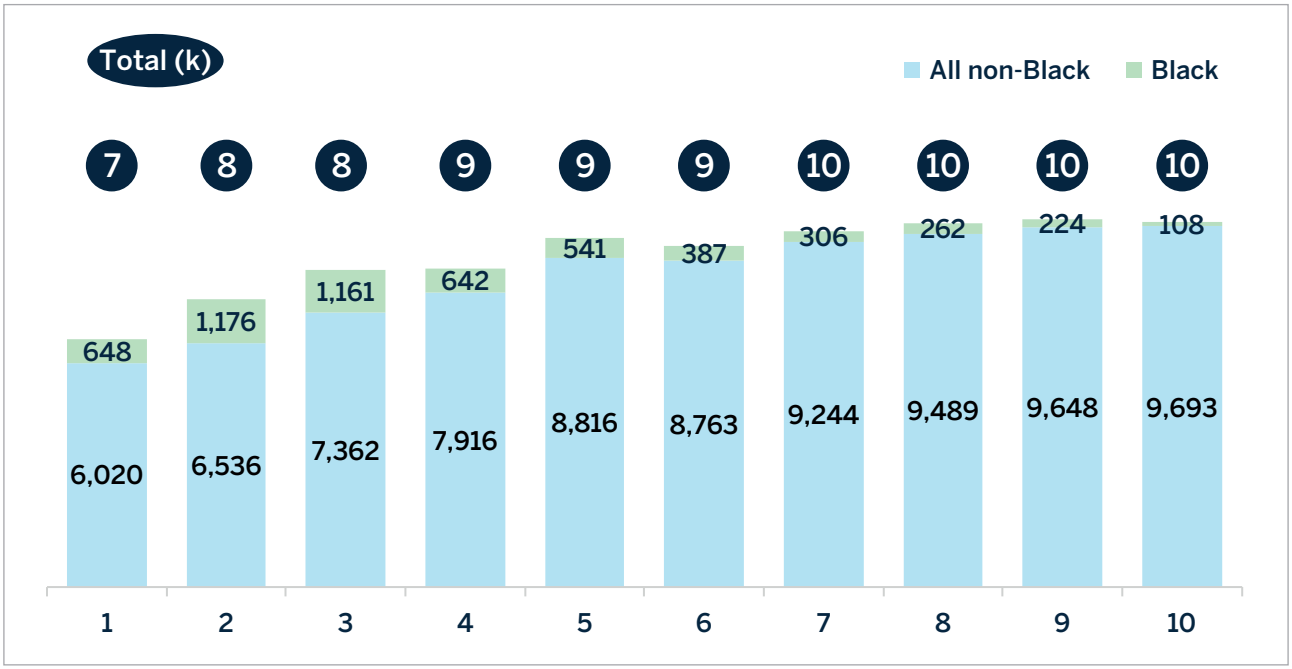
For example, NHS Hampshire and Isle of Wight and NHS North East and North Cumbria report high MRI rates for Black men but do not rank at a high rate for biopsy. This may reflect lower conversion rates due to more selective biopsy thresholds, higher rates of MRI-negative results, limitations in follow-up capacity (although this is less likely) or greater use of more efficient MRI scan type, such as multiparametric. Notably, NHS North East and North Cumbria shows a relatively high use of mpMRI, accounting for 12% of all recorded mpMRI scans, despite contributing just 5% of diagnostic MRI scans overall, potentially explaining a lower biopsy yield.

By contrast, ICBs such as NHS South Yorkshire and NHS West Yorkshire report lower MRI rates but maintain moderate or high biopsy activity. This could suggest residual biopsy-first practices, inadequate MRI coding in national datasets, or less consistent integration of imaging into diagnostic triage pathways. A more detailed breakdown of the per capita activity is included in the Appendix.

Analysis Within IMD Deciles

One of the major challenges of the current opportunistic approach to prostate cancer diagnosis is the persistent inequity in access to PSA testing and entering the diagnostic pathway. Index of Multiple Deprivation (IMD) deciles are an indicator of deprivation, with 10 being the least deprived 10% of the population, and 1 being the most deprived 10% of the population. Men from more advantaged socio-economic backgrounds – those in higher IMD deciles – are generally more likely to be health-literate, engage with primary care and request PSA testing. As a result, they are disproportionately represented in the diagnostic pathway, despite not necessarily being at highest risk.

Figure 14: Biopsies, men aged 45–69, by IMD decile and by ethnicity, England, FY 2024/25



Source: Hospital Episode Statistics; ONS; CF analysis

Figure 14 illustrates this imbalance using HES biopsy data for men aged 45–69 in England during the 2024/25 financial year. The chart shows that the number of biopsies increases steadily with each IMD decile, with the lowest activity seen in the most deprived deciles (1–3) and the highest activity in the least deprived (deciles 9–10). This trend is observed in both Black and non-Black populations, although the disparity is particularly concerning for Black men, who are disproportionately represented in more deprived areas and face a higher baseline risk of prostate cancer.

These data underscore how the current diagnostic pathway, largely reliant on self-referral or GP-led testing, can reinforce existing health inequalities, particularly among high-risk populations. Without structured intervention, such as a targeted screening programme, these gaps in access are likely to persist, contributing to delayed diagnoses and poorer outcomes for underserved groups.

Impacts of a Prostate Cancer Screening Programme

Prostate Cancer Diagnostic Activity Costs

Using the screening activity established and detailed above, costs for each diagnostic stage were applied to determine a baseline cost of current diagnostic activity for prostate cancer, for one year in the UK.

Table 4: Costs associated with prostate cancer diagnosis activity across the UK

Test	Unit cost (£)	Source of price	Cost of annual diagnostic activity (£ million)
PSA test	64.75	£27.75 for PSA test (PSA test kit £8.75,[21] nurse appointment £19, GP counselling* of £37)[22]	56.4
MRI	199	HRG code RD03Z** Payment by Results (PbR)[23]	26.6
TRUS biopsy	495	HRG code LB76Z PbR23	2.8
Transperineal biopsy	725	HRG code LB77Z PbR23	54.7
Total	–	–	140.5

* Digital rectal exam (DRE) part of counselling time if required by GP practice

** RD03Z applies to Magnetic Resonance Imaging Scan of One Area, with Pre- and Post-Contrast

Source: Workforce sources are referenced 21-23; CF analysis.

To establish an understanding of future costs, the unit costs were applied to the different demand that various scenarios of prostate cancer screening would generate, as laid out below. However, given that the screening programme would not follow the PCRMP, counselling costs have been excluded and a unit cost of £27.75 for a PSA test has been applied.

Anticipated Demand

Modelling has been conducted to project future demand on NHS services caused by the implementation of a screening programme across the UK. This analysis utilises baseline HES data, pathway flow rates from prior PCR-commissioned modelling, population size and uptake rates. Three distinct scenarios were examined: all men aged 50–69, men of Black ethnicity aged 45–69 and men with a family history of prostate cancer aged 45–69. The model presents the indicative future additional demand based on 2025 population sizes, not including projected population growth.

Figure 15: Anticipated additional demand flow for scenario 1–3 of future screening programmes, across the UK

Pathway process	Activity count (baseline year)	Scenario 1: All men aged 50–69	Scenario 2: Men of Black ethnicity aged 45–69	Scenario 3: Men with family history aged 45–69
Population	N/A	8,033,545	373,280	1,000,000
Invited to screening	NA	1,606,709	74,656	200,000
PSA test	870,367	1,156,830	53,752	144,000
MRI	133,851	177,905	8,317	22,584
Biopsy	81,082	107,768	5,070	13,954

Source: Hospital Episode Statistics; Diagnostic Imaging Dataset; CF analysis; Prostate Cancer Research, Socio-economic Impact of Prostate Cancer Screening.

A screening programme for all men aged 50–69, on top of baseline activity, would result in more than a doubling of diagnostic activity as demonstrated in scenario 1 above. However, introducing a targeted screening programme for prostate cancer focused on Black men aged 45–69 and men aged 45–69 with a family history of the disease would result in approximately a 23% increase in diagnostic activity across the pathway, compared to current baseline activity levels. Specifically, PSA testing would increase by 22.7%, MRI scans by 23% and biopsies by 23.5%. When comparing against all national MRI activity, however, this uplift is significantly smaller. The latest Diagnostic Imaging Dataset Statistical Release showed that from September 2023 to September 2024 there were 4,549,805 MRI scans; the combined uplift in MRI scans under Scenarios 2 and 3 represents approximately 0.68% of the existing national MRI scan volume of 4.5 million.[24]

The numbers invited to screening are estimated from the cohort population sizes, with 20% being invited to screening each year and 72% responding to the invitation to screen, and therefore having a PSA test. Inviting 20% of the cohort has been suggested as a proportion that could be managed by the NHS, and reflects the real-world implications and administrative task that would be required. The 72% uptake rate is built into the model, is based on polling commissioned by PCR and draws on comparable NHS statistics of uptake across existing screening programmes for abdominal aortic aneurysm (men over 65 only): 81%; breast cancer (women aged 50–70): 70%; bowel cancer (all aged 50–74): 68%; and cervical cancer (women aged 50–74): 69%.[25]

Anticipated Costs

Estimated annual costs that each scenario would place on the NHS have also been modelled, using current unit costs. These costs have not been adjusted for inflation and should be viewed as indicative only. Further, due to the varying levels of population distribution, each scenario would place differing burdens across NHS regions.

