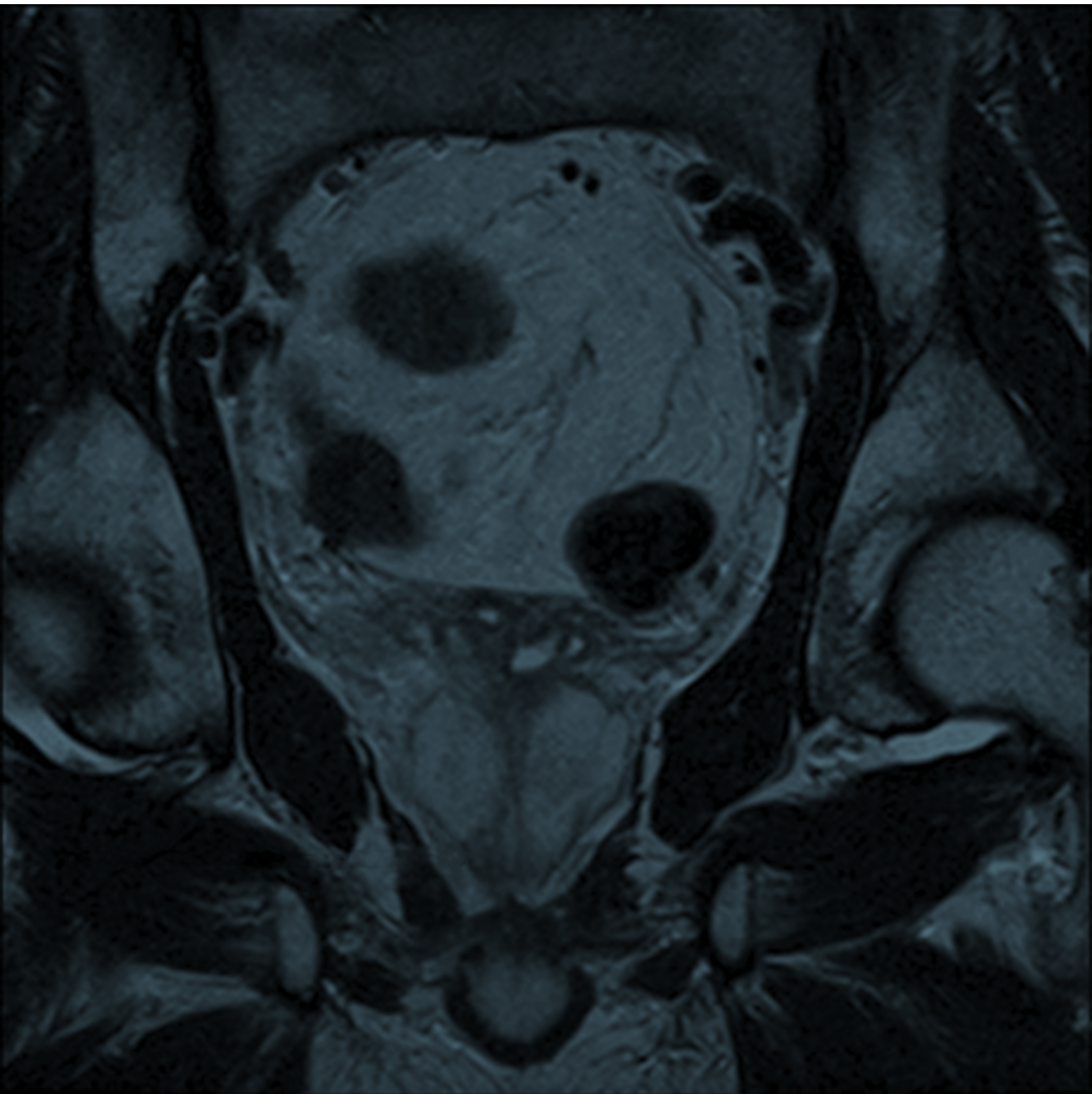
NPCA
National Prostate Cancer Audit

Second Year Annual Report – Further analysis of existing clinical data and preliminary results from the NPCA Prospective Audit

2015



National Prostate Cancer Audit

Second Year Annual Report – Further analysis of existing clinical data and preliminary results from the NPCA Prospective Audit

London: The Royal College of Surgeons of England, 2015.

The Royal College of Surgeons of England (RCS) is an independent professional body committed to enabling surgeons to achieve and maintain the highest standards of surgical practice and patient care. As part of this it supports Audit and the evaluation of clinical effectiveness for surgery.

The NPCA is based at the The Clinical Effectiveness Unit (CEU). The CEU is an academic collaboration between The Royal College of Surgeons of England and the London School of Hygiene and Tropical Medicine, and undertakes national clinical audits and research. Since its inception in 1998, the CEU has become a national centre of expertise in methods, organisation, and logistics of large-scale studies of the quality of surgical care. The CEU managed the publication of the NPCA Annual Report, 2015.

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The British Association of Urological Surgeons (BAUS) was founded in 1945 and exists to promote the highest standards of practice in urology, for the benefit of patients, by fostering education, research and clinical excellence. BAUS is a registered charity and qualified medical practitioners practising in the field of urological surgery are eligible to apply for membership. It is intended that this website will be a resource for urologists, their patients, other members of the healthcare team and the wider public.

The British Uro-oncology Group (BUG) was formed in 2004 to meet the needs of clinical and medical oncologists specialising in the field of urology. As the only dedicated professional association for uro-oncologists, its overriding aim is to provide a networking and support forum for discussion and exchange of research and policy ideas.

The National Cancer Registration Service (NCRS), Public Health England collects patient-level data from all NHS acute providers and from a range of national data feeds. Data sources are collated using a single data processing system ('Encore') and the management structure is delivered through eight regional offices across England.

The NCRS is the data collection partner for the NPCA.

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The Healthcare Quality Improvement Partnership (HQIP) is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the National Clinical Audit Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

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We would like to thank the Information Specialists in the Wales Cancer Networks for the development and implementation of the NPCA Prospective Audit dataset and for urological and uro-oncological colleagues and their teams in the Welsh Health Boards who started data collection from the 1st April 2015.

The collection and submission of high quality data underpins the ability of the NPCA to determine whether the care that men with prostate cancer receive is in keeping with recommended practice and to identify areas where improvements are needed. **Keep sending in your data!**

The Project Team would like to acknowledge the contribution of the NPCA Clinical Reference Group (CRG) for helping to guide the development of the NPCA patient questionnaire and for reviewing this report. Membership of the NPCA CRG can be found on our website.[1] We would like to thank the British Association of Urological Surgeons (BAUS) and the British Uro-Oncology Group (BUG) for their continued professional guidance and for raising awareness amongst urological and uro-oncological colleagues.

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[1] http://www.npca.org.uk/team/clinical-reference-group/

Foreword

We are delighted to introduce the second Annual Report of the National Prostate Cancer Audit (NPCA), which covers the work undertaken since April 2014. This includes an analysis of the most recent existing clinical data on men diagnosed with prostate cancer between 2010 – 2013, a report on Trust participation in the NPCA Prospective Audit in England and preliminary prospective results, and the launch of the NPCA patient survey.

It is encouraging that fewer men are being diagnosed with advanced disease, indicating improved awareness. There is also an increase in the proportion of men presenting with locally advanced prostate cancer who receive radical treatments and potentially curative therapy. The increased use of radical treatment in locally advanced disease (and reduction in under-treatment) reflects the realisation that this type of disease has a much more aggressive natural history and anticipates the future era, where intervention with multi-modal therapy may increase still further in light of emerging data from trials such as STAMPEDE .

The reduction in the radical treatment of men with low-risk localised disease is also welcome, indicating a better understanding of the natural course of the disease, thereby reducing the risk of over-treatment with its consequent side effects for those who can be safely monitored with active surveillance.

The increasing access to and use of robotic prostatectomy is welcome and this is likely to increase as prostatectomy moves increasingly to high volume prostate centres.

Preliminary data from the first four months of the NPCA Prospective Audit data collection in England demonstrates that the audit will answer important questions about how prostate cancer is diagnosed and treated at the present time. For example, trans-rectal prostate biopsy approaches are still, by a considerable margin, the most common way of diagnosing the disease, with MRI-targeted or template-based approaches used only in the small minority of patients.

It is also good to see that the majority of Trusts in England that provide prostate cancer services (88%) are participating in the NPCA Prospective Audit. However, this report highlights that improvement in case ascertainment and completeness of basic staging and treatment data are needed to strengthen the NPCA's ability to identify areas for service improvement. This aspect of the NPCA is of considerable importance.

Most men who receive radical treatment survive for many years with the potential adverse side effects of these treatments including urinary, bowel and sexual dysfunction. The NPCA has now started to systematically measure patents' own views of the impact of radical therapies on their lives and their experience of care. We look forward to presenting the first results of the patient survey, which will be published in the Third Annual Report in 2016.

Finally, we would like to thank all clinical, logistical and administrative Trust colleagues who have made the NPCA possible by actively participating and collecting data. We also extend our gratitude to the Data Liaison teams from the National Cancer Registration Service who support data collection in England. We are delighted that data collection started in Wales on the 1st April 2015 and we acknowledge the great efforts of the teams that have made this possible.

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Executive Summary

This is the second Annual Report (2015) of the National Prostate Cancer Audit (NPCA). The Audit was commissioned by the Healthcare Quality Improvement Partnership (HQIP)* as part of the National Clinical Audit Programme with the aim of assessing the process of care and its outcomes in men diagnosed with prostate cancer in England and Wales.

The NPCA started on 1 April 2013 and will continue for at least five years. The audit is based at the Clinical Effectiveness Unit (CEU) at the Royal College of Surgeons of England and is managed in partnership with the British Association of Urological Surgeons (BAUS), the British Uro-Oncology Group (BUG) and the National Cancer Registration Service (NCRS).

The NPCA consists of four key components:

1. An organisational audit of service delivery and prostate cancer care in England and Wales

2. An analysis of existing datasets to provide comparative baseline data for the prospective audit

3. A prospective audit of all men newly diagnosed with prostate cancer in England from 1 April 2014 and Wales from 2015

4. An audit using patient-reported outcome measures (PROMs) and experience measures (PREMs) 18 months after diagnosis for all patients with localised prostate cancer who underwent, or who are candidates for, radical treatment

The key results presented in the first annual report in 2014 included a national level analysis of data from the organisational audit in England and Wales and an analysis of available existing data sets including patients with prostate cancer in England (diagnosed between 2006 and 2008). The report can be downloaded from our website.[2]

This second Annual Report covers the work undertaken since April 2014. It includes an analysis of the most recently available existing data sets for patients diagnosed with prostate cancer between 2010 and 2013 in England, a report of NHS Trust participation in the NPCA Prospective Audit in England, analyses of data submitted (case ascertainment, data completeness and preliminary results), and the description of the design of the NPCA PROMs and PREMs survey.

Analysis of existing data on patients newly diagnosed with prostate cancer between 2010 and 2013 in England

In the first Annual Report (2014), we presented analyses of Cancer Registry data for patients diagnosed between 2006 and 2008 linked to Hospital Episode Statistics (HES) and a later extract of unlinked Cancer Registry data for patients diagnosed in 2012.

In this second Annual Report, we present the results of the analyses of more recent Cancer Registry data linked to HES, including patients newly diagnosed with prostate cancer between 2010 and 2013.

These analyses were based on an updated risk stratification algorithm to enable the inclusion of men with limited information on metastatic and/or nodal disease resulting in the creation of a 'mixed group' including men with either locally advanced or advanced disease. We also report key findings based on six performance indicators developed for the first Annual Report.

Trends over time

Compared with men diagnosed between 2006 and 2008 (results presented in the first Annual Report), the current analysis of men diagnosed between 2010 and 2013 demonstrated that there was a substantial improvement in the proportion of men who had sufficient information to determine disease status (an increase from 43% to 65%).

Fewer men were diagnosed with locally advanced or advanced disease between 2010 and 2013 (57%) than between 2006 and 2008 (67%).

The percentage of men with low-risk disease who underwent radical treatment (radical prostatectomy or radical radiotherapy including external beam radiation therapy (EBRT), brachytherapy, cryotherapy or HIFU) within 12 months of their diagnosis went down from 28% between 2006 and 2008 to 13% between 2010 and 2013

The percentage of men with locally advanced disease who have radical treatment went up from 27% between 2006 and 2008 to 47% between 2010 and 2013.

There is a considerable reduction in the length of stay after radical prostatectomy from 53% staying longer than 3 days in hospital after a radical prostatectomy between 2006 and 2008 to 22% between 2010 and 2013.

* HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to produce quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the National Clinical Audit Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands. www.hqip.org.uk

[2] NPCA First Year Annual Report – Organisation of Services and Analysis of Existing Clinical Data, 2014. http://www.npca.org.uk/reports/

Variation between Cancer Networks

The completeness of information to determine disease status varied markedly between the 28 English Cancer Networks, the major regional organisational structure that was in place until April 2013. For men diagnosed between 2010 and 2013, the level of completeness ranged from 44% to 92%. As the overall completeness of information on disease status is improving year on year (from 40% in 2010, 53% in 2011, 77% in 2012 to 87% in 2013), the regional differences should rapidly become a negligible issue.

There were differences in the percentage of men with low-risk localised prostate cancer ranging from 4% to 25%, locally advanced disease ranging from 18% to 49% and advanced disease ranging from 6% to 26% between Cancer Networks for men diagnosed between 2010 and 2013. These differences may reflect regional differences in the use of PSA testing. However, they may also reflect differences in how patients with advanced disease were diagnosed and staged.

There was considerable regional variation across Cancer Networks in the percentage of men receiving different modalities of radical treatment, especially among those with locally advanced disease (ranging from 19% to 65%). This variation may reflect regional differences in the patients' fitness for treatment as well as in the availability of and clinical preference for treatment modalities.

The diagnosis and staging of prostate cancer and planning of initial treatments in England: preliminary results from the NPCA Prospective Audit

In this second Annual Report, we also present the first analysis of the NPCA Prospective Audit for 12,305 men diagnosed during the first four months of the Audit (between 1 April and 31 July 2014).

Trust participation, case-ascertainment and data quality

96% of 142 NHS Trusts in England that provide prostate cancer services submitted an NPCA record but only 88% of Trusts were considered to be participating (defined on the basis of submitting at least one staging data item for 5 or more patients).

The overall case-ascertainment rate was 56% which varied by Trust and specialist MDT. There was a significant level of missing data which varied by Trust and specialist MDT. Prostate cancer disease status could only be defined for 69% of men. ASA and performance status, data items crucial for risk-adjusted comparisons among Trusts, were especially poorly recorded.

Preliminary results

About half of newly diagnosed men were over 70 years of age and about two thirds were in good health. Most men were of white ethnic origin (94%) and men living in more socioeconomically deprived areas were underrepresented with only 13% from areas within the most deprived quintile.

45% of men with available data had a PSA level less than 10 and 32% had a PSA level higher than 20. Prostate cancer disease status could be determined for 59% of included men, 9% of whom had advanced (metastatic) disease, 31% locally advanced disease, 19% either locally advanced or advanced disease (insufficient information to determine their metastatic status), 34% intermediate-risk disease, and 7% low-risk disease.

Transrectal ultrasound was the predominant biopsy technique performed before treatment for 85% of men. Multiparametric MRI was recorded in only 21% of men with about half of these performed before biopsy.

Just over half of patients (53%) with newly diagnosed prostate cancer had at least one treatment recorded as agreed at MDT. This included radical prostatectomy in 20% of cases (50% of which were recorded as robotic-assisted laparoscopic procedures) and radical radiotherapy (EBRT/ brachytherapy), cryotherapy or HIFU in 29% of cases.

Welsh data

The NCPA has not received existing data sets for patients diagnosed in Wales. Also, the NPCA Prospective Audit started in Wales one year later than in England and includes patients who were diagnosed with prostate cancer after 1 April 2015. We expect therefore that we will be able to present the first results for Welsh patients in the NPCA's third Annual Report (2016).

Patient-reported outcome and experiences measures

From October 2015, the NPCA will start a PROMs and PREMs survey of all patients with localised prostate cancer 18 months after diagnosis (from 1st April 2014) who receive, or are candidates for, radical treatment in England. The survey will determine patients' views of their experience of care following diagnosis and their outcomes. Patients will be asked questions related to quality of life, adverse events, sexual, urinary and bowel complications, information received about their prostate cancer diagnosis and treatment, treatment options offered, and initial treatment decision making.

The NPCA questionnaire follows, as much as possible, other UK and International PROMs and PREMs initiatives. The results from the NPCA survey will be linked to patient level data from the prospective audit and to other databases such as HES to provide information about the quality of care and services that patients with prostate cancer receive and to enable Trust and specialist MDT level comparisons. The first results will be published in the NPCA's third Annual Report, which will be published in the Autumn 2016.

As the time period for the NPCA Prospective Audit in Wales runs one year behind England, the first surveys for Welsh patients will be circulated in October 2016 and the first results reported in the fourth Annual Report, 2017.

NPCA Prospective Audit results presented by MDT in England

In addition to national results for England, we present participation in the NPCA Prospective Audit, case ascertainment and completeness of key data items by local Trust MDT in **Appendix 2**. The results of selected data items by specialist MDT are presented in **Appendix 3.**

Implications for practice

- The initial results of the NPCA Prospective Audit demonstrates its potential to evaluate practice and outcomes of prostate cancer services. However, there is a **need for further improvements in Trust participation, case ascertainment and data completeness**
- The collection of complete and accurate staging data is a key priority. **More complete collection of data on nodal and metastatic disease** will help to better distinguish between men with locally advanced and advanced (metastatic) disease
- **Clinical practice is gradually falling in line with current recommendations** which advocate that patients with low-risk disease are offered active surveillance – in order to avoid over-treatment – and those with locally advanced disease are offered radical treatment – in order to avoid under-treatment
- **Length of stay after radical prostatectomy is reducing** and only 22% of patients diagnosed between 2010 and 2013 stayed longer than three days in hospital
- There was **considerable regional variation in the treatment of men with locally advanced disease** diagnosed between 2010 and 2013. This variation may partly reflect problems in identifying men who had radical treatments and partly differences in actual treatment
- Results presented in **Appendix 2 and 3** will help staff in Trusts and specialist MDTs to identify **local priorities for NPCA data collection** as well as to consider **preliminary results that may demonstrate if local services for patients with prostate cancer can be further improved.**

1. The National Prostate Cancer Audit: Introduction

1.1 Prostate cancer – background and aims of the audit

Prostate cancer is the most common solid cancer in men in the UK (over 40,000 new cases per year) and the second most common cause of cancer-related death.[3] It is highly heterogeneous, ranging from clinically insignificant, slow-growing, localised tumours to clinically significant, aggressive, fast-growing tumours. As a consequence of its variable nature and the broad range of treatment options available including active surveillance, radical treatments (surgery and/or radiotherapy in all its forms) with or without hormonal therapy or chemotherapy, the management of prostate cancer is complex and requires a multidisciplinary approach.