Figure 16: Anticipated additional cost (£ millions) for scenario 1–3 of future screening programmes, across the UK

Pathway process	Baseline cost	Scenario 1: All men aged 50–69	Scenario 2: Men of Black ethnicity aged 45–69	Scenario 3: Men with family history aged 45–69
PSA test	56.4	32.1	1.5	4.0
MRI	26.6	35.4	1.7	4.5
Biopsy	57.5	76.4	3.6	9.9
Total cost	140.5	143.9	6.7	18.4

Source: Hospital Episode Statistics; Diagnostic Imaging Dataset; CF analysis; NICE, Stockholm3 for prostate cancer screening: Medtech innovation briefing, 2022; Kings Fund, Cost of GP appointment. 2025/26 NHS Payment Scheme prices workbook, with prices revised to reflect 2025/26 pay awards; Prostate Cancer Research, Socio-economic Impact of Prostate Cancer Screening.

Implementing a screening programme for all men aged 50–69 is projected to incur an additional cost of ~£144 million for the NHS across the United Kingdom. The NHS budget for the entirety of the UK is based on funding provided by the devolved nations, and is around ~£220 billion in total.[26] Therefore, the additional cost represents 0.07% of the total 2024/25 UK-wide NHS budget. Alternatively, a targeted screening initiative for men aged 45–69 with a family history of the disease would require just over £18.4 million in additional expenditure, or ~0.008% of the NHS's 2024/25 budget. For men of Black ethnicity aged 45–69, the estimated cost is approximately £6.7 million, constituting 0.003% of the NHS budget nationwide. Taking the two high-risk groups together, a targeted screening programme would cost approximately £25 million, which is around 0.01% of the UK NHS budget.

Screening Programme Costs for Other Cancers

To contextualise the cost of whole population and a targeted prostate cancer screening programme, a review was undertaken of the annual costs associated with currently implemented national screening programmes in the UK.

This report used the Independent Review of Adult Screening Programmes in England, commissioned by NHS England, to understand the expenditure for 2018/19 financial years; these costs were then compared to the population size of those within the screening programme to determine an average cost per individual within range.

Table 5: Screening programme costs per population size, FY 2018/19 costs

Screening programme	Screening population	Population size (million)[27]	Cost (£ millions)[28]	Cost per person (£)
Abdominal aortic aneurysm	Men 65+	5.9	16.5	3
Bowel cancer	All persons aged 50–74	19.9	249	12
Cervical cancer	Women aged 25–64	18.1	218.9	12
Diabetic eye	Diabetics aged 12+	5.8[29]	85	17
Prostate cancer (targeted)	Black men and men with family history aged 45–69	1.4	25	18
Breast cancer	Women aged 50–70	8.9	199	22

Source: Sources are referenced 27-29; CF analysis.

When adjusted for population size, therefore, the cost of a targeted prostate cancer screening programme is broadly in line with the existing national programmes, and well within an expected cost range for population screening initiatives.

Workforce Requirements

One of the greatest challenges facing the NHS, nationwide, is insufficient capacity to meet the rising demand on services. This is especially prevalent for the workforce, which, despite increases, is failing to keep pace with the increased needs of the population.[30]

To assess the additional workforce needed for a targeted screening programme, the required time per role for each diagnostic step was analysed and multiplied by projected activity increases. The resulting hours were converted to full-time equivalents based on a 37.5-hour week over 48 weeks per year.

Table 6: FTE needed to deliver additional diagnostic activity, per workforce role, per year

Workforce	Scenario 1 FTE: All men aged 50–69	Scenario 2 FTE: Men of Black ethnicity aged 45–69	Scenario 3 FTE: Men with family history aged 45–69
GP*	86	4	11
Nurse	148	7	19
Pathologist	59	3	7
Radiographer	74	3	9
Radiologist	26	1	3
Urologist	20	1	3
Sonographer	1	0.1	0.2
Anaesthetist	19	1	2
Administrative	62	3	8

* For communicating results, not including consultation/DRE

Source: NHS workforce statistics, England, 2025; CF analysis.

Workforce statistics have been analysed to determine the increase in workforce FTE required to deliver a screening programme. When we look at the requirements needed to deliver a screening programme targeted at men of Black ethnicity and men with a family history of prostate cancer, the combined totals, compared with the existing UK FTE, show that only a marginal increase in workforce would be required. While per cent increases are small, absolute additions do occur in specialties with existing scarcity (e.g., pathology, radiology). Furthermore, local recruitment/training pipelines and current vacancy rates will impact each region differently and require careful implementation.

Table 7: Existing FTE counts for England and UK, with additional demand screening programmes would require, and percentage increase

Workforce (consultant, specialty doctor, specialty registrar)	England FTE	UK FTE	Additional annual FTE for scenario 1	Increase	Additional annual FTE for scenarios 2 and 3	Increase
GP (fully qualified)[4]	28,250	34,153	86	0.3%	15	0.04%
Nurse[5]	372,411	450,232	148	0.03%	26	0.01%
Pathologist[5]	2,052	2,481	59	2.4%	10	0.4%
Radiographer[6]	–	48,874	74	0.2%	12	0.03%
Radiologist[5]	5,693	6,882	26	0.4%	4	0.07%
Urologist[5]	1,891	2,286	20	0.9%	4	0.15%
Sonographer[7]	–	1,945	1	0.07%	0.3	0.01%
Anaesthetist[5]	11,810	14,278	19	0.1%	3	0.03%

Source: Workforce sources are referenced 4-7; CF analysis.

While the modelled uplift for a targeted programme is small (~0.4% of current pathologist FTE), pathology services are already short-staffed. Active Surveillance protocols can include confirmatory and interval re-biopsies, adding to workload. Investment in training and modernised pathology workflows will be essential to absorb additional case volume efficiently.

Infrastructure Requirements

In 2023/24, England had 624 MRI machines,[31] which works out to about 11 scanners per million people.[27] If this ratio is applied to the whole UK, it would mean there are roughly 750 machines nationwide. Each MRI scanner handles about 6,000 scans each year under the current system. When looking at the requirements of a targeted screening programme, with projected rises in demand of around 8,300 extra scans for people of Black ethnicity and nearly 23,000 more for men with a family history, the country would need to add five new MRI scanners to handle the additional demand from a targeted screening programme, assuming everything else stays the same. A screening programme aimed at all men would lead to almost 178,000 additional scans in one year, which would equate to roughly 30 new machines.

The price of an MRI machine can range from £300,000 up to £3 million, and many are leased rather than bought outright. To generate an indicative capital cost, an assumption of £1 million per machine is used, quoted in the Royal College of Radiologists' 2024 policy paper.[32] This suggests that meeting the expected demand for a targeted programme would require a one-time investment of £5 million for new machines, or £30 million for a whole population programme.

It is also important to note that the independent sector has a significant pool of MRI capacity, a portion of it in mobile units. These assets are already staffed and could be deployed to support any screening programme, reducing the need for additional NHS capital investment.

However, clinical experts agree that the greatest challenge is not the availability of equipment, but rather workforce capacity, culture and practice. If clinical routines adapted – for example, by extending the hours scans were offered during the week or by offering scans at weekends – each machine could be used more efficiently, possibly reducing the need for so much extra equipment to be purchased. Furthermore, adopting faster scans in the future would increase the capacity of existing scanners, reducing the need for additional equipment.

Anticipated Impact of New Screening Technologies

Recent advances in diagnostic technologies offer the potential to improve the accuracy and efficiency of prostate cancer screening while reducing unnecessary interventions. These innovations span improvements in new and improved PSA-based blood testing (reflex testing), AI-supported imaging and integrated diagnostic workflows.

Reflex testing refers to an automatic follow-up blood test that is performed when a man's initial PSA result exceeds a defined threshold. Using additional biomarkers, these tests help detect clinically significant cancers, reducing unnecessary MRI scans and biopsies.