Increasingly, men are living with a diagnosis of low-risk, localised disease without evidence of spread beyond the prostate, which may not become clinically evident in their lifetime. The potential over-treatment of this group of men is a key concern. Conversely, men with high-risk, locally advanced disease or metastatic disease, in particular healthy older men, may be under-treated and placed on hormonal treatments alone denying them more radical treatments and the opportunity of a long-term cure.

The National Prostate Cancer Audit (NPCA) was commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme in response to the need for better information about the quality of prostate cancer services and care provided in England and Wales. The audit started on the 1st April 2013 with current planning for a minimum of 5 years. The NPCA is based at the Clinical Effectiveness Unit (CEU) at the Royal College of Surgeons of England (RCS) and is managed as a partnership between a team of clinical, cancer information and audit experts from the British Association of Urological Surgeons, the British Uro-Oncology Group, the National Cancer Registration Service (NCRS) and the RCS.

The aim of the NPCA is to assess the process of care and its outcomes in men diagnosed with prostate cancer in England and Wales. Principal audit objectives are to investigate:

- service delivery and organisation of care in England and Wales
- characteristics of newly-diagnosed prostate cancer, how the cancer was detected and the referral pathway
- diagnostic and staging process and planning of initial treatment
- initial treatments received
- patient experience and health outcomes 18 months after diagnosis
- overall and disease-free survival
- feasibility of a Prostate Specific Antigen (PSA) testing audit in primary care

The NPCA will determine whether the care received by patients with prostate cancer is consistent with recommended practice, including recent National Institute for Health and Care Excellence (NICE) guidelines covering the diagnostic procedures, treatments, care and support that men who have suspected or diagnosed prostate cancer should be offered and NICE Quality Standards which set out evidence-based characteristics of a high quality service, and to identify areas where improvements can be made.[4,5]

The Audit consists of four key components:

1. An organisational audit of service delivery and prostate cancer care in England and Wales
2. An analysis of existing datasets to provide comparative baseline data for the prospective audit
3. A prospective audit of all men newly diagnosed with prostate cancer in England and Wales
4. An audit of patient-reported outcome and experience measures (NPCA PROMs and PREMs) 18 months after diagnosis for all patients with localised prostate cancer who underwent, or who are candidates for, radical treatment

[3] Cancer Research UK. Prostate Cancer Statistics 2014

[4] NICE, 2014. Prostate cancer: diagnosis and treatment.

[5] NICE, 2015. Prostate Cancer. NICE quality standard 91.

1.2 Summary of findings from the first Annual Report (in 2014)

The key results presented in the first annual report in 2014 included a national level analysis of data from the organisational audit in England and Wales and an analysis of available existing data sets including patients with prostate cancer in England. The report can be downloaded from our website.[6]

Organisational audit

In England, there are 143 Trusts and 48 specialist MDTs that provide prostate cancer services and in Wales there are 10 NHS Hospitals, 6 Health Boards and four specialist MDTs. Each NHS provider completed surveys to determine the availability of essential diagnostic, staging and therapeutic facilities, how prostate cancer services are organised and delivered, and the functioning of local and specialist multidisciplinary teams (MDTs).

The organisational audit demonstrated that radical treatment for prostate cancer is centralised in line with national guidelines with 61 NHS trusts in England and five NHS hospitals in Wales offering radical surgical treatments and 54 English centres and three Welsh centres offering radical radiotherapy.

In recognition of the changes to the arrangement and availability of prostate cancer services over time, the NPCA will contact each clinical team for updates to the services provided within their Trust in December each year.

Analysis of existing data

Analyses were carried out using extracts of English Cancer Registry data linked to Hospital Episode Statistics (HES) including patients diagnosed between April 2006 and March 2008 and a later extract of unlinked Cancer Registry data including patients diagnosed in 2012.

The completeness of recording cancer stage and tumour grade increased substantially over time. Cancer grade and tumour stage were available for 53% of patients diagnosed between 2006 and 2008 and for 71% of patients diagnosed in 2012. The analysis demonstrated that English Cancer Registry records can be linked to the HES database and used to provide a comparative baseline data set for the prospective audit. Six key performance indicators were introduced, which will be used in the NPCA's prospective audit, reflecting cancer stage at diagnosis, radical treatment according to disease stage and short-term outcomes after radical surgery.

1.3 The second Annual Report and current status of the NPCA

In this second Annual Report, we present in **Chapter 2** an analysis of the most recently available Cancer Registry data linked to English HES and Office for National Statistics (ONS) mortality records for patients newly diagnosed with prostate cancer between 2010 and 2013. This provides a recent comparative background for the NPCA prospective audit in addition to information on time trends in the patients' characteristics and cancer stage at diagnosis, treatments and short-term outcomes. We present an analysis of the completeness of recording cancer stage and tumour grade across the Cancer Networks. In addition, we present the results of the six key performance indicators previously developed for the NPCA and compare the findings between diagnostic periods.

In Chapter 3, we report for the first time on Trust participation in the NPCA prospective audit in England and the completeness and quality of data submitted to the NCRS, the NPCA data collection partner, during the first four months of the Audit (1 April 2014 and 31 July 2014). We present the first preliminary results with respect to the diagnostic and staging process they underwent, initial planned treatments, and type of radical surgery.

In **Appendix 2 and 3**, we present participation in the NPCA Prospective Audit, case ascertainment and completeness of key data items **by local Trust MDT in Appendix 2**. The results of selected data items **by specialist MDT are presented in Appendix 3**. This allows staff in local Trust and specialist MDTs to explore how well their Trust is participating in the NPCA as well as to have a preliminary assessment of their patients and treatments compared to national results.

Finally, in **Chapter 4,** we introduce the aims and objectives of the NPCA PROMs and PREMs, including the patient cohort and survey design. The NPCA PROMs and PREMs started in October 2015 and the first results will be published in the NPCA's third Annual Report during Autumn 2016.

[6] NPCA First Year Annual Report – Organisation of Services and Analysis of Existing Clinical Data, 2014. http://www.npca.org.uk/reports/

2. Analysis of existing data on patients newly diagnosed with prostate cancer between 2010 and 2013 in England

2.1 Introduction

In the NPCA's 2014 Annual Report, we presented key findings from analyses of the following data sets:

- English Cancer Registry data linked to HES, including men diagnosed with prostate cancer between April 2006 and March 2008.
- English Cancer Registry data of men diagnosed with prostate cancer in 2012 not linked to HES.

These analyses demonstrated that English Cancer Registry records can be linked to the HES database (linkage rate 94%) and used to provide a comparative baseline dataset for the prospective audit. Six performance indicators were introduced that will be used in the NPCA's prospective audit. These indicators reflect disease status at diagnosis, radical treatment according to disease status, and short-term outcomes after radical surgery.

In this chapter, we report the key findings of analyses of more recent Cancer Registry data linked to English HES for patients with newly diagnosed prostate cancer between 2010 and 2013. These analyses of existing data provide a more relevant, comparative background for the NPCA's prospective audit, based on the developed performance indicators. We also present an analysis of the completeness of information on prostate cancer disease status.

Results are presented at Cancer Network level, the major regional organisational structure that was in place until April 2013. Although Cancer Networks were abolished as a result of the introduction of Strategic Clinical Networks in April 2013, we felt it was appropriate to report at Cancer Network as this was the predominant organisational regional structure in operation between 2010 and 2013 and to enable comparison with our earlier analyses of data for men diagnosed between 2006 and 2008.[7]

Similar analyses will be carried out for patients diagnosed in Wales as soon as Welsh Cancer Registry data linked at patient level to Patient Episode Data for Wales (PEDW) will become available. We expect that we can report the results of these, or alternative, analyses in the Audit's third Annual Report.

2.2 Methods

2.2.1 Data collection

We used data collected by the eight regional Cancer Registries of all men with newly diagnosed prostate cancer in England (ICD-10 code "C61"). Public Health England's Office for Data Release (ODR) supplied a pseudonymised data set containing records of all men diagnosed between 1 January 2010 and 31 December 2013 that had been linked at patient level to corresponding HES records. Linkage was undertaken by HSCIC using name, address, date of birth and NHS number. The majority of cases (97%) were linked at level 1, which is the highest quality of match

2.2.2 Definition of the Cancer Network

The HES data item that uniquely identifies the NHS provider nearest to the date of cancer diagnosis was used to assign men to a Cancer Network that were in place until April 2013.

2.2.3 Definition of disease status and prostate cancer treatment

Disease status

Cancer stage was identified using Cancer Registry data item: "T_IMG". If T_IMG was missing or labelled "X", the highest value of the Cancer Registry items "T_BEST" or T_PATH" were used. Similarly, nodal status and metastasis were identified using "N_IMG" and "M_IMG" in the first instance. If they were missing or labelled "X", we used the most severe of the corresponding _BEST or _PATH fields.[8]

All included men were assigned to a prostate cancer disease status category according to their cancer stage and Gleason score. Serum PSA levels could not be used as these were not available in the Cancer Registry data for the time period studied. The risk stratification algorithm developed in the previous report for the allocation of disease status was revisited.

[7] NPCA Annual Report 2014 http://www.npca.org.uk/reports/

[8] IMG: classification before treatment; BEST: classification flagged by the National Cancer Registry Service as "best"; PATH: classification based on evidence from a pathological examination.

Figure 1. Risk stratification algorithm to determine disease status according to TNM and Gleason grade in men with limited information on metastatic and/or nodal disease.

M1 N1	M0 N1	MX/missing N1
Step 1 – Advanced	Step 2 – Locally advanced	Step 2 – Locally advanced *Assumption: non-metastatic* As staging was performed to confirm nodal disease, it is likely that staging confirming absence or presence of metastatic disease has also been performed.
M1 N0	**M0 N0**	**MX/missing N0**
Step 1 – Advanced	Steps 4 and 5 – Locally advanced Steps 6 and 7 – Localised intermediate-risk Step 8 – Localised low-risk	Steps 4 and 5 – Locally advanced Steps 6 and 7 – Localised intermediate-risk Step 8 – Localised low-risk *Assumption: non-metastatic* As staging was performed to confirm nodal disease, it is likely that staging confirming absence or presence of metastatic disease has also been performed.
M1 NX/missing	**M0 NX/missing**	**M X/missing and N X/missing**
Step 1 – Advanced	Steps 4 and 5 – Locally advanced Steps 6 and 7 – Localised intermediate-risk Step 8 – Localised low-risk *Assumption: no nodal disease* As staging was performed to confirm absence of metastatic disease, it is likely that pelvic staging has been performed.	Step 3 – Mixed Advanced or locally advanced *Assumption: none made* It is not possible to assume that men with T3/T4 or Gleason ≥8 do not have metastatic or nodal disease. Steps 6 and 7 – Localised intermediate risk Step 8 – Localised low-risk *Assumption: no nodal or metastatic disease* Localised disease, so bone scan and/or MRI staging not performed given that nodal or metastatic disease is unlikely.

We further explored how to handle men with limited information on metastatic and/or nodal disease (Figure 1). As a result, an additional step (Step 3) was added to the algorithm with the creation of a further category, a 'Mixed – Advanced or Locally Advanced Disease' group.

Revised risk stratification algorithm to allocate prostate cancer disease status category:	
Step 1	select all patients with a metastasis M1 (irrespective of whether or not information is available on tumour stage, Gleason grade or nodes) and label these as "**advanced disease**"
Step 2	select all M0 or MX/missing patients with positive nodes N1 (irrespective of whether or not information is available on tumour stage and Gleason grade) and label these as "**locally advanced disease**"
Step 3	select all remaining patients without information on metastatic and nodal status (MX/missing and NX/missing) with Gleason grade of 8 or above (irrespective of whether or not information on tumour stage is available) **OR** tumour stage T3 or T4 (irrespective of whether or not Gleason grade is available) and label these as a mixed group of "**advanced or locally advanced disease**"
Step 4	select all remaining patients with Gleason grade of 8 or above (irrespective of whether or not information on tumour stage is available) and label these as "**locally advanced disease**"
Step 5	select all remaining patients with tumour stage T3 or T4 (irrespective of whether or not Gleason grade is available) and label these as "**locally advanced disease**"
Step 6	select all remaining patients with tumour stage T2 and (Gleason grade 6 or 7) and label these as "**intermediate-risk localised disease**"
Step 7	select all remaining patients with tumour stage T1 and Gleason grade 7 and label these as "**intermediate-risk localised disease**"
Step 8	select all remaining patients with tumour stage T1 and Gleason 6 grade or lower and label these as "**low-risk localised disease**"
Step 9	consider all other patients as having insufficient information about disease status

Cancer treatment

A patient was considered to have undergone radical prostate cancer therapy if he was identified as having received radical prostatectomy, radical radiotherapy (either with external beam or brachytherapy based methods), high-intensity focused ultrasound (HIFU) or cryotherapy.

HES records were used to identify patients who had undergone either **radical prostatectomy**, **brachytherapy**, **HIFU** or **cryotherapy** using the following OPCS-4 procedure codes ("M61" for radical prostatectomy;"M706" + "X653" + "Y363 / M706 + "X653/ M712" +"X653" for brachytherapy; "M711" for HIFU; "M708" + "Y132" + "Y532" + "Z422"for cryotherapy). HES records also provided the procedure date. Patients were only considered to have undergone radical treatment as primary prostate cancer treatment if this procedure date was within 12 months of the diagnosis date.

Cancer Registry records were used to identify patients who had received **radical radiotherapy** using a "radiation therapy" data item. Cancer Registry records also provided the start date of the radiotherapy. Patients were only considered to have undergone radiotherapy as **primary prostate cancer treatment** if this start date was within 12 months of the diagnosis date. This definition also included some men who had radiotherapy for a palliative purpose but this proportion was small.

2.2.4 Definition of performance indicators

We previously defined six performance indicators that can be derived from Cancer Registry data linked to HES and ONS mortality relating to disease presentation, treatment allocation, and treatment outcomes (NPCA Annual Report 2014).

Disease presentation

The first two performance indicators are **the proportion of men diagnosed with advanced disease and the proportion of men diagnosed with locally advanced disease**. These indicators were chosen as they provide information on prostate cancer stage at diagnosis.

Treatment allocation to evaluate over- and under-treatment

The third indicator is the **proportion of men with low-risk localised prostate cancer undergoing radical prostate cancer therapy**. This indicator was chosen as it may provide information about the potential "overtreatment" of men with low-risk prostate cancer.

The fourth indicator was **proportion of men with locally advanced disease receiving radical prostate cancer therapy**. This indicator was chosen as it may provide information about potential "under-treatment".

Outcomes of treatment

The fifth indicator was **length of hospital stay for radical prostate cancer surgery**. Length of stay was derived from HES as the difference between the dates of admission and discharge. This indicator is being used as it may reflect the occurrence of complications of surgery in hospital. Length of in-hospital stay was considered to be "prolonged" if it was longer than 3 days.

The sixth indicator was the **proportion of patients who had an emergency readmission within 90 days of radical prostate cancer surgery.** This indicator was derived from HES admissions. Emergency readmission may reflect that patients experienced a complication after discharge from hospital.

2.3 Results

2.3.1 Completeness of information on disease status

The Cancer Registry contained data on 148,192 new cases of prostate cancer covering the period between 2010 and 2013 (Figure 2). We excluded the records of 1,186 men because the diagnosis was based only on their death certificate, 6,597 because they had no linked HES records, and 2,534 because they could not be placed within a regional Cancer Network. As a result, 137,875 men were available for analysis, of whom 89,659 (65%) had sufficient information to determine disease status. This percentage varied between Cancer Networks from 44% to 92% (Figure 3).

It is important to note that within the diagnostic period between 2010 and 2013, the completeness of information on disease status has been improving year on year (40% in 2010, 53% in 2011, 77% in 2012 and 87% in 2013).