One such development is the Stockholm3 test, a blood-based diagnostic that goes beyond the standard PSA measurement. It combines plasma protein biomarkers, genetic markers and clinical data – including age, family history and prior biopsy history – into a risk-prediction algorithm. Intended for use in individuals with a PSA level of at least 1.5 ng/mL, Stockholm3 provides a score indicating the likelihood of prostate cancer, with a sensitivity of 92% and specificity of 33%.[33] The test has shown promise in reducing the number of unnecessary MRI scans and biopsies by more accurately identifying men at higher risk of clinically significant disease.[34]

Another innovation is the EpiSwitch PSE test, which is administered alongside the PSA test. It analyses five epigenetic biomarkers and integrates these data with the PSA result to improve diagnostic specificity. The manufacturer reports an overall sensitivity of 86% and a specificity of 97%, suggesting strong potential to reduce false positives and minimise the need for further diagnostic procedures in low-risk cases.[35]

A third promising blood test is Proclarix, which measures a panel of protein biomarkers alongside a software algorithm that incorporates the patient's age to generate a personalised risk score. The test has demonstrated a 95% negative predictive value, meaning that it can reliably rule out clinically significant prostate cancer in low-risk cases. In retrospective clinical studies, Proclarix achieved a 90% sensitivity and a specificity of 43%, significantly outperforming the PSA test.[36]

Figure 17: Anticipated additional demand flow for scenario 1–3 of future screening programmes, with a reflex test included, across the UK

Pathway process	Activity count (baseline year)	Scenario 1: All men aged 50–69	Scenario 2: Men of Black ethnicity aged 45–69	Scenario 3: Men with family history aged 45–69
Population	N/A	8,033,545	373,280	1,000,000
Invited to screening	N/A	1,606,709	74,656	200,000
PSA test	870,367	1,156,830	53,752	144,000
Reflex test	N/A	177,905	8,317	22,584
MRI	133,851	24,387	1,215	3,740
Biopsy	81,082	16,912	864	2,774

Source: Hospital Episode Statistics; Diagnostic Imaging Dataset; CF analysis; Prostate Cancer Research, Socio-economic Impact of Prostate Cancer Screening.

The anticipated activity demand of a targeted screening programme incorporating a new reflex test with 90% sensitivity and specificity has been modelled.

The cost impact of these new technologies has been modelled accounting for both the additional cost of the reflex test and the cost savings of reduced MRIs and biopsies: this is estimated to cost around £17 million for a targeted screening programme, or approximately a 33% reduction in costs (Table 8 below).

Table 8: Projected additional annual costs of future prostate cancer screening pathway with reflex test included, by scenario, in million GBP

Test	Scenario 1: All men aged 50–69 (£ million)	Scenario 2: Men of Black ethnicity aged 45–69 (£ million)	Scenario 3: Men with family history aged 45–69 (£ million)
PSA test	32.1	1.5	4.0
Reflex test*	44.5	2.1	5.6
MRI	4.9	0.2	0.7
TRUS biopsy	0.6	0.0	0.1
Transperineal biopsy	11.4	0.6	1.9
Total	93.4	4.5	12.3

* Cost of reflex test at £250

Source: Hospital Episode Statistics; Diagnostic Imaging Dataset; CF analysis; Prostate Cancer Research, Socio-economic Impact of Prostate Cancer Screening; NICE, Stockholm3 for prostate cancer screening: Medtech innovation briefing, 2022; Kings Fund, Cost of GP appointment; 2025/26 NHS Payment Scheme prices workbook, with prices revised to reflect 2025/26 pay awards.

In imaging, artificial intelligence (AI) is playing an increasingly central role. Two notable UK-based initiatives are currently being trialled under the NHS Cancer Programme, supported by the Small Business Research Initiative (SBRI) Healthcare and the Accelerated Access Collaborative.[37] AI-driven imaging tools are increasingly being used to support prostate cancer diagnosis by analysing MRI scans and automatically detecting areas of potential concern.[38] These systems assist radiologists by flagging suspicious lesions, helping to standardise assessments, prioritise patients for further investigation and support faster decision-making, including the potential for same-day biopsy pathways. By improving accuracy and reducing variation, AI supports earlier detection and streamlines the diagnostic process. Tools currently in NHS trials include QP-Prostate® (Quibim) and Pi™ (Lucida Medical).[39]

Beyond improving diagnostic accuracy, AI and digitally integrated pathology services offer significant operational efficiencies. Delays in prostate cancer diagnosis are often linked to capacity constraints, complex laboratory workflows and variability in diagnostic reporting. AI-enabled tools, such as automated pre-screening of biopsy slides and digital workflow support, can help alleviate these challenges by streamlining tissue preparation, digitalisation and triage. By reducing the routine workload and allowing pathologists to focus on higher-risk or complex cases, these solutions improve throughput without requiring proportional increases in staffing.[40] In the context of a screening programme, such innovations can help expand diagnostic capacity, reduce turnaround times and improve consistency, ultimately supporting faster, more equitable access to care while lessening the pressure for significant workforce expansion.

Options for Case Finding

A targeted screening programme differs from whole population screening because it is aimed at specific groups, based on risk factors or clinical findings. Case finding, which is a proactive approach taken to identify individuals who fit the criteria, is therefore a key enabler in rolling out a targeted screening programme.

Two UK-based studies have demonstrated the feasibility of using GP data to successfully case-find: the North of England Care System Support (NECS) Prostate Cancer Case-Finding Project, which evaluated three project sites across the UK, and the Surrey Targeted Prostate Health Check (TPHC) Programme. When urgent suspected urological referrals fell sharply at the start of the COVID-19 pandemic, the NHS Cancer Programme at NHS England looked to case finding as an approach to identifying people with unmet prostate cancer needs within the community.[41] Cancer Alliances across the country were invited to express interest in this project. Selected project sites were asked to identify and invite a target cohort of at-risk men for a PSA counselling conversation.

The North of England Care System Support prostate cancer case finding project was designed to identify people at higher risk of prostate cancer and bring them into contact with services for a conversation about the PSA test (i.e., PSA counselling) and provide onward PSA testing for those who wanted it. Three sites around the UK participated in this initiative. Two – the Royal Marsden Partners (RMP) and Greater Manchester (GM) – delivered the pathway through a mobile van, while one (East of England South: Mid and South Essex) employed a GP-based strategy. The three sites used system searches of GP records to identify target groups, supplemented with local marketing campaigns aimed at the target groups and followed up with text messaging communications. For example, the Greater Manchester group analysed GP systems to identify:

- **Black men over the age of 45.**
- **Men over the age of 45 with a family history of prostate, breast or ovarian cancer. Specifically, men who had a father or brother with prostate cancer when they were under the age of 55 or mother or sister with breast or ovarian cancer when they were under the age of 50.**
- **Jewish men over 45 and trans women and non-binary people with a prostate were also invited to attend an appointment.**

In the NECS study, across the three centres, 5,974 men were identified and invited to participate. Of these, 42.7% were of Black ethnicity and 33.7% had a family history of prostate or breast cancer.[19]

The Targeted Prostate Health Check was initially piloted in a small cohort of 1,549 men aged 45–75 in South East London, where invitations were sent via SMS from GP practices. Of those invited, 485 underwent PSA testing, resulting in 68 referrals, 22 biopsies and 18 cancer diagnoses, 17 of which were clinically significant, indicating a high detection rate of 3.5%.[42] Following the success of this pilot, the programme was scaled up across Surrey and Sussex. In the full rollout, 66,911 eligible men were invited, of whom 21,905 consented and 18,317 received a PSA test.[41] From this group, 865 were referred for further investigation, resulting in 803 MRIs, 343 biopsies and 221 diagnoses of clinically significant cancer. While the detection rate was lower at scale (1.2%), the programme maintained a high positive predictive value for biopsy (64%) and demonstrated the feasibility of targeted, risk-based screening at population level.

Of the 66,911 men invited, 2,239 (approximately 4%) were identified as being of Black ethnicity, of whom 904 responded to the invitation and received a PSA test. A family history of prostate cancer was identified in 1,222 men through GP records, whereas 2,549 men self-reported a family history, highlighting a significant under-recording in primary care systems. Among those tested, prostate cancer was diagnosed in 70 men with a family history (2.7% of 2,549), a significantly higher incidence compared to the 193 cancers diagnosed among 15,768 men without a family history (1.2%), yielding an odds ratio of 2.3 ($p<0.001$). In terms of ethnicity, 13 of the 904 Black men tested were diagnosed with prostate cancer (1.4%), a similar rate to the 250 cancers diagnosed among 17,413 non-Black men (1.4%, OR 1.0, $p=1$). However, all cancers diagnosed in Black men were clinically significant (ISUP Grade Group ≥2), underscoring the importance of targeted screening in this higher-risk group.[43]

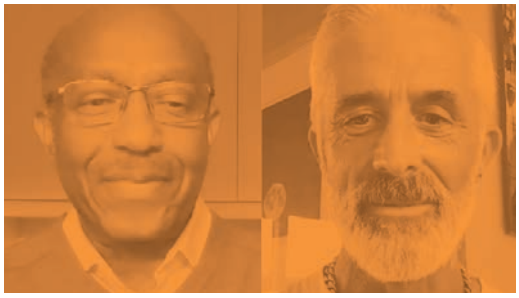
While challenges in implementing case finding at scale remain, particularly around data quality and system variation, the evidence suggests that these barriers are surmountable. Identifying Black men within a specific age range is relatively straightforward, as ethnicity and age are routinely captured in most primary care records. Although some gaps in coding persist, these are exceptions rather than the norm. Identifying individuals with a family history of prostate cancer is more complex, as it relies on patients volunteering this information, which may be incomplete or inaccurate. However, recent pilots have shown that supplementing GP records with self-reported data can significantly improve case identification.

Variation between GP systems, such as EMIS and SystmOne, presents a technical challenge, but successful case finding across both platforms in existing studies demonstrates that these hurdles can be overcome. With tailored system queries and support from local teams, consistent implementation is achievable. To enable national rollout, standardised search protocols would need to be developed for all major GP systems, but this is technically feasible and already underway in other screening contexts. Finally, improving the completeness of GP records could be supported through targeted national incentives, such as the Quality and Outcomes Framework (QOF), which would encourage more systematic recording of family history and ethnicity. With the right infrastructure and engagement, effective case finding for a targeted prostate cancer screening programme is both achievable and scalable.

The development of a federated analytics model via the Federated Data Platform (FDP) is another potential route to national-level case finding. However, Primary Care data is not currently included at scale within the FDP.[44]

For the FDP approach to work, it is likely that all general practices would need to share a minimum dataset to a central data repository. At the most basic level, this could include, where available, the following data items:

- **NHS number (for cross-referencing purposes)**
- **Patient age**
- **Patient address (to target deprived populations)**
- **Patient ethnicity**
- **Patient history of PSA testing**
- **Patient history of prostate cancer diagnosis and treatment**
- **Paternal family history of prostate cancer**
- **Fraternal family history of prostate cancer**
- **Family history of breast or ovarian cancer**



Alternative approaches to case finding include the concept of entity resolution, which connects records together from disparate systems and data sources using AI algorithms. Although it may be possible to connect family members through this methodology, this may contravene existing privacy rules. The primary patient is entitled to confidentiality under law. It may therefore only be viable to contact patients who have a self-declared family history of prostate cancer – for example, through NHS App, GP READ Codes or a WhatsApp/text survey. Ideally, this would differentiate between paternal and fraternal history.

Although currently less developed, other data sources could provide valuable insights into family history, including the Inherited Cancer Predisposition Register, the NHSE genomics service and existing BRCA identification programmes. Alternative approaches, such as population-based genetic testing, offer the potential to identify individuals at increased risk earlier than traditional self-reporting via primary care records. This approach could support precision prevention by enabling targeted interventions, with prostate cancer risk reduction being one of several important benefits. While the financial costs of implementing such models at scale are significant in the short term, limiting feasibility, costs may decrease over time and a targeted pilot could demonstrate clear benefit.

Implementing a Targeted Screening Programme

Evidence-Based Value of a Targeted Screening Programme

Targeted prostate cancer screening aligns with recent recommendations for the detection of prostate cancer in high-income countries and conforms with the risk-based detection guidelines currently being implemented by PRAISE-U (Prostate Cancer Awareness and Initiative for Screening in the European Union).[45] This was also advised by the EU Council in its recommendation for cancer screening, which pointed to the urgent need for tailored screening interventions and stated that countries are encouraged to generate new evidence to evaluate the feasibility and effectiveness of the implementation of organised screening programmes, using a risk-based approach.[46,47]

There is a risk of overdiagnosis and overtreatment in diagnostic pathways that only include PSA and biopsy activity. Recent published evidence indicates that this risk is reduced in targeted screening programmes when mpMRI scanning is incorporated into the diagnostic pathway. The results of a systematic review conducted in 2023 showed that a specific focus should be given to screening based on specific risk groups, retesting intervals and the use of prebiopsy MRI scanning.[48,49,50]

The benefits of repeated PSA testing over a long period are supported by recent published evidence. The results of the European Randomised Study of Screening for Prostate Cancer concluded that repeated screening over a long duration is necessary for achieving a substantial and measurable prostate cancer mortality reduction.[51]

Optimal Models of Implementation

Recent targeted prostate cancer screening programmes have used a variety of methods to reach and communicate with target populations as described above. The screening model adopted in the Surrey TPHC included an initial educational stage using a dedicated website providing information on the potential risks and benefits of PSA testing as well as a mechanism for gathering additional information, patient feedback, registration and provision of consent. There was also a telephone service to support the website. Blood tests were performed at an out-of-hours community clinic coordinated by a virtual healthcare provider. Urine and blood samples were taken at the clinic and patients referred on to either their GP or the Urology Department Rapid Access Clinic, as necessary. Multiparametric MRI and biopsies were performed in secondary care according to local protocols. The NECS targeted screening programme used GP records to identify target populations along with phone calls, text messages or letters to reach these populations. A mobile “Man Van” was deployed, particularly in deprived areas, to access hard-to-reach populations and provide PSA testing where GP access was difficult. In discussions with GPs additional patient recruitment tools have been suggested, such as the provision of a QR code via the NHS app, which men can use to access testing at local GP practices or community diagnostic clinics.

Stakeholder engagement has highlighted that while a prostate cancer screening programme should be delivered universally, the model of implementation in terms of settings may need to be locally adapted to reflect existing infrastructure and population needs. Various configurations of the testing pathway have been proposed, including the use of community-based approaches, such as mobile phlebotomy units ("Man Vans") to deliver PSA tests, and the utilisation of community diagnostic centres for MRI scanning, in line with priorities outlined in the NHS Long Term Plan. Importantly, a nationally endorsed screening programme would help standardise messaging around the risks and benefits of testing, reducing reliance on individual general practitioners to deliver detailed pre-test counselling, as currently required under the Prostate Cancer Risk Management Programme (PCRMP). By shifting responsibility for information provision to national-level materials, such as public information campaigns and standardised decision aids, the time burden on GPs could be significantly reduced, while maintaining informed choice and supporting equitable access.

The TRANSFORM study starting in 2025 will compare multiple screening options to each other and the current system, to find the safest, most accurate and most cost-effective way to screen men for prostate cancer. In stage one, involving around 13,500 men, researchers will compare four potential screening options, including fast MRI scans, genetic testing to identify men at high risk of prostate cancer and PSA blood testing. A fast MRI is a biparametric MRI (bpMRI), a 12-minute version of the full scan to produce a detailed picture of the prostate.[14] Recent evidence has been published to demonstrate the non-inferiority of bpMRI versus mpMRI when diagnosing clinically significant prostate cancer. The inclusion of bpMRI as part of a screening programme would mean that scans could be performed outside of the secondary care setting without the need for a clinician to be present, potentially leading to reduced expense and higher throughput than that seen with mpMRI scans.[13] The TRANSFORM study has not yet commenced and will report out at intervals over the next 15 years.

Summary

The objectives of screening are to detect men with early but clinically significant prostate cancer, to reduce morbidity and mortality, and to reduce the current inequities in the diagnostic pathway of prostate cancer. Reliance on opportunistic and symptomatic testing means that high-risk men are often diagnosed at a later stage, increasing their risk of morbidity. Systematic testing could help detect cancers earlier, avoid these later-stage diagnoses and improve survival.

Objections to a national prostate cancer screening programme have traditionally centred on the potential harms associated with PSA testing, specifically uncertainty around outcomes, the risks of follow-up diagnostic procedures and the potential for overtreatment of clinically insignificant cancers. However, a structured and nationally coordinated screening programme may help to mitigate many of the psychological and clinical concerns currently associated with opportunistic testing. An organised approach can reduce confusion, provide clarity for both patients and clinicians, and enable results to be interpreted in context over time, thereby reducing unnecessary repeat testing where prior results are stable. National guidelines and accessible public information would further support informed decision-making, alleviating uncertainty and improving the overall experience of testing for both men and GPs. Crucially, a formal screening programme would introduce greater consistency and equity of access across the country. As highlighted in this report and by Prostate Cancer UK's work on the north–south divide, substantial regional variation in access and outcomes persists and must be addressed.[52]

Advances in diagnostic practice, such as the adoption of multiparametric MRI and transperineal biopsy techniques, have already reduced the risks of complications and overdiagnosis, while the growing use of Active Surveillance has helped mitigate overtreatment. As emerging technologies, such as reflex blood tests and AI-supported MRI interpretation are adopted, many of the historical objections to screening are likely to diminish further.