Figure 2. Flow chart of patient inclusion

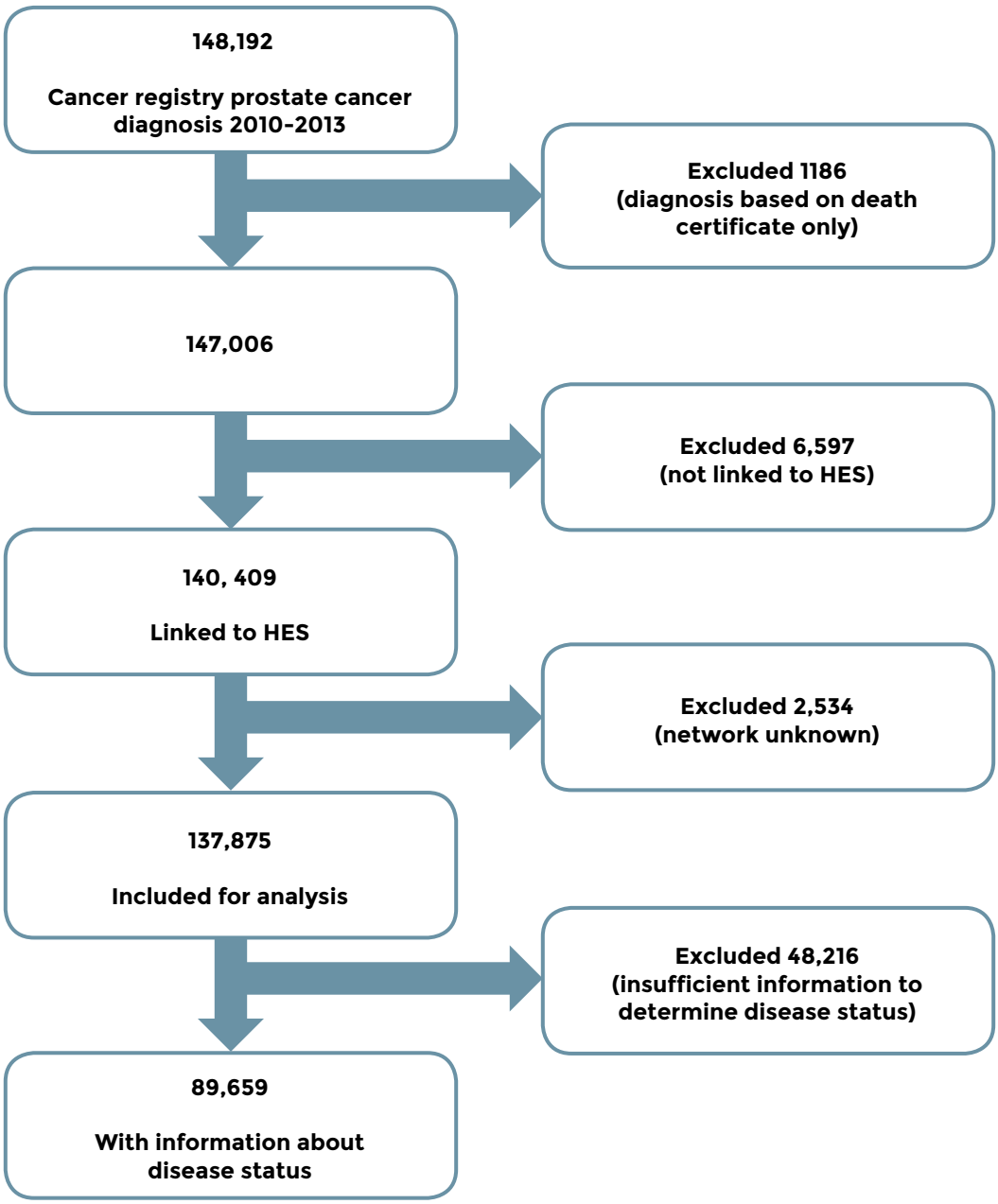
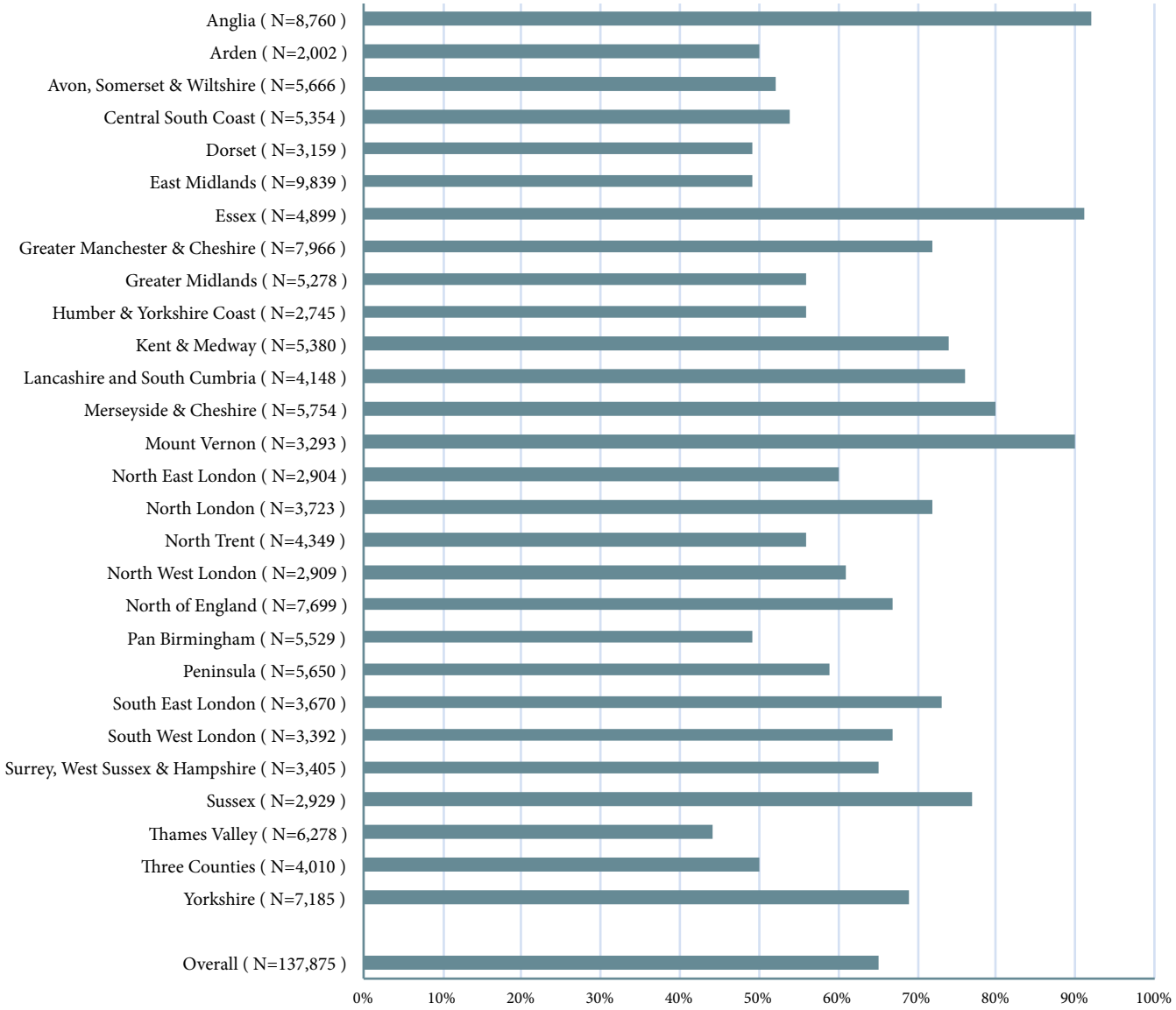


Figure 3. Proportion of patients with complete information to determine disease status (137,875 men diagnosed with prostate cancer between 2010 and 2013).



2.3.2 Patient characteristics, tumour characteristics and disease status

Of the 89,659 men newly diagnosed between 2010 and 2013 with sufficient information to determine disease, 12% were younger than 60 and 48% older than 70 years. Data on their ethnic background was available for 61,570 and 95% were recorded as having a white ethnic background (Table 1).

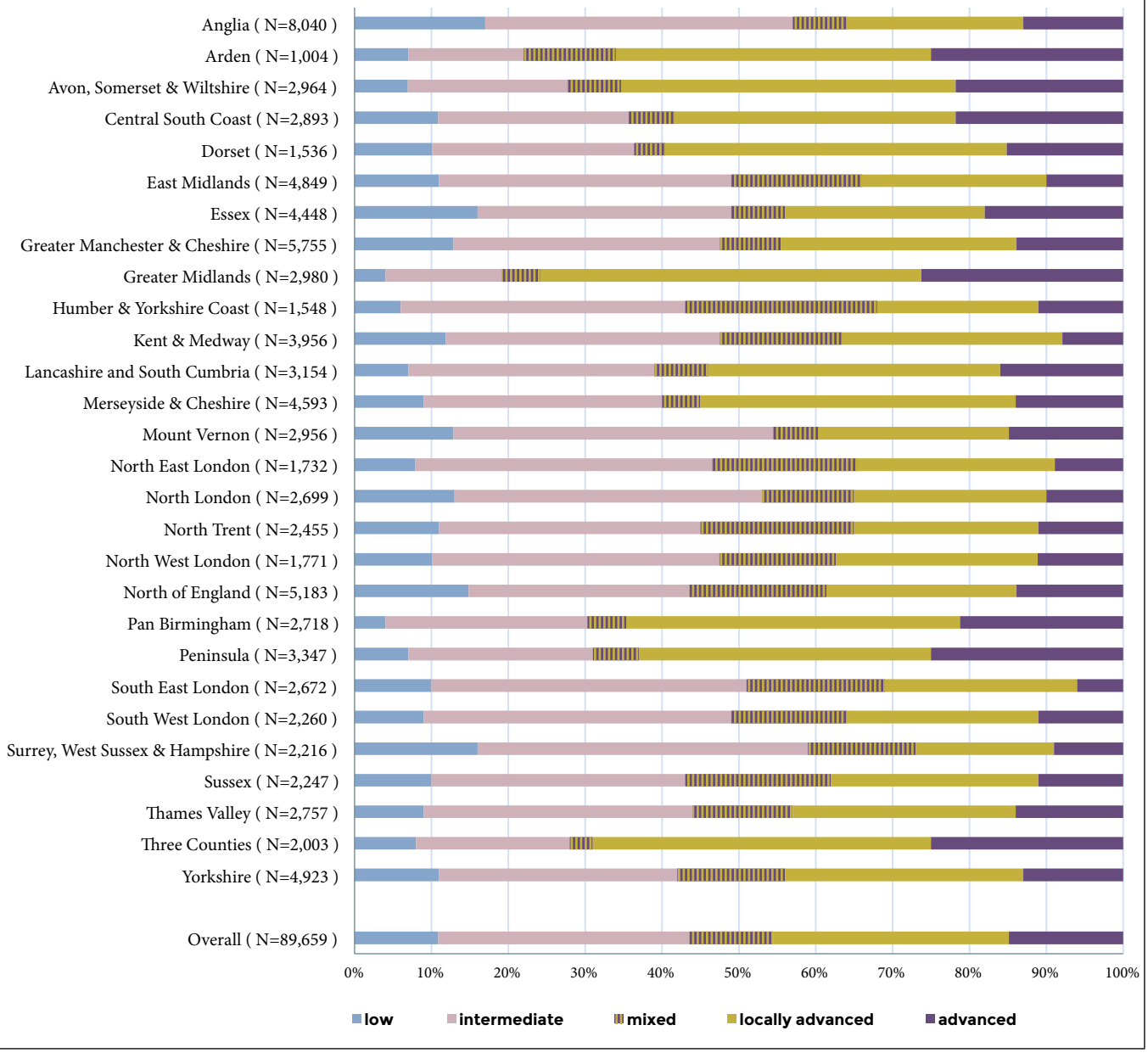
Table 1. Patient and tumour characteristics of 89,659 men diagnosed with prostate cancer between 2010 and 2013 linked to HES with sufficient information to determine disease status.

Patient characteristics		
Age	**Number of cases**	
<60	10,484	12%
60-70	35,891	40%
>70	43,284	48%
Ethnicity		
White	58,335	95%
Mixed	216	<1%
Asian	857	1%
Black	1,713	3%
Other	449	<1%
Missing	28,089 (31%)	
Tumour Characteristics		
Disease status		
Low-risk	9,845	11%
Intermediate-risk	29,389	33%
Mixed: Locally advanced or advanced	9,764	11%
Locally advanced	27,559	31%
Advanced	13,102	15%
Tumour Stage		
T1	19,013	24%
T2	29,295	37%
T3	27,055	34%
T4	3,912	5%
Missing or X	10,384 (12%)	
Nodes		
0	48,294	88%
1	6,297	12%
Missing or X	35,068 (39%)	
Metastasis		
0	49,055	79%
1	13,102	21%
Missing or X	27,502 (31%)	
Gleason Score		
≤6	19,993	27%
7	31,557	43%
≥8	21,629	30%
Missing	16,540 (18%)	

Of the 90% of men with available information on tumour characteristics, 24% were diagnosed with T1, 36% T2, 34% with T3, and 5% with T4; 7% were recorded to have positive lymph nodes and 10% metastatic disease. 20% of men had a Gleason score ≤6 and 15% a Gleason score ≥8.

The overall distribution of disease status by Cancer Network is shown in Figure 4.

Figure 4. Prostate cancer disease status distribution by Cancer Network (89,659 men diagnosed with prostate cancer between 2010 and 2013 with sufficient information to determine disease status).



2.3.3 Performance indicators 1 and 2: proportion of men diagnosed with locally advanced disease and proportion of patients diagnosed with advanced disease

The proportion of men who could be identified as having locally advanced cancer and advanced disease at the time of diagnosis varied between the Cancer Networks (Figure 5). Overall, 31% of men could be identified as having locally advanced disease (ranging from 18% to 49% between Cancer Networks) and 15% as having advanced disease (ranging from 6% to 26%).

However, with the current completeness of information on disease status these percentages are difficult to interpret, because 11% of men (ranging from 3% to 25% across the Cancer Networks) could only be placed in a 'mixed group', including men with locally advanced or advanced disease.

2.3.4 Performance indicator 3: proportion of men with low-risk localised cancer undergoing radical prostate cancer treatment

Overall, 13% of men (ranging from 4% to 25% across Cancer Networks) diagnosed with low-risk prostate cancer between 2010 and 2013 underwent radical prostate cancer therapy within 12 months of their diagnosis (Figure 6).

The majority of men undergoing radical treatment had radiotherapy, either external beam radiation therapy (EBRT, 5% of men with low-risk disease, ranging from <1% to 12%) or brachytherapy (5%, ranging from 0% to 19%) and 3% (ranging from 0% to 7%) radical prostatectomy.

Very few patients received HIFU or cryotherapy (<1%).

Figure 5. Proportion of patients with locally advanced and advanced prostate cancer, in addition to the mixed group, at time of diagnosis by Cancer Network (89,659 men diagnosed with prostate cancer between 2010 and 2013 with sufficient information to determine disease status).

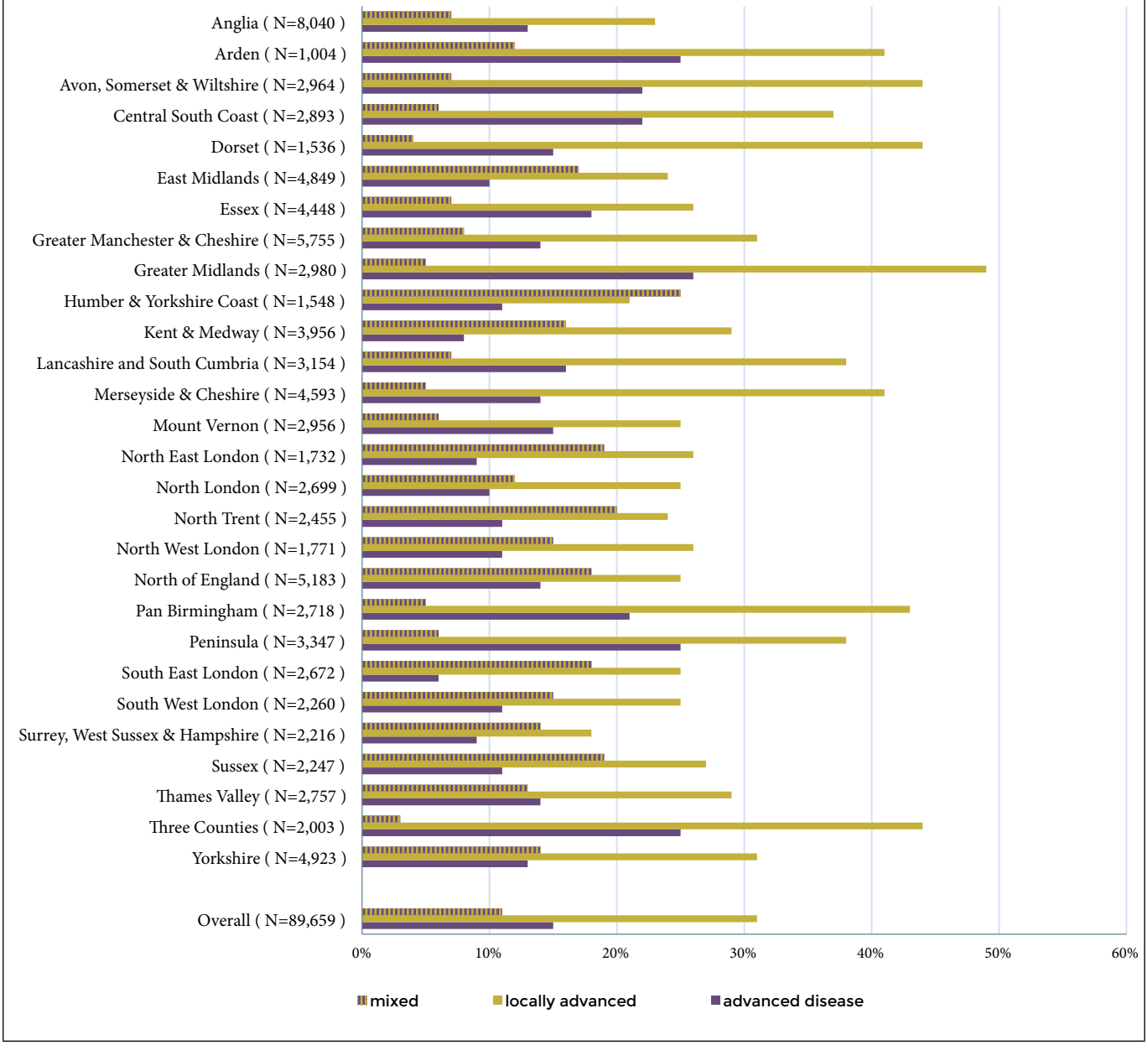
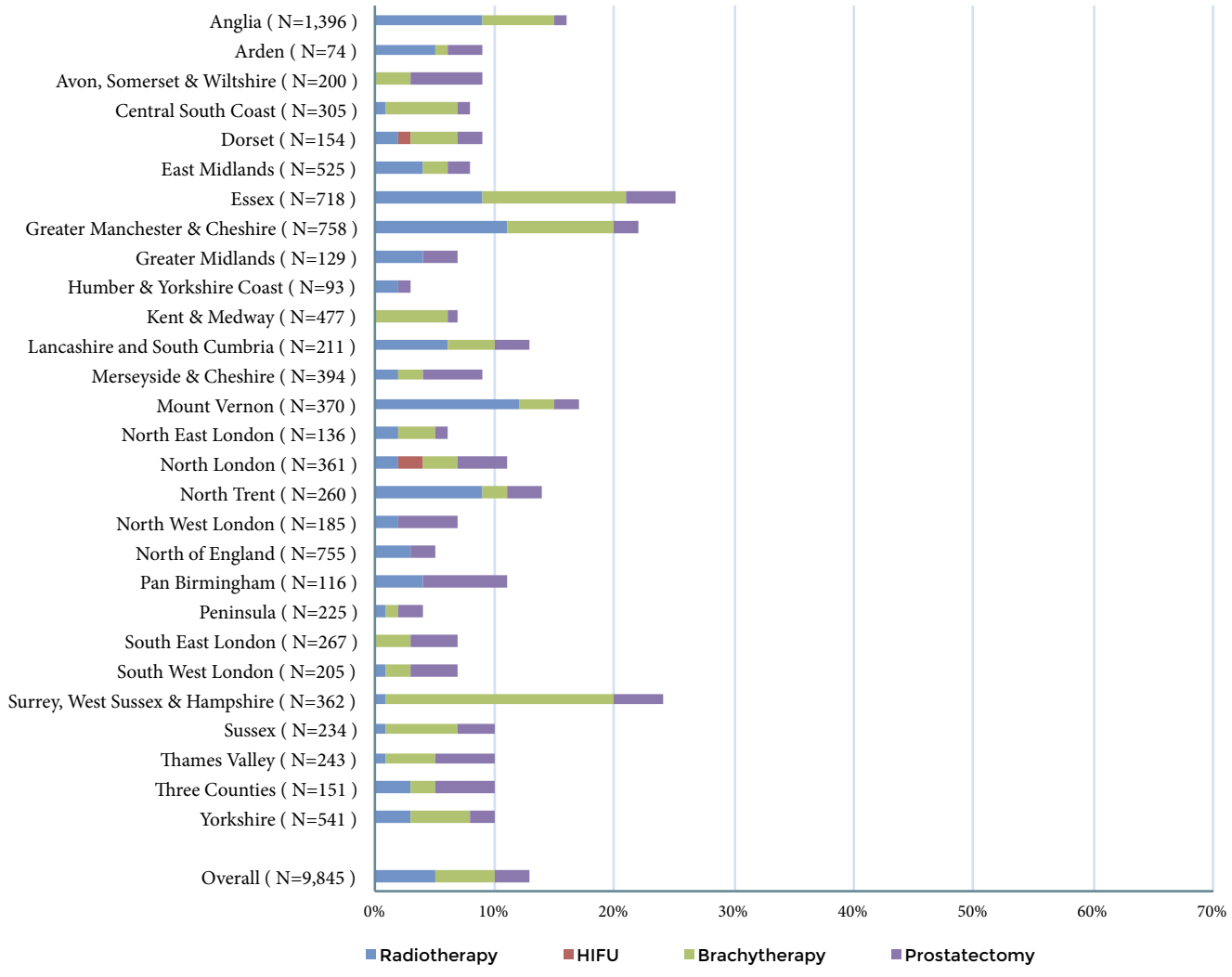