A whole population screening programme would be the most effective way to avoid late-stage diagnosis, reduce entrenched health inequities and ultimately save the lives of fathers, husbands and sons across the nation. The financial case is also compelling: this report has shown that the cost of implementing such a programme would be ~£144 million, just 0.07% of the NHS's ~£220 billion budget – a seemingly small price to pay to give individuals and families more time together.

Yet, despite the strong case for population-level screening, further concerns remain around the NHS's current capacity to deliver such a programme. The main objections centre on the potential strain on primary care from increased PSA testing and the associated rise in diagnostic activity in secondary care. While advances in diagnostic technologies are likely to reduce these pressures over time by streamlining pathways and reducing workload per patient, a more immediately feasible option may be to introduce a targeted screening programme. The analysis of HES and workforce data for this report shows that such a targeted approach, focusing on Black men and men with a family history of the disease aged 45–69, would place only a small additional burden on the NHS workforce, with the greatest increase required being just 0.4% of the current pathologist workforce.

The additional burden of care that a targeted screening programme for these at-risk groups would be approximately 198,000 additional PSA tests, 31,000 MRI scans and 19,000 biopsies; it would cost an estimated £25 million, which is 0.01% of the NHS UK's ~£220 billion budget. Additionally, HES data, existing literature and clinical input suggest that 8% and 11% of these groups respectively already attend PSA testing, but this may include primarily those from higher socio-economic backgrounds.

In conclusion, the implementation of a targeted prostate cancer screening programme for men aged 45–69 with Black ethnicity or a family history of the condition (including men with the BRCA1/2 pathogenic variants) is well aligned with established European recommendations and international evidence on risk-adapted screening. Such a programme would represent a marginal share of total NHS expenditure yet has the potential to deliver substantial public health and socio-economic benefits as outlined in Prostate Cancer Research's previous publication *Socio-economic Impact of Prostate Cancer Screening*.

Technical Notes

In writing this report CF conducted extensive research, interviews, data analysis and modelling. The cost of targeted screening and the projections of additional workforce were based on:

1. Identifying the current and future pathway for the diagnosis of prostate cancer;
2. Current level of activity based on analysis of record-level Hospital Episode Statistics and the Diagnostic Imaging Dataset;
3. Current workforce from a variety of sources;
4. Modelling the expected growth in activity based on the introduction of a targeted screening programme; and
5. Modelling the change in workforce by mapping the additional requirement for workforce across the pathway into assumptions of units of time per element of activity and then translating this into workforce.

The inputs, assumptions and modelling outputs were extensively tested and validated with PCR and with a number of external stakeholders.

Modelling Approach

The modelling provides a single-year impact on the required level of activity to support a targeted screening programme.

The modelling uses a series of flexible assumptions to determine the expected level of activity for each step on the screening pathway.

The core assumptions in the screening pathway are:

- The size of the target population
- The proportion of the population to be targeted for PSA counselling
- The uptake rate for the invitations (those who will have PSA counselling)
- The conversion rate from counselling to taking a PSA test (reflecting current demand)
- The conversion rate from **PSA to reflex test**
- The conversion rate from **PSA to mpMRI**
- The conversion rate from **PSA to biopsy**
- The proportion of biopsies that are TRUS/LATP
- The proportion of people from **PSA to "true positive"** diagnosis

Additional assumptions included in the model are:

- The unit costs for each step on the screening pathway
- The proportion of diagnosed patients by stage (stage I, II, III and IV)
- Indicative costs of treatment for diagnosed patients, by staging
- Workforce assumptions for the individual components of each step on the screening pathway

The core activity outputs from the model are:

- The estimated number of **PSA tests** required to service the target population
- The estimated number of **reflex tests** required to service the target population
- The estimated number of **mpMRI diagnostic tests** required to service the target population
- The estimated number of **transrectal biopsies** required to service the target population
- The estimated number of **transperineal biopsies** required to service the target population
- The estimated number of **"true positives"** for the target population

Additional outputs from the model are:

- The estimated cost of **PSA tests** required to service the target population
- The estimated cost of **reflex tests** required to service the target population
- The estimated cost of **mpMRI diagnostic tests** required to service the target population
- The estimated cost of **transrectal biopsies** required to service the target population
- The estimated cost of **transperineal biopsies** required to service the target population
- The estimated total treatment cost, by stage, for diagnosed patients
- The estimated growth over the baseline for each step in the screening pathway
- The estimated workforce requirements (hours) for each step of the screening pathway

Summary of Scenarios

The modelling considers a number of scenarios for the different target groups in terms of the application and level of the assumptions.

Baseline (HES, DIDS) 2024/25:

- All England (primary source of activity data)
- United Kingdom (uplifted on a pro-rata population basis)

Modelled Demand for Targeted Screening Programme – Current Pathway (1A, 1B, 1C):

- The pathway is modelled as PSA consult/test >> mpMRI diagnostic test >> biopsy.
- Applies assumptions based on previous modelling work undertaken on behalf of PCR.

Modelled Demand for Targeted Screening Programme Using New Technology/Testing Pathway (2A, 2B, 2C):

- The pathway is modelled as PSA consult/test >> reflex test >> mpMRI diagnostic test >> biopsy
- Applies assumptions based on previous modelling work undertaken on behalf of PCR.

Population Assumptions

For each of the modelled options, outputs are calculated for:

- General population, ages 50–69 (8,033,545)
- Black ethnicity, ages 45–69 (373,280)
- Family history, ages 45–69 (1,000,000)

The populations for the three target groups have been extracted from the previous work undertaken on behalf of Prostate Cancer Research by Deloitte. Although the impact on each target population group is modelled independently, due to the recorded higher levels of prostate cancer prevalence within the Black population, it is likely that a proportion of this group also sit within the family history group. Therefore, the outputs should not be aggregated.

Assumptions on Current Diagnostic Activity

Detail on current PSA testing levels is in the main body of text, but further considerations should be noted that might impact the overall number of PSA tests within the UK. Patients on active monitoring may not have a biopsy, but will have multiple PSA tests and the uptake rate may be different for different age groups.

Assumptions modelled

	1A	1B	1C	2A	2B	2C
Cohort size	8,033,545	373,280	1,000,000	8,033,545	373,280	1,000,000
Proportion invited to PSA counselling	20%	20%	20%	20%	20%	20%
Uptake rate of invitees for counselling	72%	72%	72%	72%	72%	72%
Conversion from counselling to PSA	100%	100%	100%	100%	100%	100%
Conversion rate to reflex (from PSA)	n/a	n/a	n/a	15.4%	15.5%	15.7%
Conversion rate to MRI (from PSA)	15.4%	15.5%	15.7%	2.1%	2.2%	2.6%
Conversion rate to biopsy (from PSA)	9.3%	9.4%	9.7%	1.5%	1.6%	1.9%
Proportion transrectal biopsy (TRUS)	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Proportion transperineal biopsy (LATP)	93.0%	93.0%	93.0%	93.0%	93.0%	93.0%
Conversion Rate to true positive (from PSA)	0.24%	0.31%	0.44%	0.22%	0.28%	0.40%

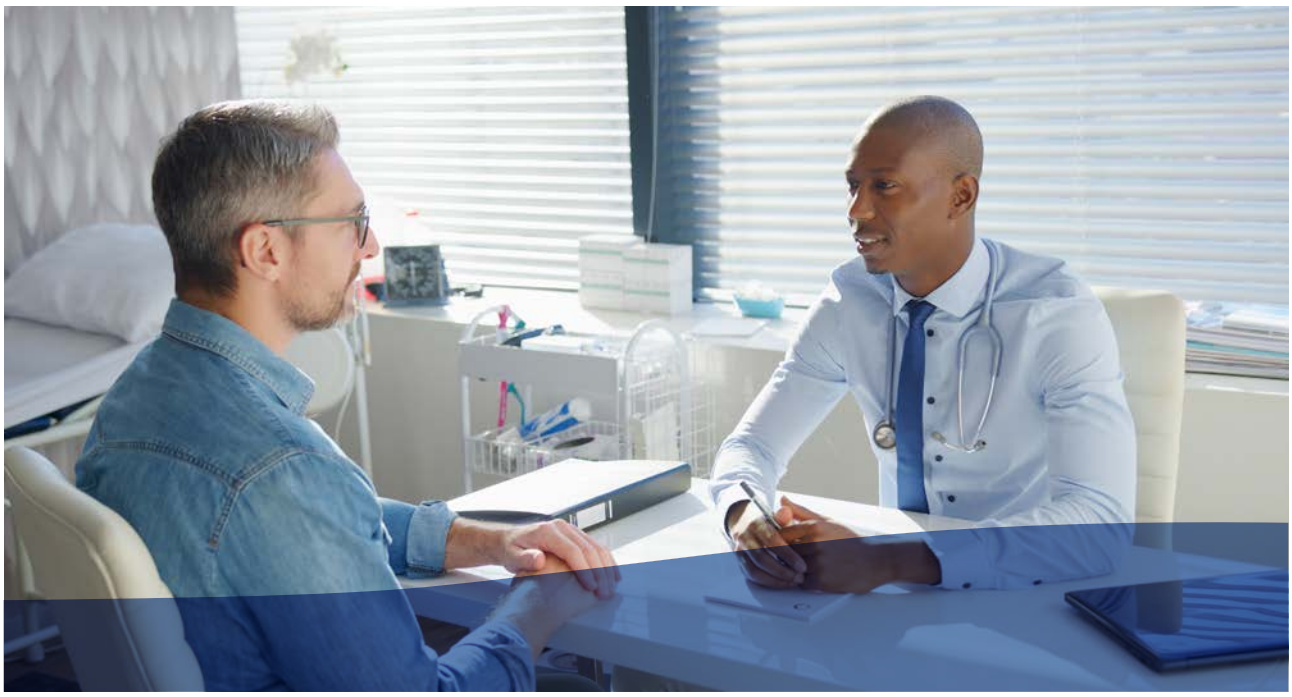
Model Outputs

Scenarios 1A–1C reflect the current pathway; scenarios 2A–2C reflect a new pathway using new technology

	1A	1B	1C	2A	2B	2C
PSA test	1,156,830	53,752	144,000	1,156,830	53,752	144,000
Reflex tests	n/a	n/a	n/a	177,905	8,317	22,584
MRIs	177,905	8,317	22,584	24,387	1,215	3,740
Total biopsies	107,768	5,070	13,954	16,912	864	2,774
Transrectal biopsies (TRUS)	7,544	355	977	1,184	60	194
Transperineal biopsies (LATP)	100,224	4,715	12,978	15,728	803	2,579
Number of true positives	2,827	164	635	2,544	148	572

% growth from baseline

PSA test	**132.9%**	**6.2%**	**16.5%**	**132.9%**	**6.2%**	**16.5%**
Reflex (new technology) test	∞	∞	∞	∞	∞	∞
MRIs	132.9%	6.2%	16.9%	18.2%	0.9%	2.8%
Transrectal biopsies (TRUS)	132.9%	6.3%	17.2%	20.9%	1.1%	3.4%
Transperineal biopsies (LATP)	132.9%	6.3%	17.2%	20.9%	1.1%	3.4%
Total biopsies	132.9%	6.3%	17.2%	20.9%	1.1%	3.4%



Appendix

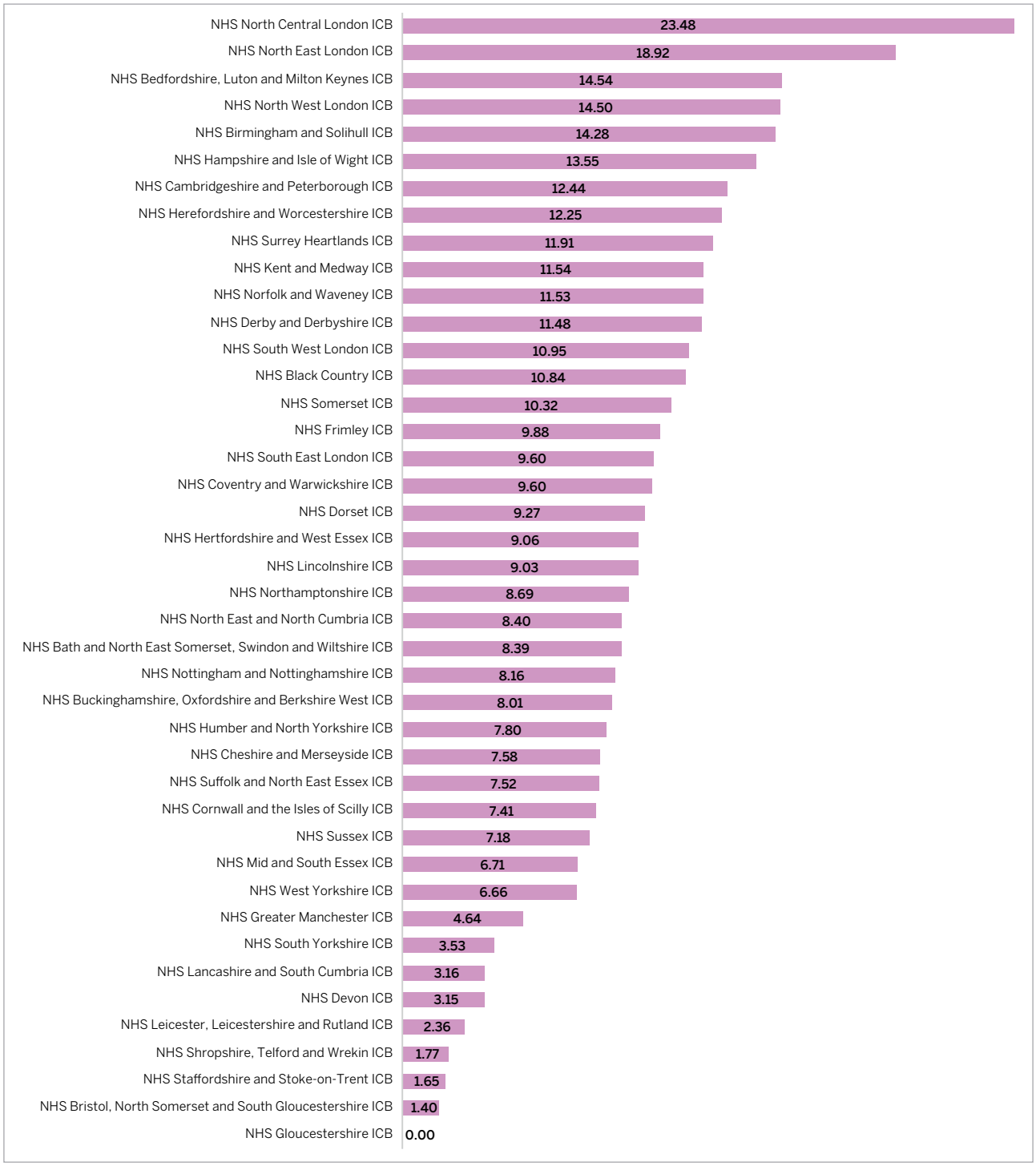
Stakeholder Interviewees

During the course of the research, 15 key clinical professionals were interviewed from a range of roles. While the work is not necessarily representative of their views, their insights were used to help inform context and check accuracy of figures. This included professors and consultant urologists, representatives of NHS England and NHSE's cancer programme, GPs, a member of the Royal College of GPs, a member of the Royal College of Radiologists, pilot study and trial leads, a clinical nurse specialist and representatives of private providers such as Oxford BioDynamics, Lucida Medical, Momentum Health and Quantexa.