Figure 6. Proportion of patients with low-risk risk localised prostate cancer undergoing radical prostate cancer therapy (9,845 men diagnosed between 2010 and 2013).

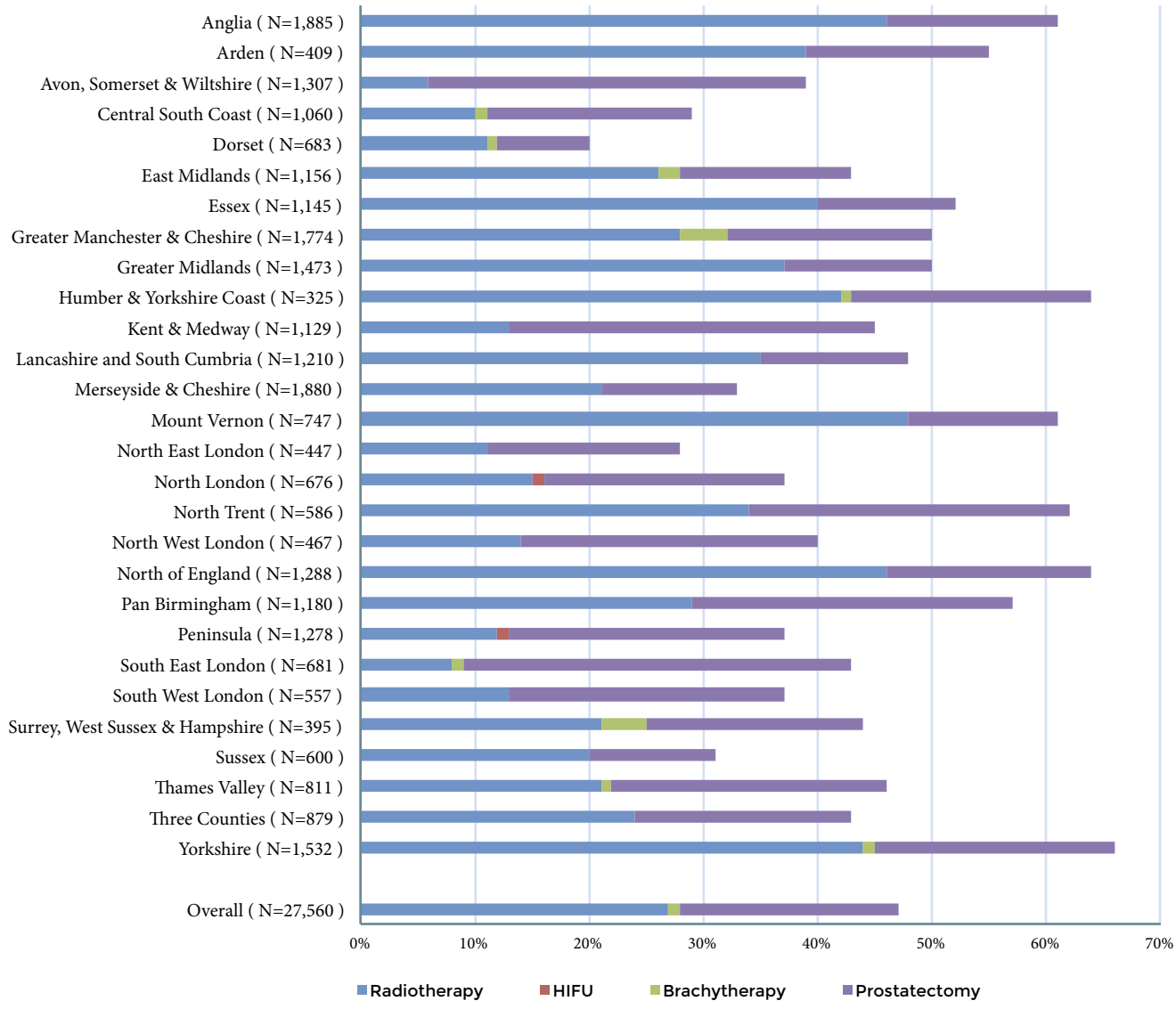


2.3.5 Performance indicator 4: proportion of men with locally advanced disease undergoing radical prostate cancer treatment

47% of men (ranging from 19% to 65% among Cancer Networks) diagnosed with locally advanced prostate cancer underwent some form of radical therapy within 12 months of diagnosis: 27% had external beam radiation therapy and 19% radical prostatectomy (Figure 7).

Brachytherapy (<1%) and HIFU (<1%) were rarely used.

Figure 7. Proportion of patients with locally advanced prostate cancer undergoing radical prostate cancer therapy (27,560 men diagnosed between 2010 and 2013).



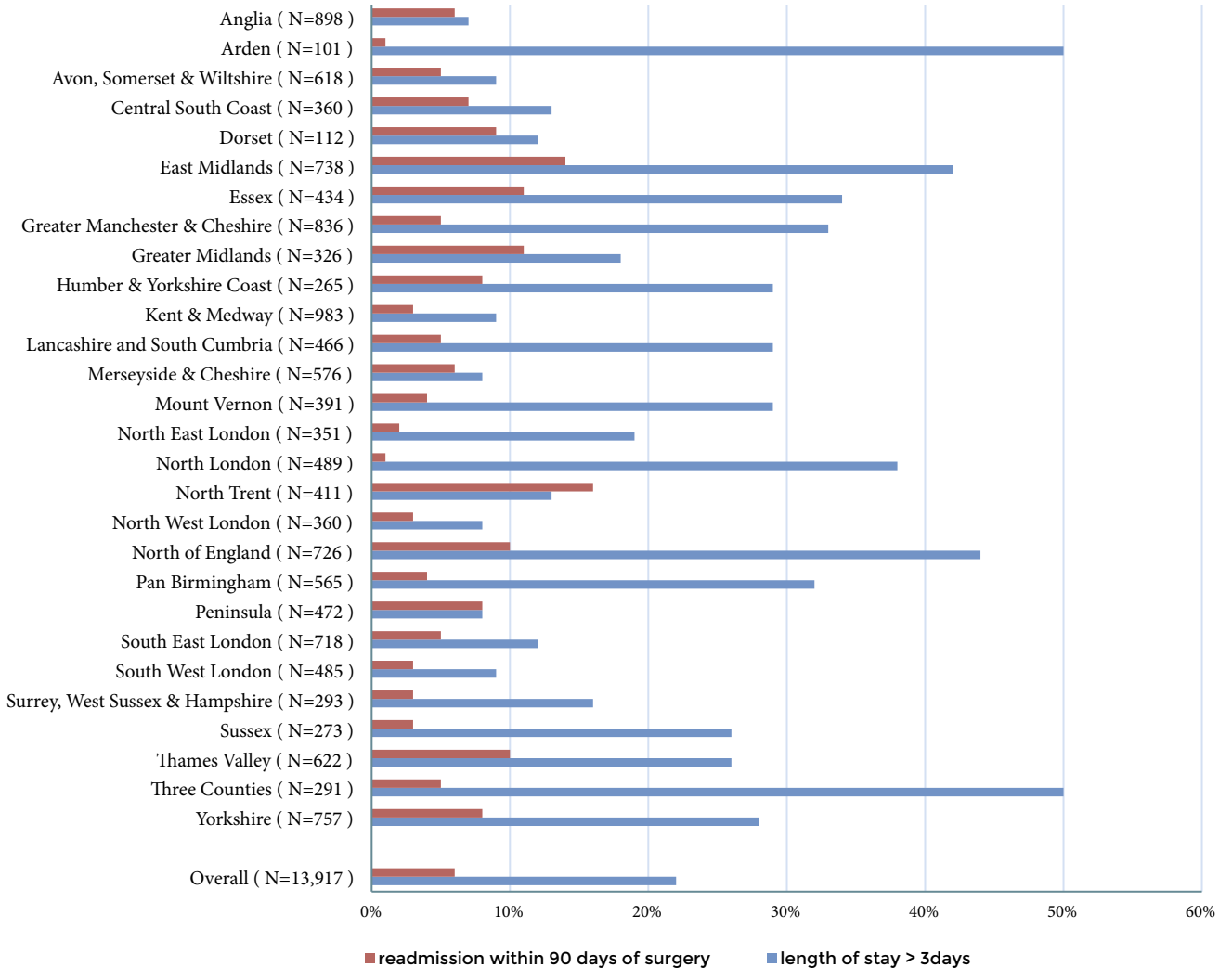
2.3.6 Performance indicator 5: Proportion of patients with a length of hospital stay for radical prostate cancer surgery longer than 3 days

Overall, 22% of the patients newly diagnosed between 2010 and 2013 who underwent a radical prostatectomy stayed longer than 3 days in hospitals (Figure 8). This proportion varied greatly between Cancer Networks from 7% to 49% (Figure 8).

2.3.7 Performance indicator 6: Proportion of patients readmitted as an emergency within 90 days of radical prostate cancer surgery

The emergency readmission rate within 90 days after radical surgery was 6%, ranging from 3% to 16% across Cancer Networks (Figure 8).

Figure 8. Proportion of patients with a length of hospital stay after radical prostate cancer surgery longer than 3 days (13,917 men diagnosed between 2010 and 2013).



2.4 Discussion

This chapter describes an analysis of the most recently available English Cancer Registry data linked to HES. For patients diagnosed between 2010 and 2013, we present the completeness of disease status based on an updated risk stratification algorithm, and key findings based on six performance indicators.

2.4.1 Trends over time

Compared to the results for men diagnosed between 2006 and 2008 presented in the NPCA's 2014 Annual Report, we observed an **increase in the completeness of information on disease status** from 43% for men diagnosed between 2006 and 2008 to 65% for men diagnosed between 2010 and 2013.

There is also an indication that **fewer men were being diagnosed with advanced disease**. 57% of men diagnosed between 2010 and 2013 were diagnosed with locally advanced or advanced disease compared to 67% of men diagnosed between 2006 and 2008. As explained in 2.3.3, we cannot directly compare the percentages of men with locally advanced and advanced disease between the two time periods because we have introduced a new stratification algorithm that includes a 'mixed group with men who have either locally advanced or advanced disease.

The **percentage of men with low-risk disease who have radical treatment diagnosed is clearly going down**: it was 28% in men with low-risk disease diagnosed between 2006 and 2008 and 13% in men diagnosed between 2010 and 2013. On the other hand, the **percentage of men with locally advanced disease who have radical treatment is going up** from 27% in those diagnosed between 2006 and 2008 to 47% in those diagnosed between 2010 and 2013. At the same time, **there is a considerable reduction in the length of stay after radical prostatectomy**: 53% of men diagnosed between 2006 and 2008 stayed longer than 3 days in hospital after a radical prostatectomy and only 22% of men diagnosed between 2010 and 2013.

2.4.2 Variation between Cancer Networks

As explained in 2.1, we present our results at Cancer Network level despite these having been abolished in April 2013, because this level of presentation enables a comparison of our most recent results with men diagnosed in earlier periods. Also, the current organisation of prostate cancer services still follows largely the same regional structures.

We found **marked differences in the completeness of information on disease status among Cancer Networks** in men diagnosed between 2010 and 2013 with some achieving a level of completeness of 90% or more. This may reflect differences in registration practice among the eight Cancer Registration areas. However, the boundaries of the Cancer Networks are not 'co-terminus' with those of the Cancer Registration areas, so further work needs to be done to explore the relative impact of differences in cancer data collection in the hospitals and coding practice in the regional Cancer Registry offices. **Given the marked increase in data completion** that we observed between 2010 and 2013 (the completeness of disease status increased from 40% in men diagnosed in 2010 to 87% in men diagnosed in 2013), **these regional differences should rapidly become a negligible issue.**

We found **differences across Cancer Networks in the percentage of patients diagnosed with low-risk localised prostate cancer and (locally) advanced disease**. This may **reflect regional differences in PSA use for screening**. However, it may also be an effect of **differences in the practice of diagnosing and staging patients with advanced (metastatic) disease**.

There is a **considerable variation across Cancer Networks in the percentage of men receiving different modalities of radical treatment, especially among those with locally advanced disease**. This may reflect differences in the patients' fitness for treatment, the availability of treatment modalities, and clinicians' skills and preferences within each Cancer Network. For example, brachytherapy is not available in every Network. Also, there is also variation across Cancer Networks in **type of radical treatment men with locally advanced disease receive** which may be a reflection of the differences in the speed with which current guidance about the management of this patient group has been taken up.

2.4.3 Methodological considerations

Our results also highlight a number of methodological issues that the NPCA will need to address. First, **tumour stage was identified in some patients who had undergone radical prostatectomy using the prostate tissue that was surgically removed** (T-PATH) which may produce a more advanced disease status than when only tissue from the pre-treatment biopsy is available. This is important as it will bias comparisons of patients who had radical prostatectomy and those who had external beam radiation therapy: it will make outcomes of prostatectomy look more favourable than those of radiation therapy if disease status is taken into account.

Second, **serum PSA levels were not available** in the existing data for men diagnosed between 2010 and 2013. This implies that our estimate of radical treatment in men with low-risk disease is likely to be an overestimate as some patients in this disease group would have been assigned a higher disease status on account of their PSA level.

Third, **our algorithm to group patients according to their disease status is based on a number of assumptions** that cannot be readily tested (see Figure 1). Even with these assumptions, we could not always distinguish between men with locally advanced and with advanced prostate cancer. It is important to highlight in this context that this deficiency in grouping men according to disease status will be less important for the NPCA's prospective audit because the completeness of information on disease status information is rapidly increasing.

2.4.4 Implications for practice

Our results demonstrate that clinical practice is gradually falling in line with current recommendations which advocate that patients with low-risk disease are offered active surveillance – in order to avoid over-treatment – and those with locally advanced disease are offered radical treatment – in order to avoid under-treatment.

However, we observed that there was considerable regional variation in the treatment of men with locally advanced disease. As discussed above, this variation may partly reflect the problems in identifying men who had radical treatments and partly differences in actual treatment. Given that the treatment of this patient group is one of the NPCA's targets, collecting complete and accurate treatment data in this group will need to be one of the priorities for the NPCA's prospective audit.

The regional variation observed in patients diagnosed between 2010 and 2013 is presented by Cancer Networks, the organisational structure that was in place in England for most of that period. The NPCA will report by specialist MDT for English patients newly diagnosed from 1 April 2014 who will be included in the NPCA Prospective Audit. Similarly, a relevant regional reporting framework will be developed in Wales.

3. The diagnosis and staging of prostate cancer and planning of initial treatments in England: preliminary results from the NPCA Prospective Audit

3.1 Introduction

The NPCA's prospective audit was designed to address two specific areas of concern related to the quality of prostate cancer services and the care provided to men in England and Wales. Firstly, the management of patients with low-risk disease ('are we over-treating patients that could be appropriately managed by active surveillance?'), in addition to the availability and provision of multimodality therapy for patients with more advanced disease ('are we under-treating patients with locally advanced or high-risk disease?').

NPCA prospective audit data collection in England

The NPCA prospective audit started on the 1st April 2014 in England and collects data necessary to answer questions related to:

- The characteristics of all men with newly diagnosed prostate cancer, how their cancer was detected, and the referral pathway.
- The crucial steps in the diagnostic and staging process.
- The planning of initial treatment (e.g. active monitoring/surveillance, surgery, radiotherapy, hormonal therapy, and novel treatments including cryotherapy and HIFU).
- Initial radical surgical treatments received.
- Details of *planned* radical radiotherapy including external beam radiation (EBRT) or brachytherapy with or without androgen deprivation therapy (planned details captured as it may take some months of neoadjuvant hormone therapy following diagnosis before radiotherapy will start).