Supporting Information

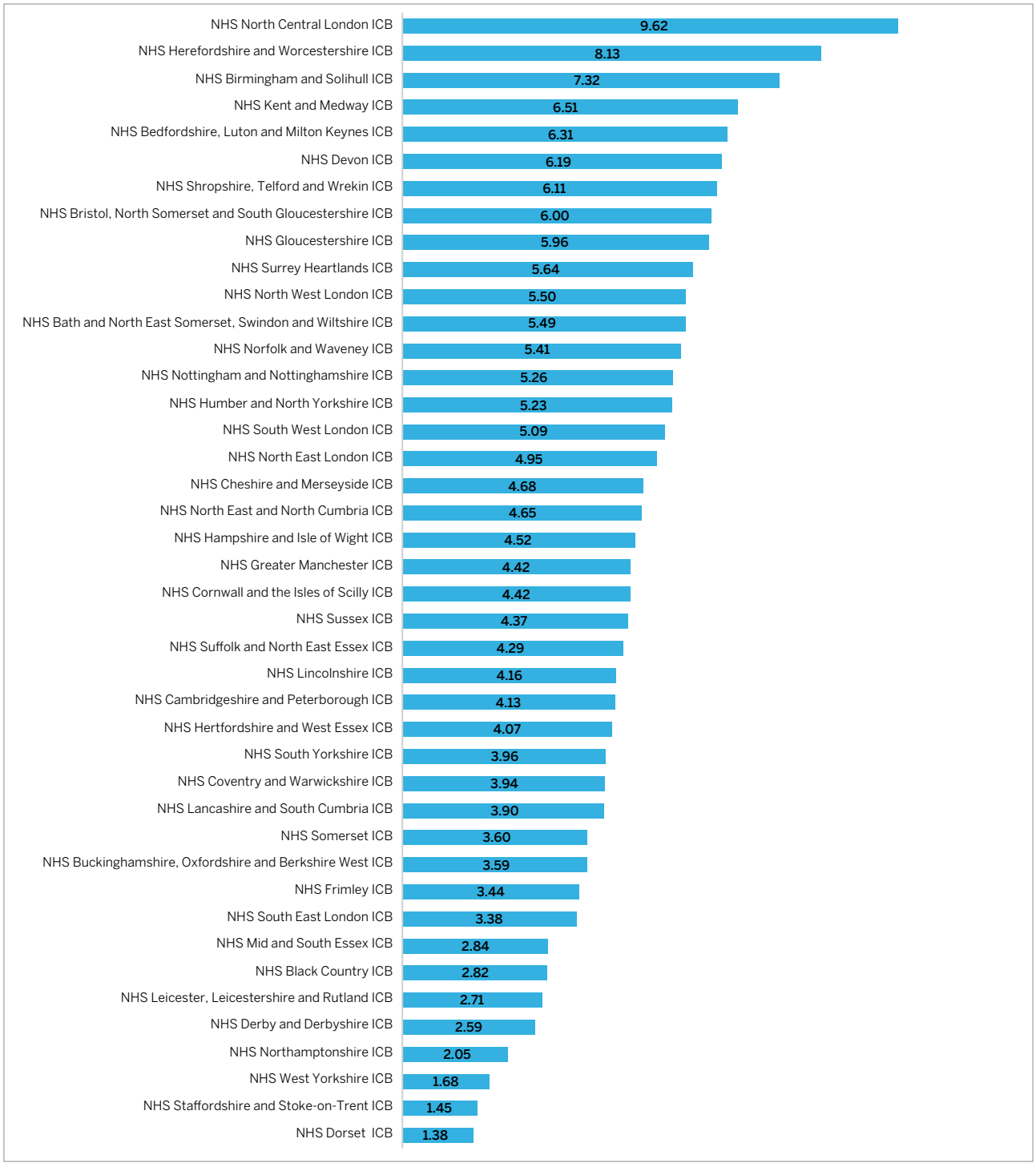
ICB Breakdown

Figure 18: Diagnostic prostate cancer MRI scans per 1,000 men, all ages 45+, by ICB England, FY 2023/24 (corresponding to Figure 10)



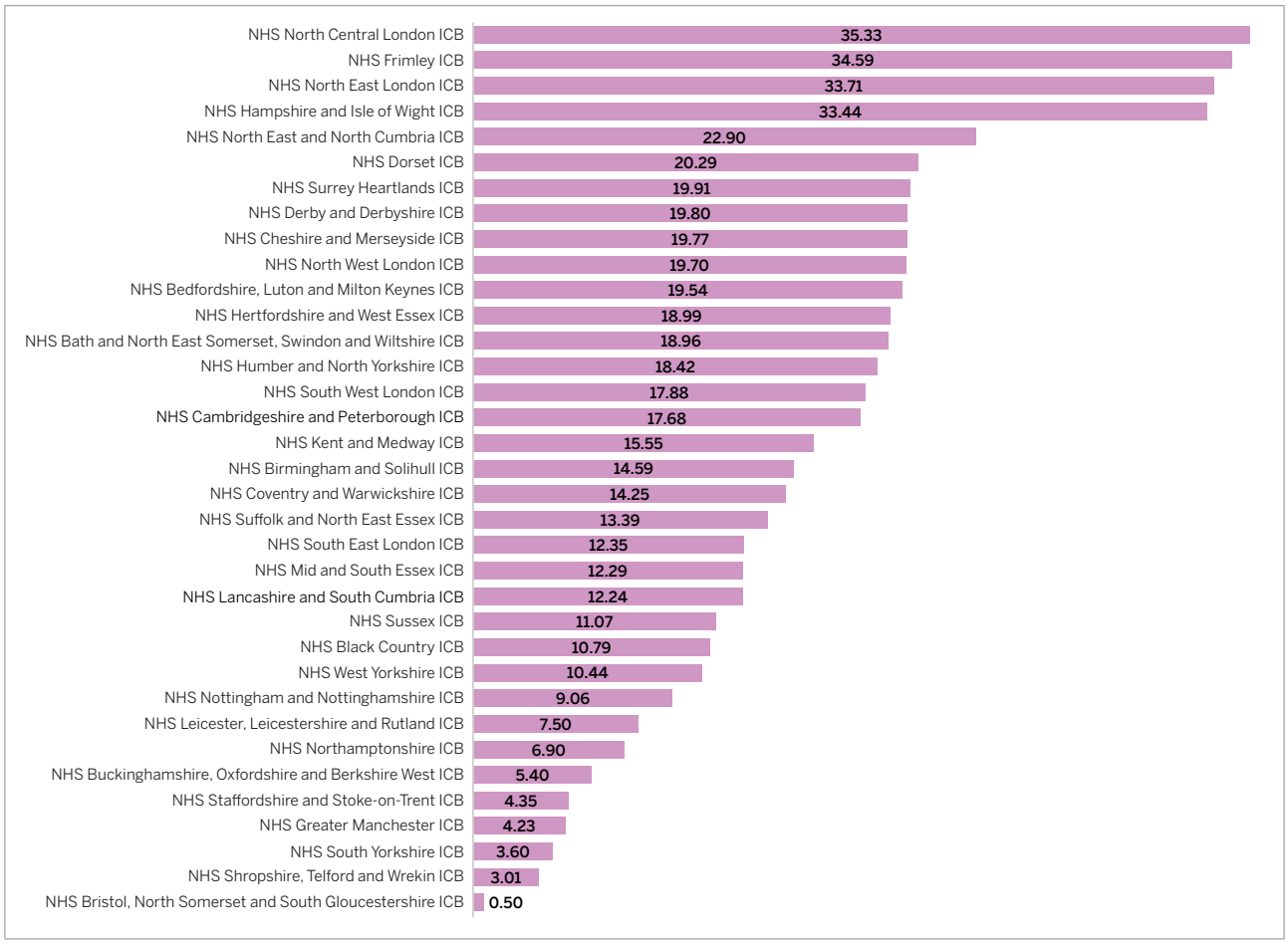
Source: Diagnostic Imaging Dataset; CF analysis.

Figure 19: Biopsies per 1,000 men aged 45–69, by ICB, England, FY 2024/25 (corresponding to Figure 11)



Source: Hospital Episode Statistics; CF analysis.

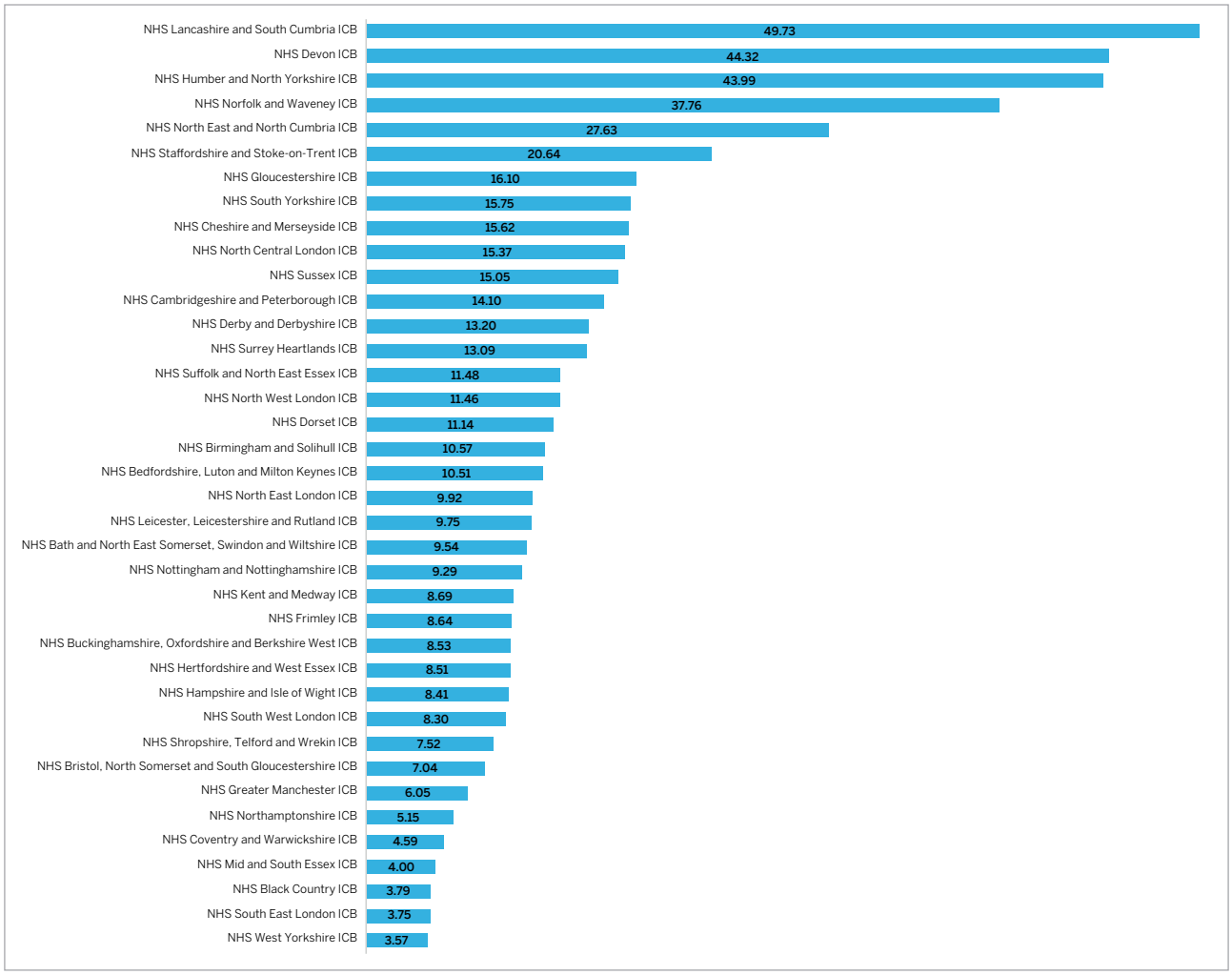
Figure 20: Diagnostic prostate cancer MRI scans per 1,000 Black men, all ages 45+, by ICB, England FY 2023/24 (corresponding with Figure 12)