In this chapter, we explore data collection during the first four months' of the NPCA prospective audit. We report on the participation of NHS providers, and the completeness and quality of the NPCA data submitted to the NCRS, the NPCA data collection partner, as part of the mandated routine monthly flow of Cancer Outcomes Services Data. In addition, we present the first preliminary results including information on patients diagnosed with prostate cancer between 1 April 2014 and 31 July 2014, the diagnostic and staging process they underwent, initial planned treatments and type of radical surgery.

In the next NPCA Annual Report we aim to present details of actual radical radiotherapy treatments received by linking to the Radiotherapy Dataset, once these data are routinely available via the NCRS. Patients with intermediate and high-risk prostate cancer may receive up to 6 months of androgen deprivation therapy before EBRT and this treatment information is unavailable within the current reporting period.[9] The NPCA will also provide detail on early complications by linking to HES, short-term survival by linking to ONS data, in addition to patients' views of their treatments and care, their outcomes and quality of life post-radical treatment by linking to data obtained from the NPCA PROMs and PREMs.

NPCA prospective audit data collection in Wales

Following inclusion of the NPCA in the Welsh Governments 'NHS Wales National Clinical Audit and Outcome Review Plan – Annual Rolling Programme from 2014/15', which lists all the National Clinical Audits which Local Health Boards and Trusts in Wales are expected to participate in, software development changes to the National Cancer Network Information System Cymru (CaNISC) were implemented to support the audit. NPCA data collection from every man newly diagnosed with prostate cancer started on the 1 April 2015. The results from the prospective audit in Wales will also be published in the NPCA's third annual report.

3.2 Methods

3.2.1 Inclusion criteria

Patients are eligible for inclusion in the prospective audit if they are newly diagnosed with an ICD-10 diagnostic code of C61 (malignant neoplasm of the prostate) in England from 1 April 2014.

3.2.2 Data collection

The NPCA is the first national cancer audit to work with the NCRS as data collection partner, which collects patient-level data from all NHS acute providers and from a range of national data feeds. This includes the Cancer Outcomes and Services Dataset (COSD), which specifies the data items to be submitted routinely by service providers via MDT electronic data collection systems to the NCRS on a monthly basis, for example clinically-relevant site-specific data items.

The mechanism for collection and submission of prospective data for the NPCA is the same as the one in place within each Trust for COSD. Data are collected during or shortly after meetings of the MDT, which are subsequently exported from MDT software systems and submitted directly to regional NCRS offices along with each Trust's routine COSD submission on a monthly basis.

[9] NICE, 2014. Prostate cancer: diagnosis and treatment.

3.2.3 NPCA dataset: first year of the NPCA prospective audit

The audit collects data on the diagnosis, management and treatment of every patient newly diagnosed with prostate cancer and discussed at a MDT meeting in England from the 1st April 2014. The NPCA dataset comprises three broad categories:

1. NPCA Minimum data set 1: The first category of data items are collected for **all men with newly diagnosed prostate cancer** during the initial phase of management.

2. NPCA Minimum data set 2: The second category of data items are collected for all patients who have **undergone radical prostatectomy**.

3. NPCA Minimum data set 3: The third category of data items are collected for **all men for whom external beam radiation therapy or brachytherapy, is planned with or without hormone deprivation therapy**.

A summary of the NPCA dataset collected for patients diagnosed between 1 April 2014 and 31st March 2015 is shown in Appendix 1. The majority of these data items are part of the COSD dataset (n = 29). Minor changes to the dataset have been implemented for patients diagnosed from the 1st April 2015. Details of these changes and the current dataset specification and data dictionary are published on the NPCA website.[10]

3.2.4 Prospective audit period

The data collection period reported here includes men diagnosed between 1st April 2014 and the 31st July 2014. NHS Trusts were provided with an initial cut-off date for the annual report (6th March 2015) to enable Trusts to ensure that data submissions for the diagnostic period were as complete as possible. In recognition of the delay experienced by some Trusts regarding the implementation of updates to their IT data collection systems, the cut-off date was extended to the 31st May 2015.

The data collection period corresponding to the first four months of the audit, represents the most extensive diagnostic data extract available to the NPCA Project Team for the analysis and preparation of this annual report in keeping with HQIP's publication timeframe.

3.2.5 Level of reporting

It is recommended that the care of patients eligible for radical prostate cancer treatments should be coordinated by specialist MDTs.[11] These hubs are made up of one or more specialist cancer centres coordinating services for referring local Trust MDTs.

The arrangement of NHS Providers, both local and specialist MDTs, and the range of services they provide for the staging and management of prostate cancer was determined by the NPCA Organisational Audit. All data presented in this chapter are reported at specialist MDT level. An overview of the organisation of prostate cancer services and the Trusts that host specialist MDTs have previously been reported by the NPCA.[12] Data for local Trust MDTs can be found in Appendix 2.

[10] http://www.npca.org.uk/audit-tools/

[11] NICE 2002. Improving outcomes in urological cancer.

[12] http://www.npca.org.uk/reports/

3.2.6 Patient inclusion and case ascertainment

A patient is considered to be included in the NPCA if at least one staging data item has been submitted for this patient. A Trust was considered to be participating in the NPCA if they submitted an NPCA record for at least 5 such patients.

The expected number of cases was estimated at Trust level as one third of the number of prostate cancer cases in the cancer registration dataset for 2013. Case ascertainment by Trusts and specialist MDTs was defined as the proportion of the expected number of patients for whom an NPCA record was submitted containing at least one tumour staging data item recorded.

3.2.7 Definition of disease status and disease risk stratification

Cancer stage was defined using 'T category (final pre-treatment)', 'N category (final pre-treatment)' and 'M category (final pre-treatment).' Where final pre-treatment information was missing for T or N, the corresponding pathological staging items were used if available. All men with staging information were assigned to a prostate cancer disease status category according to their cancer stage, 'Gleason score of biopsy' and PSA utilising a modified version of the risk stratification algorithm previously developed by the NPCA (section 2.2.3).

The risk stratification algorithm previously developed and described in chapter 2 was further adjusted to incorporate 'PSA level at diagnosis' and a disease status category was allocated using the following steps:	
Step 1	select all patients with a metastasis M1 (irrespective of whether or not information is available on tumour stage, Gleason grade or nodes) and label these as "**advanced disease**"
Step 2	select all remaining patients with positive nodes N1 (irrespective of whether or not information is available on tumour stage and Gleason grade) and label these as "**locally advanced disease**"
Step 3	select all remaining patients without information on metastatic and nodal status (MX/missing and NX/missing) with Gleason grade of 8 or above (irrespective of whether or not information on tumour stage is available) **OR** tumour stage T3 or T4 (irrespective of whether or not Gleason grade is available) **OR** PSA >20 and label these as a mixed group of "**advanced or locally advanced disease**"
Step 4	select all remaining patients with PSA>20 and label these as "**locally advanced disease**"
Step 5	select all remaining patients with Gleason grade of 8 or above (irrespective of whether or not information on tumour stage is available) and label these as "**locally advanced disease**"
Step 6	select all remaining patients with tumour stage T3 or T4 (irrespective of whether or not Gleason grade is available) and label these as "**locally advanced disease**"
Step 7	select all remaining patients with PSA ≥10 & PSA≤20 and label these as "**intermediate-risk localised disease**"
Step 8	select all remaining patients with tumour stage T2 and (Gleason grade 6 or 7) and label these as "**intermediate-risk localised disease**"
Step 9	select all remaining patients with tumour stage T1 and Gleason grade 7 and label these as "**intermediate-risk localised disease**"
Step 10	select all remaining patients with tumour stage T1 and Gleason 6 grade or lower and label these as "**low-risk localised disease**"
Step 11	consider all other patients as having insufficient information about disease status

3.3 Audit participation and case-ascertainment

3.3.1 Participation

Prostate cancer services are provided at 142 NHS Trusts in England, 48 of which are specialist MDTs. By the extended deadline for the submission for this report 31 May 2015, an NPCA record had been submitted by 136 NHS Trusts (Appendix 2). Six Trusts did not submit any data, two of which are tertiary centres mainly providing oncological treatment for prostate cancer and the third is a specialist MDT site.

125 Trusts (88%) were considered to have supplied sufficient information to fulfil the NPCA participation criteria (at least one staging data item for at least 5 patients; Appendix 2).

3.3.2 Case-ascertainment

Based on the number of prostate cancer patient diagnosed in 2013 according to the NCRS, the NPCA expected that 13,314 prostate cancer patients would be diagnosed in England between 1st April 2014 and 31st July 2014. The NPCA received at least one staging data item for 7,495 patients and the case-ascertainment was therefore 56%. However, there was considerable variation in the case ascertainment amongst the specialist MDTs (Table 2) and Trusts (Appendix 2). There was marked variation in the case-ascertainment across specialist MDTs (Table 2) and Trusts (Appendix 2). Less than half of specialist MDTs (n = 18) achieved a case-ascertainment rate of ≥70% of patients.

Case ascertainment was found to exceed 100% for some specialist MDTs. As case ascertainment is based on the annual incidence in the previous year, any changes in the organisation of prostate cancer in a particular region, for example Trust mergers or changes to local Trust reporting within specialist MDTs hubs may impact on the estimated number of cases.

Table 2. Estimated case-ascertainment rates for the 48 specialist MDTs in England coordinating prostate cancer services over the period 1 April 2014 and 31 July 2014. Case-ascertainment ≥ 70% highlighted.

Specialist MDT	Expected cases	No. patients with NPCA record	No. patients with ≥1 TNM	Case ascertainment: % expected cases with NPCA record and ≥1 TNM
Overall	**13314**	**12305**	**7495**	**56%**
Barking, Havering and Redbridge Hospitals NHS Trust	94	81	68	72%
Barts Health NHS Trust	161	131	80	50%
Bradford Teaching Hospitals NHS Foundation Trust	224	193	44	20%
Brighton and Sussex University Hospitals NHS Trust	345	484	295	86%
Cambridge University Hospitals NHS Foundation Trust	676	469	359	53%
Central Manchester University Hospitals NHS Foundation Trust	213	201	177	83%
City Hospitals Sunderland NHS Foundation Trust	218	191	179	82%
Colchester Hospital University NHS Foundation Trust	385	386	223	58%
Derby Hospitals NHS Foundation Trust	267	221	139	52%
East and North Hertfordshire NHS Trust	314	266	144	46%
East Kent Hospitals NHS Trust	247	189	108	44%
Gloucestershire Hospitals NHS Foundation Trust	371	337	217	58%
Guy's and St Thomas' NHS Foundation Trust	344	235	89	26%
Heart of England NHS Foundation Trust	281	197	90	32%
Hull and East Yorkshire Hospitals NHS Trust	398	322	206	52%
Imperial College Healthcare NHS Trust	290	281	220	76%
Lancashire Teaching Hospitals NHS Foundation Trust	383	401	341	89%
Leeds Teaching Hospitals NHS Trust	227	194	51	22%
Medway NHS Foundation Trust	357	278	258	72%
Newcastle Upon Tyne Hospitals NHS Trust	340	351	174	51%
Norfolk and Norwich University Hospital NHS Trust	290	256	96	33%
North Bristol NHS Trust	405	514	349	86%
Northampton General Hospital NHS Trust	154	159	141	92%
Nottingham University Hospitals NHS Trust	194	190	91	47%
Oxford University Hospitals NHS Trust	355	256	48	14%
Plymouth Hospitals NHS Trust	194	239	200	>100%
Portsmouth Hospitals NHS Trust	221	167	96	43%
Princess Alexandra Hospital NHS Trust	199	185	56	28%
Royal Berkshire NHS Foundation Trust	213	178	44	21%
Royal Devon and Exeter NHS Foundation Trust	374	414	381	>100%
The Royal Liverpool and Broadgreen University Hospitals NHS Trust	276	251	167	61%
Royal Surrey County Hospital NHS Trust	416	525	195	47%
Salford Royal Hospitals NHS Foundation Trust	168	151	121	72%
Sheffield Teaching Hospitals NHS Foundation Trust	469	379	344	73%
South Tees Hospitals NHS Trust	230	200	128	56%
Stockport NHS Foundation Trust	269	226	92	34%
The Christie Hospital NHS Trust	49	128	112	>100%
The Mid Yorkshire Hospitals NHS Trust	134	99	99	74%
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	299	292	124	41%
The Royal Marsden NHS Foundation Trust	321	316	248	77%
University College London Hospitals NHS Foundation Trust	190	143	89	47%
University Hospital of South Manchester NHS Foundation Trust	54	14	4	7%
University Hospital Birmingham NHS Foundation Trust	181	324	165	91%
University Hospitals Coventry and Warwickshire NHS Trust	201	113	58	29%
University Hospital of North Midlands (WAS University of North Staffordshire NHS Trust)	475	472	199	42%
University Hospitals of Leicester NHS Trust	362	294	31	9%
University Hospital Southampton NHS Trust	227	165	132	58%
Wirral University Teaching Hospital NHS Foundation Trust	259	247	223	86%

3.3.3 Data quality of submitted data

This section provides an indication of the quality of data submitted to the NPCA by examining the level of completeness for six key data items including the percentage of patients with performance status, American Society of Anaesthesiologists (ASA) score, PSA, Gleason score and TNM staging information at diagnosis, in addition to at least one planned prostate cancer treatment. The level of completeness for the six key data items varied markedly between NHS Trusts and specialist MDTs (Appendix 2 and Table 3). The extent of missing data across a wider range of NPCA data items is presented in Tables 4-8 and Appendix 3).

Completeness of data items to determine patients overall physical condition and presence of comorbidities

Performance status and ASA score were poorly completed (specialist MDT completion overall was 38% and 34%, respectively). 21 specialist MDTs submitted a performance score for less than 30% of patients and 4 specialist MDTs did not submit data for any patients. 22 sMDTs recorded an ASA score for less than 30% of patients and 4 specialist MDTs did not collect this data item.

Performance status provides an indication of a patient's overall physical and functional condition and ASA grade provides a measure of co-existent morbidity. These data items are important determinants of treatment decision-making. Without these data items it is not possible to appropriately risk-adjust patient outcomes following treatment.

Completeness of data items to determine patients disease status and initial treatments

There was also marked variation in the completeness of information to determine disease status (Table 3). Overall PSA level and Gleason score were complete for 72% and 67% of patients, respectively. PSA level and Gleason score were recorded for ≤30% of patients by 5 and 3 specialist MDTs, respectively. Overall TNM completeness was 53%. 8 specialist MDTs had complete TMN for ≤30% of their patients.

Completeness of planned treatments agreed at MDT

At least one planned treatment was recorded for 53% of patients overall with 17 specialist MDTs submitting this data for more than 70% of patients. Completeness varied by specialist MDT. 14 specialist MDTs completed this item for less than 30% of their patients including 4 that did not enter a single planned treatment for any patient.

Table 3. Overview of data completeness for selected data items in the NPCA record by specialist MDTs in England over the period 1 April 2014 and 31 July 2014.

Specialist MDTs completing PSA, Gleason and TNM for ≥50% patients are highlighted in light blue.
Specialist MDTs also completing ASA and performance status for ≥50% patients are highlighted in pink.

Specialist MDT	No. patients with NPCA record	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason score completed N(%)	TNM completed* N(%)	At least one planned treatment recorded N(%)
Overall	12305	4702 (38%)	4195 (34%)	8914 (72%)	8267 (67%)	6537 (53%)	6489 (53%)
Barking, Havering and Redbridge Hospitals NHS Trust	81	10 (12%)	11 (14%)	65 (80%)	61 (75%)	65 (80%)	31 (38%)
Barts Health NHS Trust	131	19 (15%)	25 (19%)	44 (34%)	99 (76%)	78 (60%)	19 (15%)
Bradford Teaching Hospitals NHS Foundation Trust	193	76 (39%)	72 (37%)	181 (94%)	154 (80%)	13 (7%)	67 (35%)
Brighton and Sussex University Hospitals NHS Trust	484	187 (39%)	10 (2%)	339 (70%)	293 (61%)	272 (56%)	212 (44%)
Cambridge University Hospitals NHS Foundation Trust	469	250 (53%)	173 (37%)	456 (97%)	354 (75%)	317 (68%)	420 (90%)
Central Manchester University Hospitals NHS Foundation Trust	201	158 (79%)	24 (12%)	188 (94%)	163 (81%)	175 (87%)	121 (60%)
City Hospitals Sunderland NHS Foundation Trust	191	189 (99%)	160 (84%)	169 (88%)	121 (63%)	172 (90%)	191 (100%)
Colchester Hospital University NHS Foundation Trust	386	7 (2%)	58 (15%)	300 (78%)	261 (68%)	218 (56%)	194 (50%)
Derby Hospitals NHS Foundation Trust	221	101 (46%)	90 (41%)	145 (66%)	157 (71%)	96 (43%)	164 (74%)
East and North Hertfordshire NHS Trust	266	104 (39%)	170 (64%)	237 (89%)	106 (40%)	127 (48%)	240 (90%)
East Kent Hospitals NHS Trust	189	80 (42%)	0	1 (1%)	121 (64%)	91 (48%)	0
Gloucestershire Hospitals NHS Foundation Trust	337	239 (71%)	262 (78%)	306 (91%)	201 (60%)	213 (63%)	305 (91%)
Guy's and St Thomas' NHS Foundation Trust	235	101 (43%)	85 (36%)	137 (58%)	121 (51%)	84 (36%)	50 (21%)
Heart of England NHS Foundation Trust	197	9 (5%)	177 (90%)	186 (94%)	182 (92%)	39 (20%)	184 (93%)
Hull and East Yorkshire Hospitals NHS Trust	322	203 (63%)	215 (67%)	297 (92%)	235 (73%)	183 (57%)	184 (57%)
Imperial College Healthcare NHS Trust	281	128 (46%)	136 (48%)	267 (95%)	226 (80%)	203 (72%)	242 (86%)
Lancashire Teaching Hospitals NHS Foundation Trust	401	300 (75%)	160 (40%)	374 (93%)	345 (86%)	334 (83%)	335 (84%)
Leeds Teaching Hospitals NHS Trust	194	2 (1%)	37 (19%)	41 (21%)	133 (69%)	43 (22%)	113 (58%)
Medway NHS Foundation Trust	278	263 (95%)	216 (78%)	199 (72%)	237 (85%)	255 (92%)	118 (42%)
Newcastle Upon Tyne Hospitals NHS Trust	351	58 (17%)	107 (30%)	240 (68%)	255 (73%)	115 (33%)	136 (39%)
Norfolk and Norwich University Hospital NHS Trust	256	197 (77%)	114 (45%)	249 (97%)	209 (82%)	77 (30%)	140 (55%)
North Bristol NHS Trust	514	129 (25%)	91 (18%)	388 (75%)	353 (69%)	322 (63%)	237 (46%)
Northampton General Hospital NHS Trust	159	75 (47%)	59 (37%)	156 (98%)	138 (87%)	132 (83%)	123 (77%)
Nottingham University Hospitals NHS Trust	190	0	6 (3%)	172 (91%)	103 (54%)	74 (39%)	64 (34%)
Oxford University Hospitals NHS Trust	256	51 (20%)	136 (53%)	151 (59%)	99 (39%)	38 (15%)	188 (73%)
Plymouth Hospitals NHS Trust	239	20 (8%)	13 (5%)	224 (94%)	166 (69%)	166 (69%)	101 (42%)
Portsmouth Hospitals NHS Trust	167	64 (38%)	92 (55%)	159 (95%)	137 (82%)	85 (51%)	162 (97%)
Princess Alexandra Hospital NHS Trust	185	0	0	58 (31%)	5 (3%)	44 (24%)	0

Specialist MDT	No. patients with NPCA record	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason score completed N(%)	TNM completed* N(%)	At least one planned treatment recorded N(%)
Royal Berkshire NHS Foundation Trust	178	0	0	3 (2%)	2 (1%)	7 (4%)	1 (1%)
Royal Devon and Exeter NHS Foundation Trust	414	251 (61%)	290 (70%)	349 (84%)	340 (82%)	345 (83%)	362 (87%)
The Royal Liverpool and Broadgreen University Hospitals NHS Trust	251	107 (43%)	159 (63%)	219 (87%)	199 (79%)	164 (65%)	161 (64%)
Royal Surrey County Hospital NHS Trust	525	159 (30%)	161 (31%)	296 (56%)	276 (53%)	171 (33%)	106 (20%)
Salford Royal Hospitals NHS Foundation Trust	151	108 (72%)	106 (70%)	137 (91%)	141 (93%)	112 (74%)	86 (57%)
Sheffield Teaching Hospitals NHS Foundation Trust	379	269 (71%)	222 (59%)	180 (47%)	239 (63%)	309 (82%)	268 (71%)
South Tees Hospitals NHS Trust	200	134 (67%)	0	186 (93%)	178 (89%)	71 (36%)	46 (23%)
Stockport NHS Foundation Trust	226	23 (10%)	3 (1%)	167 (74%)	172 (76%)	78 (35%)	27 (12%)
The Christie Hospital NHS Trust	128	20 (16%)	40 (31%)	81 (63%)	79 (62%)	94 (73%)	20 (16%)
The Mid Yorkshire Hospitals NHS Trust	99	99 (100%)	99 (100%)	96 (97%)	89 (90%)	97 (98%)	99 (100%)
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	292	82 (28%)	5 (2%)	258 (88%)	220 (75%)	106 (36%)	69 (24%)
The Royal Marsden NHS Foundation Trust	316	48 (15%)	32 (10%)	186 (59%)	154 (49%)	219 (69%)	152 (48%)
University College London Hospitals NHS Foundation Trust	143	13 (9%)	8 (6%)	42 (29%)	44 (31%)	69 (48%)	22 (15%)
University Hospital of South Manchester NHS Foundation Trust	14	9 (64%)	1 (7%)	13 (93%)	12 (86%)	3 (21%)	0
University Hospital Birmingham NHS Foundation Trust	324	41 (13%)	66 (20%)	282 (87%)	272 (84%)	141 (44%)	127 (39%)
University Hospitals Coventry and Warwickshire NHS Trust	113	31 (27%)	31 (27%)	113 (100%)	103 (91%)	37 (33%)	76 (67%)
University Hospital of North Midlands (WAS University of North staffordshire NHS Trust)	472	41 (9%)	84 (18%)	213 (45%)	368 (78%)	155 (33%)	199 (42%)
University Hospitals of Leicester NHS Trust	294	0	2 (1%)	4 (1%)	3 (1%)	16 (5%)	0
University Hospital Southampton NHS Trust	165	97 (59%)	71 (43%)	128 (78%)	140 (85%)	112 (68%)	136 (82%)
Wirral University Teaching Hospital NHS Foundation Trust	247	150 (61%)	116 (47%)	232 (94%)	201 (81%)	200 (81%)	191 (7%)
*% of total for whom all three T, N and M are non-missing (X allowed%)							

3.3.4 Results

The distribution of data items corresponding to key patient characteristics, diagnostic and staging details, and planned treatments varied markedly by specialist MDT (Appendix 3).

Missing data

Overall, there was a high level of missing data and a number of specialist MDTs failed to submit 50% or more data for particular data items (Appendix 3). Multiparametric MRI (mpMRI) either before or after biopsy was the most poorly recorded (44 specialist MDTs with 50% or more data missing).

Patient information

Men diagnosed with prostate cancer were typically over 70 years of age (49%; Table 4). Overall, the majority of men were in good health (67% with a performance status score of 0 and only 3% had a performance status of 3 or more). More than half of men did not have any co-existent systemic disturbance or abnormality (51% with an ASA score of 1) and 40% of men had mild systemic disease. Less than 10% of men had significant comorbidity. Almost all men were of white ethnic origin (94%). Approximately one-quarter of the men (24%) were in the least deprived socioeconomic national quintile group as measured by the Index of Multiple of Deprivation (IMD). Those men in the most deprived quintile group constituted 13% of the cohort.

Table 4. Summary of patient information (diagnosed 1 April – 31 July 2014, N = 12,305)

	No. of patients	Percentage
Age (years)		
<60	1461	12%
60 to 70	4787	39%
>70	6055	49%
Missing	None	
Performance status[1]		Denominator = 4702 (patients with PS recorded)
0	3157	67%
1-2	1424	30%
≥3	121	3%
Not recorded	1578	
Missing	6025	
ASA score[2]		Denominator = 4195 (patients with ASA recorded)
1	2125	51%
2	1699	40%
≥3	371	9%
Missing	8110	
Ethnicity		Denominator = 8874 (patients with ethnicity recorded)
White	8334	94%
Asian	154	2%
Black	252	3%
Mixed or Other	134	1%
Missing	3431	
Socioeconomic status (quintile of IMD)		Denominator = 11905 (patients with valid geographical information)
(least deprived) 1	2902	24%
2	2837	24%
3	2566	22%
4	2014	17%
(most deprived) 5	1586	13%
Missing	400	

[1] WHO classification (also known as Eastern Cooperative Oncology Group score) of a patient's performance status: 0 denotes perfect health (able to carry out all normal activity without restriction); patients scoring 1-2 are able to walk and are capable of all self-care, includes patients who can (1) and cannot (2) do light work; 3 denotes a patient who is capable of limited self-care and confined to bed >50% of the time; patients scoring ≥4 are bed-bound, completely disabled and unable to carry out any self-care.

[2] American Society of Anaesthesiologists (ASA) classification of a patient's physical status; 1 denotes a normal healthy patient without any systemic disturbance or abnormality; 2 denotes a patient with mild systemic disease (which may be the result of a comorbid condition); patients scoring 3-4 have severe systemic disease that limits functions but is not incapacitating (3) or is a constant threat to life (4); 5 denotes a moribund patient

Cancer stage, tumour grade and disease status at presentation

Among the 8,914 patients with information about PSA at diagnosis, 45% had a PSA level of <10, 23% had a level between 10 and 20 and 32% had a PSA higher than 20 (Table 5). Tumour stage was recorded for 6,916 patients and of these 19% were staged as having T1 disease, 44% T2, 31% T3 and 5% T4. Gleason score was available for 8267 men, of whom 29% had a score ≤6, 46% a Gleason score of 7 and 25% a score of 8 or higher.

Table 5. Summary of staging information to determine disease status (patients diagnosed 1 April – 31 July 2014, N = 12,305)

	No. of patients	Percentage
PSA level at diagnosis		Denominator = 8914 (patients with PSA recorded)
<10 ng/ml	4040	45%
10 to 20 ng/ml	2039	23%
>20 ng/ml	2835	32%
Missing	3391	
Gleason score		Denominator = 8267 (patients with Gleason ≤6, =7 or ≥8 recorded)
≤6	2419	29%
7	3768	46%
≥8	2080	25%
Missing	4038	
TNM		
T score		Denominator = 6916 (patients with T1, T2, T3 or T4 recorded)
T1	1341	19%
T2	3037	44%
T3	2163	31%
T4	375	5%
TX	318	
Missing	5070	
N score		Denominator = 6194 (patients with N1 or No recorded)
No	5671	92%
N1	523	8%
NX	880	
Missing	5231	
M score	776	Denominator = 6009 (patients with M1 or Mo recorded)
Mo	830	87%
M1	5233	13%
MX	5466	
Missing		

In applying the risk stratification algorithm including PSA level as outlined in section 3.2.7, disease status could be defined for 8519 men (Table 6). Whilst the inclusion of PSA in the algorithm increased the proportion of men for whom disease status could be defined compared without the inclusion of PSA (from 59% to 69%) it also increased the proportion of men allocated to the mixed locally advanced or advanced disease group (from 12% to 19%). Risk stratification with PSA, identified 7% of men to be in the low-risk group, 34% in the intermediate group, 19% in the mixed group (either having locally advanced or advance disease), 31% in the locally advanced group and 9% in the advanced group.

Table 6. Prostate cancer disease status distribution – NPCA patients diagnosed 1 April – 31 July 2014, N = 12,305) on the basis of risk stratification with and without PSA.

Data for patients diagnosed 2010-2013 added to table for comparison (see section 2.3.2 of this report).

	Advanced	Locally advanced	Mixed	Intermediate	Low
NPCA (patients diagnosed 1 April – 31 July 2014)					
Risk stratification with PSA (N=8519)	776 (9%)	2666 (31%)	1619 (19%)	2885 (34%)	573 (7%)
Risk stratification without PSA (N=7221)	776 (11%)	2319 (32%)	894 (12%)	2549 (35%)	683 (10%)
Existing data analysis (patients diagnosed 2010 – 2013, N= 89, 659)	15%	31%	11%	33%	11%

Diagnostic and staging investigations

Transrectal ultrasound biopsy (TRUS) was the most common prostate biopsy technique performed before treatment (85% of patients who had a biopsy; Table 7). 21% of men had a record indicating that an mpMRI was performed in the diagnostic pathway and 50% of these investigations took place prior to prostate biopsy.

Table 7. Summary of diagnostic and staging investigations (patients diagnosed 1 April – 31 July 2014, N = 12,305)

	No. of patients	Percentage
Biopsy type		Denominator = 6748 (patients with biopsy technique recorded and known)
Transrectal ultrasound	4884	85%
Transrectal saturation	131	2%
Perineal sampling	277	5%
Perineal template	212	4%
Other	244	4%
Not known	453	
None	903	
Missing	5201	
mpMRI* performed		Denominator = 2588 (patients for whom it is known that mpMRI was performed, either before or after biopsy)
Before biopsy	1295	50%
After biopsy	1293	50%
Not performed	3333	
Not known whether mpMRI performed	672	
Missing	5712	

* multiparametric MRI defined as an MRI with T1 and T2 sequences in addition to dynamic contrast enhancement and diffusion weighting for the NPCA.

Planned and initial treatments

Just over half of patients (53%) with newly diagnosed prostate cancer had at least one treatment agreed at MDT. This included radical prostatectomy in 20% of cases, radical radiotherapy (EBRT or brachytherapy) cryotherapy or HIFU in 29% of cases.

Type of radical prostatectomy performed was recorded for 1,097 patients, of whom the most common type was robotic assisted (50% of patients; Table 8). Type of planned radiotherapy intent was recorded for 1,317 patients, including 71% for whom the intent was radical radiotherapy.

Table 8. Summary of type of prostatectomy and planned radiotherapy intent (patients diagnosed 1 April – 31 July 2014, N = 12,305)

	No. of patients	Percentage
Type of radical prostatectomy		Denominator = 1097 (patients with type of radical prostatectomy recorded, includes 'not known')
Robotic	548	50%
Open	135	12%
Laparoscopic	193	18%
Not known	221	20%
Missing	11208	
Planned radiotherapy intent		Denominator = 1317 (patients with planned RT intent recorded, includes 'other and 'not known')
Radical	941	72%
Adjuvant	251	19%
Palliative	67	5%
Other	2	<1%
Not known	56	4%
Missing	10988	

3.4 Discussion

This chapter presents the first analysis of NPCA prospective audit data for 12,305 patients diagnosed in the first four months of the audit (1st April 2014 – 31st July 2014). We report on the participation of NHS providers and the completeness and quality of data submitted to the NCRS, the NPCA data collection partner. We also present information on patients diagnosed in the first four months of the audit, the diagnostic and staging process they underwent, initial planned treatments and radical surgery received.

3.4.1 Participation, case ascertainment and data completeness

The analysis of the NPCA's first four months of prospective data collection in England produced some encouraging results. We found that 88% Trusts participated in the NPCA with an estimated case ascertainment rate of 56% and a level of completeness of data needed to determine cancer disease status of 69%.

A comparison with the results of the analysis of existing data on patients diagnosed between 2010 and 2013 (Chapter 2) demonstrates that we can expect that these figures will increase rapidly if we receive updated data for this audit period. For example, we could determine cancer disease status in 87% of all men diagnosed in 2013 (see 2.4.1).

ASA, performance status, N and M stage, biopsy type, mpMRI and planned prostate cancer treatment were relatively poorly recorded in the prospective data. These data items are important for the interpretation of our performance indicators (performance indicators 3 and 4 related to the use of radical treatment according to cancer disease stage) because they are a key component of the risk adjustment of comparisons of local and specialist MDTs.

3.4.2 Preliminary findings

On the basis of the preliminary data available for patients diagnosed in the first four months of the audit, we found that about half of newly diagnosed men were over 70 years of age and about two thirds were described to be in good health (67%). The age distribution corresponds closely to our findings in men diagnosed in an earlier period (see Chapter 2). However, most men who could be included in the analysis and for whom data were available were reported to be of white ethnic origin (94%) which is higher than the 87% of men who classified themselves as white in the 2011 UK Census; the analysis of existing data of men diagnosed between 2010 and 2013 produced a similar percentage of men of white ethnicity (see Section 2.3.2)

Also, men living in more socioeconomically deprived areas seemed to be under-represented with only 13% originating from areas within the most deprived national quintile (in other words, lower than the expected 20%). This demonstrates the need for the Audit to further explore the relative impact of patients' ethnic and socioeconomic background on case ascertainment and data completeness and quality, incidence of prostate cancer, and equity in access to prostate cancer services.

At diagnosis, we found that 45% of men with available data had a PSA level less than 10 ng/ml and 32% had a PSA level higher than 20 ng/ml. Risk stratification including PSA levels identified 7% of men as having low-risk prostate cancer, 31% locally advanced disease, and 9% advanced disease. As explained in section 3.2.7, it is not always possible to distinguish between locally advanced and advanced disease and 19% were placed in this mixed group. These findings highlight again the need to increase the completeness of staging information, especially with regards to nodal and metastatic status.

TRUS biopsy remains the predominant prostate biopsy technique (85% of men underwent this technique) with an mpMRI only being recorded in 21% of men with about half of these performed before biopsy.

Data on planned and initial treatments were available only for about half of the included patients which makes it difficult to provide a clinically meaningful interpretation. The most relevant finding was that – based on patients for whom we have the required data – 50% of prostatectomies were carried out using a robotic-assisted laparoscopic procedure.

3.4.3 Implications for practice

This first analysis of the data collected for men diagnosed in the first 4 months of the NPCA demonstrates the potential of the NPCA prospective audit to evaluate practice and outcomes of prostate cancer services. The evaluation of Trust participation, case ascertainment and data completeness highlights where further improvement can be made.

Our results demonstrate that the NPCA is able to determine whether the care received by men newly diagnosed with prostate cancer is consistent with recommended practice. However, case ascertainment and data completeness need to further improve to strengthen the NPCA's ability to identify areas for service improvement.

4. NPCA PROMs and PREMs

Men with localised prostate cancer who receive radical surgical and/or radiotherapy treatments usually survive for many years with the potential adverse consequences of these treatments including urinary, bowel and sexual dysfunction. The NPCA will systematically measure the functional impact of radical therapies on patients' lives.

The NPCA will collect PROMs and PREMs for all patients with localised prostate cancer 18 months after diagnosis (from 1st April 2014) who receive, or are candidates for, radical treatment. The survey will determine patients' views of their experience of care following diagnosis and their outcomes. Patients will be asked questions related to:

- quality of life
- adverse events
- sexual/urinary/bowel complications
- information received about their prostate cancer diagnosis and treatment
- treatment options offered
- initial treatment decision making

The NPCA will carry out a two-year patient survey, starting October 2015. Questionnaires will be sent to men in England with localised prostate cancer 18 months post-diagnosis. In the first year this includes men diagnosed between 1st April 2014 and 31st March 2015 who underwent radical treatment. In the second year this will include men diagnosed between 1st April 2015 and 31st March 2016 who are candidates for radical treatment (irrespective of whether treatment is received). Inclusion criteria are the same for patients in Wales but the time periods run one year behind given the later start of data collection in Welsh patients (from April 2015).

In England, the NPCA will identify patients on the basis of the patient level data collected by Trusts and submitted to the NCRS each month as part of the NPCA prospective audit. Welsh patients will be identified on the basis of NPCA data collected by Health Boards and the first surveys will be circulated in October 2016.