* Data quality issues with NHS Gloucestershire, NHS Devon, NHS Cornwall and the Isles of Scilly, NHS Herefordshire and Worcestershire, NHS Somerset, NHS Lincolnshire, and NHS Norfolk and Waveney ICBs; they do not appear on this chart

Source: Diagnostic Imaging Dataset; CF analysis.

Figure 21: Biopsies per 1,000 Black men, aged 45–69, by ICB, England FY 2024/25 (corresponding with figure 13)



Source: Hospital Episode Statistics; CF analysis.

Workforce

Table 9: Diagnostic activity workforce, time (mins), and FTE requirement for scenario 1–3

Test	Workforce required	Time (minutes)	Scenario 1 FTE days: All men aged 50–69	Scenario 2 FTE days: Men of black ethnicity aged 45–69	Scenario 3 FTE days: Men with family history aged 45–69
PSA	Counselling done nationally	–	0	0	0
PSA	Nurse (blood test)	5	96,403	4,479	12,000
PSA	Administrative	5	96,403	4,479	12,000
PSA	Pathologist	5	96,403	4,479	12,000
PSA	GP (communicating results)	8	154,244	7,167	19,200
MRI	Radiographer	45	133,429	6,238	16,938
MRI	Nurse	45	133,429	6,238	16,938
MRI	Administrative	5	14,825	693	1,882
MRI	Radiologist	10	29,651	1,386	3,764
TRUS biopsy	Urologist	20	2,515	118	326
TRUS biopsy	Sonographer	20	2,515	118	326
TRUS biopsy	Nurse	20	2,515	118	326
TRUS biopsy	Pathologist	5	629	30	81
TRUS biopsy	Other	5	629	30	81
Transperineal biopsy	Urologist	20	33,408	1,572	4,326
Transperineal biopsy	Anaesthetist	20	33,408	1,572	4,326
Transperineal biopsy	Nurse	20	33,408	1,572	4,326
Transperineal biopsy	Pathologist	5	8,352	393	1,081
Transperineal biopsy	Radiologist	10	16,704	786	2,163

Population Tables

Table 10: ONS Population by ICB

	ONS 2023 population estimates for 2024		
Integrated Care Board	Male population aged 45+	Male population aged 45–69	Male population aged 70+
NHS Kent and Medway	416,909	289,742	127,167
NHS West Yorkshire	477,988	344,767	133,221
NHS Suffolk and North East Essex	270,289	176,762	93,527
NHS Cheshire and Merseyside	569,264	396,756	172,508
NHS Lincolnshire	192,647	127,318	65,329
NHS South West London	280,058	214,557	65,501
NHS Buckinghamshire, Oxfordshire and Berkshire West	391,845	279,944	111,901
NHS Gloucestershire	155,114	105,245	49,869
NHS Sussex	410,387	276,577	133,809
NHS North East and North Cumbria	690,299	476,470	213,829
NHS Hampshire and Isle of Wight	414,792	281,858	132,934
NHS North Central London	249,117	193,072	56,045
NHS Humber and North Yorkshire	412,074	277,795	134,280
NHS Leicester, Leicestershire and Rutland	241,804	170,360	71,444
NHS Black Country	249,613	179,705	69,909
NHS Derby and Derbyshire	250,798	173,856	76,942
NHS Greater Manchester	565,759	412,759	153,000
NHS Herefordshire and Worcestershire	198,171	130,618	67,553
NHS Nottingham and Nottinghamshire	247,354	173,077	74,278
NHS South East London	312,756	245,951	66,805
NHS Birmingham and Solihull	245,779	181,631	64,148
NHS North East London	317,321	256,203	61,118
NHS Shropshire, Telford and Wrekin	126,975	85,248	41,727
NHS Norfolk and Waveney	230,223	148,996	81,227
NHS Hertfordshire and West Essex	295,037	214,436	80,601

NHS Bedfordshire, Luton and Milton Keynes	201,592	150,063	51,530
NHS Bath and North East Somerset, Swindon and Wiltshire	216,192	149,607	66,584
NHS Lancashire and South Cumbria	414,597	284,857	129,740
NHS Cambridgeshire and Peterborough	220,979	155,928	65,051
NHS North West London	384,798	298,467	86,331
NHS Somerset	146,771	95,161	51,610
NHS Devon	304,329	198,024	106,305
NHS Bristol, North Somerset and South Gloucestershire	194,872	136,849	58,023
NHS Coventry and Warwickshire	203,419	142,954	60,466
NHS Frimley	162,795	118,821	43,974
NHS Staffordshire and Stoke-on-Trent	266,339	182,191	84,148
NHS Cornwall and the Isles of Scilly	148,604	96,910	51,694
NHS South Yorkshire	295,339	208,293	87,046
NHS Northamptonshire	171,927	123,435	48,492
NHS Mid and South Essex	264,128	185,065	79,063
NHS Dorset	198,082	126,476	71,606
NHS Surrey Heartlands	240,655	171,746	68,908

Table 11: ONS Black Population by ICB (latest available)

	ONS 2021 Census Population		
Integrated Care Board	Black male population aged 45+	Black male population aged 45–69	Black male population aged 70+
NHS Kent and Medway	4,760	4,760	0
NHS West Yorkshire	9,485	8,765	720
NHS Suffolk and North East Essex	1,120	1,120	0
NHS Cheshire and Merseyside	2,175	2,095	80
NHS Lincolnshire	20	20	0
NHS South West London	24,380	21,580	2,800
NHS Buckinghamshire, Oxfordshire and Berkshire West	5,740	5,480	260
NHS Gloucestershire	675	640	35
NHS Sussex	1,265	1,265	0
NHS North East and North Cumbria	1,310	1,310	0
NHS Hampshire and Isle of Wight	1,495	1,485	10
NHS North Central London	25,330	22,300	3,030
NHS Humber and North Yorkshire	380	380	0
NHS Leicester, Leicestershire and Rutland	3,200	2,975	225
NHS Black Country	10,755	9,825	930
NHS Derby and Derbyshire	1,465	1,380	85
NHS Greater Manchester	13,945	13,210	735
NHS Herefordshire and Worcestershire	55	55	0
NHS Nottingham and Nottinghamshire	4,635	4,200	435
NHS South East London	52,480	47,470	5,010
NHS Birmingham and Solihull	18,305	15,745	2,560
NHS North East London	41,675	37,240	4,435
NHS Shropshire, Telford and Wrekin	665	665	0
NHS Norfolk and Waveney	210	210	0
NHS Hertfordshire and West Essex	5,370	5,370	0

NHS Bedfordshire, Luton and Milton Keynes	9,670	9,260	410
NHS Bath and North East Somerset, Swindon and Wiltshire	1,055	1,055	0
NHS Lancashire and South Cumbria	245	245	0
NHS Cambridgeshire and Peterborough	1,810	1,810	0
NHS North West London	27,670	24,085	3,585
NHS Somerset	10	10	0
NHS Devon	150	150	0
NHS Bristol, North Somerset and South Gloucestershire	3,995	3,695	300
NHS Coventry and Warwickshire	3,580	3,485	95
NHS Frimley	1,995	1,930	65
NHS Staffordshire and Stoke-on-Trent	690	690	0
NHS Cornwall and the Isles of Scilly	25	25	0
NHS South Yorkshire	3,885	3,610	275
NHS Northamptonshire	4,345	4,205	140
NHS Mid and South Essex	4,965	4,930	35
NHS Dorset	345	345	0
NHS Surrey Heartlands	1,155	1,155	0

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