The NPCA questionnaire follows as much as possible other UK and International PROMs and PREMs initiatives, including relevant items from both generic and disease-specific validated instruments, to allow direct comparison of results. The questionnaire has been designed by the NPCA Project Team, in consultation with the Audit's Clinical Reference Group. This includes representatives from the *Life After Prostate Cancer Diagnosis* study research team who will work with the NCRS and the Cancer Registry in Wales to ensure that patients included in the NPCA patient survey are excluded from their cohort and do not receive a second questionnaire.[14] Information about the NPCA patient survey, including a Patient Information sheet can be found on our website.[15]

The results from the NPCA survey will be linked to patient level data from the NPCA Prospective Audit and to other databases such as Hospital Episodes Statistics to provide information about the quality of care and services that patients with prostate cancer receive and to enable Trust and specialist MDT level comparisons. The first results will be published in the NPCA's third Annual Report in Autumn 2016.

[14] http://www.lapcd.leeds.ac.uk/

[15] http://www.npca.org.uk/patient-survey

Appendix 1. Summary of NPCA Prospective Audit dataset

www.npca.org.uk
e-mail:npca@rcseng.ac.uk

NPCA
National Prostate Cancer Audit

RCS ADVANCING SURGICAL STANDARDS

Version 2.1, 17th December 2014

Summary of clinical data items for collection from 1st April 2014 in England and Wales. The data set is arranged into three sections. The first section will be collected from all men with newly diagnosed prostate cancer, the second focuses on men who have undergone radical prostatectomy and the third concerns all men where external beam radiation therapy or brachytherapy, with or without hormone therapy, is planned.

NPCA MINIMUM DATA SET 1: To be completed for all men with newly diagnosed prostate cancer. All data items to be completed at meeting (s) of the multidisciplinary team (MDT) except 'Planned prostate cancer treatment agreed with the patient'.

Patient Characteristics

1. Date of diagnosis (clinically agreed) --/--/----

2. Symptoms prior to diagnosis

- ☐ None
- ☐ Lower Urinary Tract Symptoms (LUTS)
- ☐ Symptoms possibly linked to metastasis (e.g. pain)
- ☐ General symptoms (e.g. weight loss, lethargy)
- ☐ Not known

3. Performance status (adult)

- ☐ Able to carry out all normal activity without restriction.
- ☐ Restricted in physically strenuous activity, but able to walk and do light work.
- ☐ Able to walk and capable of all self care, but unable to carry out any work. Up and about more than 50% of waking hours.
- ☐ Capable of only limited self care, confined to bed or chair more than 50% of waking hours.
- ☐ Completely disabled. Cannot carry out any self care. Totally confined to bed or chair.
- ☐ Not recorded

4. ASA score – prostate (collect from ALL patients whether surgery is planned or not)

- ☐ A normal healthy patient.
- ☐ A patient with mild systemic disease.
- ☐ A patient with severe systemic disease that limits function but is not incapacitating.
- ☐ A patient with severe systemic disease that is a constant threat to life.
- ☐ A moribund patient.

5. Source of referral for out-patients

- ☐ Following an emergency admission.
- ☐ Following an accident and emergency attendance.
- ☐ Referral from a general medical practitioner.
- ☐ Referral from a consultant other than in an accident and emergency department.
- ☐ Other

6. PSA (diagnosis) _____ (ng/ml)

7. Prostate biopsy technique

- ☐ No Biopsy done
- ☐ Transrectal sampling biopsy
- ☐ Transrectal saturation biopsy
- ☐ Perineal sampling biopsy
- ☐ Perineal Template Mapping biopsy
- ☐ Other
- ☐ Not known

Gleason Score of Biopsy

1. Gleason grade (primary) _____ **2. Gleason grade (secondary)** _____

3. Gleason grade (tertiary) _____

Magnetic Resonance Imaging of Prostate

1. Multiparametric MRI performed

- ☐ No
- ☐ Before biopsy
- ☐ After biopsy
- ☐ Not known

Final Pre-Treatment Tumour Characteristics

1. T category (final pre-treatment) _____ **2. N category (final pre-treatment)** _____

3. M category (final pre-treatment) _____

4. Perineural invasion

- ☐ Yes
- ☐ No
- ☐ Not Assessable

5. Number of positive cores _____ **6. Total number of cores** _____

7. Greatest percentage of cancer in single most involved core _____ **(%)**

Treatment

1. Specialist referral appointments

- ☐ Urologist only
- ☐ Oncologist only
- ☐ Urologist and oncologist separately
- ☐ Urologist and oncologist in joint specialist MDT clinic setting
- ☐ None of the above
- ☐ Not known

2. Planned prostate cancer treatment agreed with the patient

- ☐ Watchful waiting
- ☐ Active surveillance
- ☐ Radical Prostatectomy
- ☐ Transurethral Resection of Prostate (TURP)
- ☐ Bilateral Orchidectomy
- ☐ Cryotherapy
- ☐ High Intensity Focused Ultrasound (HIFU)
- ☐ Focal Therapy (any modality)
- ☐ Radical External Beam Radiotherapy
- ☐ Low Dose Rate Brachytherapy
- ☐ High Dose Rate Brachytherapy
- ☐ Continuous Androgen Deprivation Therapy
- ☐ Intermittent Androgen Deprivation Therapy
- ☐ Neoadjuvant hormone therapy
- ☐ Adjuvant hormone therapy
- ☐ Chemotherapy
- ☐ Palliative Radiotherapy
- ☐ Specialist palliative care
- ☐ Other – active

NPCA MINIMUM DATA SET 2: Data items to be collected for all men who have undergone a radical prostatectomy. To be completed at the MDT meeting following radical surgery.

Radical prostatectomy details

1. Organisation site code - cancer_____ **2. Consultant code (treatment)**_____

3. Type of radical prostatectomy (actual)

- ☐ Open prostatectomy
- ☐ Robotic prostatectomy
- ☐ Laparoscopic prostatectomy
- ☐ Not known

4. Procedure date --/--/----

5. Procedure - nerve sparing

- ☐ Bilateral
- ☐ Unilateral
- ☐ None

6. T category (pathological) _____ **7. N category (pathological)** _____

8. Organ confined

- ☐ Yes
- ☐ No
- ☐ Not Applicable

9. Seminal vesicles invasion

- ☐ Yes
- ☐ No
- ☐ Not Applicable

10. Radical prostatectomy margin status

- ☐ Negative Margins
- ☐ Positive margins < 3 mm in length
- ☐ Positive margins ≥ 3 mm in length
- ☐ Positive margins, length unknown
- ☐ Not known

11. Lymphadenectomy

- ☐ Yes
- ☐ No

NPCA MINIMUM DATA SET 3: Data items to be collected for all men for whom external beam radiation or brachytherapy is planned with or without androgen deprivation therapy. To be completed before actual treatment takes place.

Radiotherapy details

1. Planned radiotherapy intent (prostate)

- ☐ Primary radical intent
- ☐ Adjuvant
- ☐ Palliative
- ☐ Other
- ☐ Not known

2. Planned radiotherapy type

- ☐ 3D conformal
- ☐ IMRT
- ☐ Arcing IMRT
- ☐ SBRT
- ☐ Other
- ☐ Not known

3. Planned type of image-guidance for external beam radiotherapy

- ☐ Cone beam CT
- ☐ Fiducial markers
- ☐ Combined cone beam CT with fiducial markers
- ☐ KV imaging
- ☐ Other
- ☐ Not known

4. Planned radiotherapy field

- ☐ Prostate
- ☐ Prostate and seminal vesicles
- ☐ Prostate, seminal vesicles and lymph nodes
- ☐ Prostate Bed
- ☐ Prostate Bed and lymph nodes
- ☐ Other (eg spine, leg)
- ☐ Not known

Brachytherapy details

1. Planned brachytherapy type

- ☐ LDR monotherapy
- ☐ LDR boost
- ☐ HDR monotherapy
- ☐ HDR boost
- ☐ Not known

2. Planned brachytherapy total dose _____**(Gy)** **3. Planned brachytherapy total fractions**_____**(#)**

Androgen deprivation therapy details in men due to undergo external beam radiation therapy

1. Planned duration of neoadjuvant androgen deprivation therapy

- ☐ None
- ☐ Between 2 and 6 months
- ☐ Longer than 6 months
- ☐ Not known

2. Planned total duration of adjuvant androgen deprivation therapy

- ☐ None
- ☐ 6 months
- ☐ 18 months
- ☐ 2 years
- ☐ 3 years
- ☐ Indefinite
- ☐ Other (eg intermittent)
- ☐ Not known

Appendix 2. Participation in the NPCA Prospective Audit, case-ascertainment and data completeness of key data items by Trust[1] and specialist MDT in England over the period 1 April 2014 and 31 July 2014. Case-ascertainment ≥ 70% highlighted by Trust.

Specialist MDT / Trust	No. of expected cases	No. patients with NPCA record	No. of patients with ≥1 TNM	Trust participation in NPCA Y/N (> 5 patients with TNM%)	Case ascertainment: % of expected cases with NPCA record and ≥1 TNM	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason Score Completed N(%)	TNM Completed[2] N(%)	≥1 planned treatment recorded N (%)
Overall	**13314**	**12305**	**7495**		**56%**	**4702 (38%)**	**4195 (34%)**	**8914 (72%)**	**8267 (67%)**	**6537 (53%)**	**6489 (53%)**
Barking, Havering and Redbridge	**94**	**81**	**68**		**72**	**10 (12%)**	**11 (14%)**	**65 (80%)**	**61 (75%)**	**65 (80%)**	**31 (38%)**
Barking, Havering and Redbridge Hospitals NHS Trust	94	81	68	Y	72	10 (12%)	11 (14%)	65 (80%)	61 (75%)	65 (80%)	31 (38%)
Barts	**161**	**131**	**80**		**50**	**19 (15%)**	**25 (19%)**	**44 (34%)**	**99 (76%)**	**78 (60%)**	**19 (15%)**
Barts Health NHS Trust	153	112	61	Y	40	0	6 (5%)	25 (22%)	83 (74%)	59 (53%)	0
Homerton University Hospital NHS Foundation Trust	8	19	19	Y	>100	19 (100%)	19 (100%)	19 (100%)	16 (84%)	19 (100%)	19 (100%)
Bradford	**224**	**193**	**44**		**20**	**76 (39%)**	**72 (37%)**	**181 (94%)**	**154 (80%)**	**13 (7%)**	**67 (35%)**
Bradford Teaching Hospitals NHS Foundation Trust	56	52	24	Y	43	3 (6%)	39 (75%)	47 (90%)	40 (77%)	5 (10%)	16 (31%)
Airedale NHS Trust	56	38	18	Y	32	31 (82%)	32 (84%)	35 (92%)	33 (87%)	8 (21%)	13 (34%)
Calderdale And Huddersfield NHS Foundation Trust	112	103	2	N	2	42 (41%)	1 (1%)	99 (96%)	81 (79%)	0	38 (37%)
Brighton and Sussex	**345**	**484**	**295**		**86**	**187 (39%)**	**10 (2%)**	**339 (70%)**	**293 (61%)**	**272 (56%)**	**212 (44%)**
East Sussex Healthcare NHS Trust	117	113	44	Y	38	7 (6%)	10 (9%)	69 (61%)	59 (52%)	41 (36%)	29 (26%)
Brighton and Sussex University Hospitals NHS Trust	94	177	64	Y	68	0	0	84 (47%)	72 (41%)	45 (25%)	1 (1%)
Western Sussex Hospitals NHS Trust	134	194	187	Y	>100	180 (93%)	0	186 (96%)	162 (84%)	186 (96%)	182 (94%)
Cambridge	**676**	**469**	**359**		**53**	**250 (53%)**	**173 (37%)**	**456 (97%)**	**354 (75%)**	**317 (68%)**	**420 (90%)**
Bedford Hospital NHS Trust	87	75	75	Y	86	74 (99%)	73 (97%)	75 (100%)	55 (73%)	74 (99%)	75 (100%)
Queen Elizabeth Hospital NHS Trust[1]	73	49	18	Y	25	29 (59%)	13 (27%)	49 (100%)	30 (61%)	18 (37%)	47 (96%)
Peterborough and Stamford Hospitals NHS Foundation Trust	123	113	109	Y	89	78 (69%)	52 (46%)	112 (99%)	92 (81%)	91 (81%)	107 (95%)
The Ipswich Hospital NHS Trust[1]	117	122	111	Y	95	9 (7%)	0	120 (98%)	90 (74%)	111 (91%)	109 (89%)
West Suffolk Hospitals NHS Trust	93	73	12	Y	13	26 (36%)	0	66 (90%)	59 (81%)	7 (10%)	52 (71%)
Cambridge University Hospitals NHS Foundation Trust	143	0	0	N	0	0	0	0	0	0	0
Hinchingbrooke Health Care NHS Trust	40	37	34	Y	85	34 (92%)	35 (95%)	34 (92%)	28 (76%)	16 (43%)	30 (81%)
Central Manchester	**213**	**201**	**177**		**83**	**158 (79%)**	**24 (12%)**	**188 (94%)**	**163 (81%)**	**175 (87%)**	**121 (60%)**
Central Manchester University Hospitals NHS Foundation Trust	56	88	71	Y	>100	64 (73%)	15 (17%)	76 (86%)	68 (77%)	69 (78%)	29 (33%)
Pennine Acute Hospitals NHS Trust	157	113	106	Y	68	94 (83%)	9 (8%)	112 (99%)	95 (84%)	106 (94%)	92 (81%)
City Hosps. Sunderland	**218**	**191**	**179**		**82**	**189 (99%)**	**160 (84%)**	**169 (88%)**	**121 (63%)**	**172 (90%)**	**191 (100%)**
South Tyneside NHS Foundation Trust	4	0	0	N	0	0	0	0	0	0	0
City Hospitals Sunderland NHS Foundation Trust	126	160	160	Y	>100	160 (100%)	160 (100%)	139 (87%)	97 (61%)	156 (98%)	160 (100%)
County Durham and Darlington NHS Foundation Trust[1]	88	31	19	Y	22	29 (94%)	0	30 (97%)	24 (77%)	16 (52%)	31 (100%)
Colchester	**385**	**386**	**223**		**58**	**7 (2%)**	**58 (15%)**	**300 (78%)**	**261 (68%)**	**218 (56%)**	**194 (50%)**
Southend Hospital NHS Trust	86	111	110	Y	>100	3 (3%)	56 (50%)	110 (99%)	87 (78%)	108 (97%)	105 (95%)
Basildon and Thurrock University Hospitals NHS Foundation Trust	68	60	38	Y	56	1 (2%)	1 (2%)	60 (100%)	46 (77%)	36 (60%)	37 (62%)
Colchester Hospital University NHS Foundation Trust	126	143	26	Y	21	1 (1%)	0	63 (44%)	76 (53%)	25 (17%)	3 (2%)
Mid Essex Hospital Services NHS Trust	105	72	49	Y	47	2 (3%)	1 (1%)	67 (93%)	52 (72%)	49 (68%)	49 (68%)

Specialist MDT / Trust	No. of expected cases	No. patients with NPCA record	No. of patients with ≥1 TNM	Trust participation in NPCA Y/N (> 5 patients with TNM%)	Case ascertainment: % of expected cases with NPCA record and ≥1 TNM	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason Score Completed N(%)	TNM Completed[2] N(%)	≥1 planned treatment recorded N (%)
Derby	**267**	**221**	**139**		**52**	**101 (46%)**	**90 (41%)**	**145 (66%)**	**157 (71%)**	**96 (43%)**	**164 (74%)**
Burton Hospitals NHS Foundation Trust	3	35	34	Y	>100	34 (97%)	34 (97%)	34 (97%)	28 (80%)	34 (97%)	34 (97%)
Sherwood Forest Hospitals NHS Foundation Trust	96	68	0	N	0	57 (84%)	32 (47%)	2 (3%)	54 (79%)	0	21 (31%)
Derby Hospitals NHS Foundation Trust	168	118	105	Y	63	10 (8%)	24 (20%)	109 (92%)	75 (64%)	62 (53%)	109 (92%)
East and North Hertfordshire[3]	**314**	**266**	**144**		**46**	**104 (39%)**	**170 (64%)**	**237 (89%)**	**106 (40%)**	**127 (48%)**	**240 (90%)**
Luton and Dunstable Hospital NHS Trust	68	44	10	Y	15	7 (16%)	40 (91%)	39 (89%)	0	8 (18%)	39 (89%)
West Hertfordshire Hospitals NHS Trust	114	75	1	N	1	0	2 (3%)	63 (84%)	0	0	72 (96%)
East and North Hertfordshire NHS Trust	132	147	133	Y	>100	97 (66%)	128 (87%)	135 (92%)	106 (72%)	119 (81%)	129 (88%)
East Kent	**247**	**189**	**108**		**44**	**80 (42%)**	**0**	**1 (1%)**	**121 (64%)**	**91 (48%)**	**0**
East Kent Hospitals NHS Trust	247	189	108	Y	44	80 (42%)	0	1 (1%)	121 (64%)	91 (48%)	0
Gloucestershire	**371**	**337**	**217**		**58**	**239 (71%)**	**262 (78%)**	**306 (91%)**	**201 (60%)**	**213 (63%)**	**305 (91%)**
Wye Valley NHS Trust	78	67	58	Y	74	50 (75%)	43 (64%)	61 (91%)	0	55 (82%)	39 (58%)
Gloucestershire Hospitals NHS Foundation Trust	145	122	11	Y	8	65 (53%)	79 (65%)	99 (81%)	77 (63%)	11 (9%)	118 (97%)
Worcestershire Acute Hospitals NHS Trust[1]	148	148	148	Y	100	124 (84%)	140 (95%)	146 (99%)	124 (84%)	147 (99%)	148 (100%)
Guys and St Thomas	**344**	**235**	**89**		**26**	**101 (43%)**	**85 (36%)**	**137 (58%)**	**121 (51%)**	**84 (36%)**	**50 (21%)**
Guy's and St Thomas' NHS Foundation Trust	152	130	34	Y	22	1 (1%)	29 (22%)	35 (27%)	35 (27%)	31 (24%)	0
Lewisham Hospital NHS Trust	39	55	5	Y	13	55 (100%)	10 (18%)	52 (95%)	42 (76%)	5 (9%)	0
King's College Hospital NHS Foundation Trust	153	50	50	Y	33	45 (90%)	46 (92%)	50 (100%)	44 (88%)	48 (96%)	50 (100%)
Heart of England	**281**	**197**	**90**		**32**	**9 (5%)**	**177 (90%)**	**186 (94%)**	**182 (92%)**	**39 (20%)**	**184 (93%)**
Walsall Hospitals NHS Trust	60	26	3	N	5	6 (23%)	6 (23%)	20 (77%)	15 (58%)	3 (12%)	19 (73%)
Heart of England NHS Foundation Trust	221	171	87	Y	39	3 (2%)	171 (100%)	166 (97%)	167 (98%)	36 (21%)	165 (96%)
Hull and East Yorkshire	**398**	**322**	**206**		**52**	**203 (63%)**	**215 (67%)**	**297 (92%)**	**235 (73%)**	**183 (57%)**	**184 (57%)**
York Hospitals NHS Trust[1]	162	86	75	Y	46	59 (69%)	60 (70%)	83 (97%)	63 (73%)	74 (86%)	61 (71%)
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	75	70	50	Y	67	33 (47%)	32 (46%)	66 (94%)	45 (64%)	50 (71%)	69 (99%)
Hull and East Yorkshire Hospitals NHS Trust	161	166	81	Y	50	111 (67%)	123 (74%)	148 (89%)	127 (77%)	59 (36%)	54 (33%)
Imperial	**290**	**281**	**220**		**76**	**128 (46%)**	**136 (48%)**	**267 (95%)**	**226 (80%)**	**203 (72%)**	**242 (86%)**
The Hillingdon Hospital NHS Trust	45	55	3	N	7	0	2 (4%)	48 (87%)	40 (73%)	3 (5%)	54 (98%)
West Middlesex University Hospital NHS Trust	35	22	22	Y	63	1 (5%)	3 (14%)	22 (100%)	14 (64%)	22 (100%)	1 (5%)
Chelsea and Westminster Healthcare NHS Trust	4	32	31	Y	>100	32 (100%)	32 (100%)	31 (97%)	27 (84%)	29 (91%)	30 (94%)
North West London Hospitals NHS Trust	77	61	58	Y	75	0	0	61 (100%)	47 (77%)	55 (90%)	61 (100%)
Imperial College Healthcare NHS Trust	129	111	106	Y	82	95 (86%)	99 (89%)	105 (95%)	98 (88%)	94 (85%)	96 (86%)
Lancashire	**383**	**401**	**341**		**89**	**300 (75%)**	**160 (40%)**	**374 (93%)**	**345 (86%)**	**334 (83%)**	**335 (84%)**
University Hospitals of Morecambe Bay NHS Trust	92	75	46	Y	50	46 (61%)	36 (48%)	57 (76%)	55 (73%)	41 (55%)	33 (44%)
Blackpool, Fylde and Wyre Hospitals NHS Trust	90	40	40	Y	44	7 (18%)	7 (18%)	40 (100%)	38 (95%)	40 (100%)	37 (93%)
Lancashire Teaching Hospitals NHS Foundation Trust	111	192	178	Y	>100	168 (88%)	38 (20%)	186 (97%)	172 (90%)	176 (92%)	179 (93%)
East Lancashire Hospitals NHS Trust	90	94	77	Y	86	79 (84%)	79 (84%)	91 (97%)	80 (85%)	77 (82%)	86 (91%)
Leeds	**227**	**194**	**51**		**22**	**2 (1%)**	**37 (19%)**	**41 (21%)**	**133 (69%)**	**43 (22%)**	**113 (58%)**
Harrogate and District NHS Foundation Trust	59	36	36	Y	61	0	24 (67%)	35 (97%)	29 (81%)	36 (100%)	36 (100%)
Leeds Teaching Hospitals NHS Trust	168	158	15	Y	9	2 (1%)	13 (8%)	6 (4%)	104 (66%)	7 (4%)	77 (49%)
Medway	**357**	**278**	**258**		**72**	**263 (95%)**	**216 (78%)**	**199 (72%)**	**237 (85%)**	**255 (92%)**	**118 (42%)**
Dartford and Gravesham NHS Trust	23	77	66	Y	>100	63 (82%)	19 (25%)	1 (1%)	66 (86%)	65 (84%)	0
Medway NHS Foundation Trust	31	64	63	Y	>100	64 (100%)	63 (98%)	63 (98%)	55 (86%)	62 (97%)	0
Maidstone and Tunbridge Wells NHS Trust	303	137	129	Y	43	136 (99%)	134 (98%)	135 (99%)	116 (85%)	128 (93%)	118 (86%)

Specialist MDT / Trust	No. of expected cases	No. patients with NPCA record	No. of patients with ≥1 TNM	Trust participation in NPCA Y/N (> 5 patients with TNM%)	Case ascertainment: % of expected cases with NPCA record and ≥1 TNM	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason Score Completed N(%)	TNM Completed[2] N(%)	≥1 planned treatment recorded N (%)
Newcastle	**340**	**351**	**174**		**51**	**58 (17%)**	**107 (30%)**	**240 (68%)**	**255 (73%)**	**115 (33%)**	**136 (39%)**
North Cumbria Acute Hospitals NHS Trust	110	66	3	N	3	3 (5%)	0	3 (5%)	3 (5%)	2 (3%)	0
Gateshead Health NHS Foundation Trust	54	24	16	Y	30	17 (71%)	13 (54%)	23 (96%)	21 (88%)	10 (42%)	23 (96%)
Newcastle Upon Tyne Hospitals NHS Trust	92	213	149	Y	>100	38 (18%)	93 (44%)	179 (84%)	197 (92%)	102 (48%)	109 (51%)
Northumbria Healthcare NHS Foundation Trust	84	48	6	Y	7	0	1 (2%)	35 (73%)	34 (71%)	1 (2%)	4 (8%)
Norfolk and Norwich	**290**	**256**	**96**		**33**	**197 (77%)**	**114 (45%)**	**249 (97%)**	**209 (82%)**	**77 (30%)**	**140 (55%)**
James Paget University Hospitals NHS Foundation Trust	79	33	2	N	3	2 (6%)	2 (6%)	33 (100%)	20 (61%)	1 (3%)	1 (3%)
Norfolk and Norwich University Hospital NHS Trust	211	223	94	Y	45	195 (87%)	112 (50%)	216 (97%)	189 (85%)	76 (34%)	139 (62%)
North Bristol	**405**	**514**	**349**		**86**	**129 (25%)**	**91 (18%)**	**388 (75%)**	**353 (69%)**	**322 (63%)**	**237 (46%)**
Weston Area Health NHS Trust	53	52	50	Y	94	48 (92%)	49 (94%)	52 (100%)	40 (77%)	48 (92%)	50 (96%)
Yeovil District Hospital NHS Foundation Trust	2	36	35	Y	>100	36 (100%)	33 (92%)	34 (94%)	21 (58%)	35 (97%)	21 (58%)
Royal United Hospital Bath NHS Trust	102	103	99	Y	97	2 (2%)	1 (1%)	103 (100%)	90 (87%)	99 (96%)	84 (82%)
Great Western Hospitals NHS Foundation Trust	62	69	69	Y	>100	43 (62%)	0	67 (97%)	57 (83%)	69 (100%)	65 (94%)
North Bristol NHS Trust	186	254	96	Y	52	0	8 (3%)	132 (52%)	145 (57%)	71 (28%)	17 (7%)
Northampton	**154**	**159**	**141**		**92**	**75 (47%)**	**59 (37%)**	**156 (98%)**	**138 (87%)**	**132 (83%)**	**123 (77%)**
Kettering General Hospital NHS Trust	56	75	62	Y	>100	6 (8%)	1 (1%)	74 (99%)	66 (88%)	58 (77%)	46 (61%)
Northampton General Hospital NHS Trust	98	84	79	Y	81	69 (82%)	58 (69%)	82 (98%)	72 (86%)	74 (88%)	77 (92%)
Nottingham	**194**	**190**	**91**		**47**	**0**	**6 (3%)**	**172 (91%)**	**103 (54%)**	**74 (39%)**	**64 (34%)**
Nottingham University Hospitals NHS Trust	194	190	91	Y	47	0	6 (3%)	172 (91%)	103 (54%)	74 (39%)	64 (34%)
Oxford	**355**	**256**	**48**		**14**	**51 (20%)**	**136 (53%)**	**151 (59%)**	**99 (39%)**	**38 (15%)**	**188 (73%)**
Milton Keynes General Hospital NHS Trust	72	51	11	Y	15	16 (31%)	2 (4%)	44 (86%)	49 (96%)	7 (14%)	30 (59%)
Oxford University Hospitals NHS Trust	174	143	7	Y	4	30 (21%)	90 (63%)	65 (45%)	1 (1%)	6 (4%)	110 (77%)
Buckinghamshire Healthcare NHS Trust	109	62	30	Y	28	5 (8%)	44 (71%)	42 (68%)	49 (79%)	25 (40%)	48 (77%)
Plymouth	**194**	**239**	**200**		**>100**	**20 (8%)**	**13 (5%)**	**224 (94%)**	**166 (69%)**	**166 (69%)**	**101 (42%)**
Royal Cornwall Hospitals NHS Trust	76	129	109	Y	>100	7 (5%)	4 (3%)	123 (95%)	83 (64%)	103 (80%)	1 (1%)
Plymouth Hospitals NHS Trust	118	110	91	Y	77	13 (12%)	9 (8%)	101 (92%)	83 (75%)	63 (57%)	100 (91%)
Portsmouth	**221**	**167**	**96**		**43**	**64 (38%)**	**92 (55%)**	**159 (95%)**	**137 (82%)**	**85 (51%)**	**162 (97%)**
Isle of Wight NHS Trust	76	70	70	Y	92	63 (90%)	3 (4%)	69 (99%)	63 (90%)	70 (100%)	67 (96%)
Portsmouth Hospitals NHS Trust	145	97	26	Y	18	1 (1%)	89 (92%)	90 (93%)	74 (76%)	15 (15%)	95 (98%)
Princess Alexandra	**199**	**185**	**56**		**28**	**0**	**0**	**58 (31%)**	**5 (3%)**	**44 (24%)**	**0**
North Middlesex University Hospital NHS Trust	29	48	11	Y	38	0	0	14 (29%)	5 (10%)	10 (21%)	0
Princess Alexandra Hospital NHS Trust	88	46	28	Y	32	0	0	28 (61%)	0	28 (61%)	0
Barnet and Chase Farm Hospitals NHS Trust	82	91	17	Y	21	0	0	16 (18%)	0	6 (7%)	0
Royal Berkshire	**213**	**178**	**44**		**21**	**0**	**0**	**3 (2%)**	**2 (1%)**	**7 (4%)**	**1 (1%)**
Heatherwood and Wexham Park Hospitals NHS Trust	81	71	17	Y	21	0	0	3 (4%)	2 (3%)	5 (7%)	1 (1%)
Royal Berkshire NHS Foundation Trust	132	107	27	Y	20	0	0	0	0	2 (2%)	0
Royal Devon and Exeter	**374**	**414**	**381**		**>100**	**251 (61%)**	**290 (70%)**	**349 (84%)**	**340 (82%)**	**345 (83%)**	**362 (87%)**
South Devon Healthcare NHS Foundation Trust	100	88	84	Y	84	6 (7%)	33 (38%)	47 (53%)	77 (88%)	84 (95%)	84 (95%)
Taunton and Somerset NHS Trust	72	97	92	Y	>100	46 (47%)	57 (59%)	93 (96%)	67 (69%)	74 (76%)	74 (76%)
Northern Devon Healthcare NHS Trust	53	44	20	Y	38	21 (48%)	23 (52%)	25 (57%)	23 (52%)	2 (5%)	19 (43%)
Royal Devon and Exeter NHS Foundation Trust	149	185	185	Y	>100	178 (96%)	177 (96%)	184 (99%)	173 (94%)	185 (100%)	185 (100%)

Specialist MDT / Trust	No. of expected cases	No. patients with NPCA record	No. of patients with ≥1 TNM	Trust participation in NPCA Y/N (> 5 patients with TNM%)	Case ascertainment: % of expected cases with NPCA record and ≥1 TNM	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason Score Completed N(%)	TNM Completed[2] N(%)	≥1 planned treatment recorded N (%)
Liverpool and Broadgreen	276	251	167		61	107 (43%)	159 (63%)	219 (87%)	199 (79%)	164 (65%)	161 (64%)
St Helens and Knowsley Hospitals NHS Trust	90	60	3	N	3	0	2 (3%)	42 (70%)	42 (70%)	3 (5%)	5 (8%)
Aintree University Hospital NHS Foundation Trust	53	71	61	Y	>100	63 (89%)	65 (92%)	70 (99%)	53 (75%)	58 (82%)	49 (69%)
The Royal Liverpool and Broadgreen University Hospitals NHS Trust	59	75	58	Y	98	2 (3%)	48 (64%)	66 (88%)	59 (79%)	58 (77%)	64 (85%)
Southport and Ormskirk Hospital NHS Trust	74	45	45	Y	61	42 (93%)	44 (98%)	41 (91%)	45 (100%)	45 (100%)	43 (96%)
Royal Surrey	**416**	**525**	**195**		**47**	**159 (30%)**	**161 (31%)**	**296 (56%)**	**276 (53%)**	**171 (33%)**	**106 (20%)**
Royal Surrey County Hospital NHS Trust	137	171	19	Y	14	0	1 (1%)	31 (18%)	32 (19%)	2 (1%)	0
Frimley Park Hospital NHS Foundation Trust	21	80	68	Y	>100	66 (83%)	67 (84%)	78 (98%)	66 (83%)	63 (79%)	58 (73%)
Hampshire Hospitals NHS Foundation Trust[1]	124	112	104	Y	84	93 (83%)	93 (83%)	108 (96%)	88 (79%)	104 (93%)	46 (41%)
Ashford and St Peter's Hospitals NHS Trust	59	66	3	N	5	0	0	17 (26%)	19 (29%)	2 (3%)	1 (2%)
Surrey and Sussex Healthcare NHS Trust	75	96	1	N	1	0	0	62 (65%)	71 (74%)	0	1 (1%)
Salford Royal	**168**	**151**	**121**		**72**	**108 (72%)**	**106 (70%)**	**137 (91%)**	**141 (93%)**	**112 (74%)**	**86 (57%)**
Salford Royal Hospitals NHS Foundation Trust	91	33	31	Y	34	27 (82%)	30 (91%)	31 (94%)	31 (94%)	26 (79%)	33 (100%)
Bolton Hospitals NHS Trust	63	63	41	Y	65	31 (49%)	32 (51%)	55 (87%)	61 (97%)	38 (60%)	10 (16%)
Wrightington, Wigan and Leigh NHS Trust	14	55	49	Y	>100	50 (91%)	44 (80%)	51 (93%)	49 (89%)	48 (87%)	43 (78%)
Sheffield	**469**	**379**	**344**		**73**	**269 (71%)**	**222 (59%)**	**180 (47%)**	**239 (63%)**	**309 (82%)**	**268 (71%)**
Barnsley Hospital NHS Foundation Trust	53	27	21	Y	40	0	2 (7%)	27 (100%)	16 (59%)	12 (44%)	27 (100%)
The Rotherham NHS Foundation Trust	51	44	44	Y	86	44 (100%)	44 (100%)	40 (91%)	39 (89%)	44 (100%)	44 (100%)
Chesterfield Royal Hospital NHS Foundation Trust	97	72	71	Y	73	70 (97%)	62 (86%)	72 (100%)	63 (88%)	71 (99%)	65 (90%)
Sheffield Teaching Hospitals NHS Foundation Trust	171	130	113	Y	66	108 (83%)	112 (86%)	31 (24%)	117 (90%)	103 (79%)	128 (98%)
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	97	106	95	Y	98	47 (44%)	2 (2%)	10 (9%)	4 (4%)	79 (75%)	4 (4%)
South Tees	**230**	**200**	**128**		**56**	**134 (67%)**	**0**	**186 (93%)**	**178 (89%)**	**71 (36%)**	**46 (23%)**
South Tees Hospitals NHS Trust	148	161	104	Y	70	95 (59%)	0	147 (91%)	144 (89%)	48 (30%)	19 (12%)
North Tees And Hartlepool NHS Foundation Trust	82	39	24	Y	29	39 (100%)	0	39 (100%)	34 (87%)	23 (59%)	27 (69%)
Stockport	**269**	**226**	**92**		**34**	**23 (10%)**	**3 (1%)**	**167 (74%)**	**172 (76%)**	**78 (35%)**	**27 (12%)**
Mid Cheshire Hospitals NHS Trust	116	55	40	Y	34	21 (38%)	1 (2%)	54 (98%)	46 (84%)	40 (73%)	10 (18%)
East Cheshire NHS Trust	2	24	8	Y	>100	0	0	21 (88%)	15 (63%)	2 (8%)	1 (4%)
Tameside Hospital NHS Foundation Trust	38	35	7	Y	18	0	0	23 (66%)	28 (80%)	4 (11%)	14 (40%)
Stockport NHS Foundation Trust	113	112	37	Y	33	2 (2%)	2 (2%)	69 (62%)	83 (74%)	32 (29%)	2 (2%)
Christie	**49**	**128**	**112**		**>100**	**20 (16%)**	**40 (31%)**	**81 (63%)**	**79 (62%)**	**94 (73%)**	**20 (16%)**
The Christie Hospital NHS Trust	49	128	112	Y	>100	20 (16%)	40 (31%)	81 (63%)	79 (62%)	94 (73%)	20 (16%)
Mid Yorkshire	**134**	**99**	**99**		**74**	**99 (100%)**	**99 (100%)**	**96 (97%)**	**89 (90%)**	**97 (98%)**	**99 (100%)**
The Mid Yorkshire Hospitals NHS Trust	134	99	99	Y	74	99 (100%)	99 (100%)	96 (97%)	89 (90%)	97 (98%)	99 (100%)
Royal Bournemouth and Christchurch	**299**	**292**	**124**		**41**	**82 (28%)**	**5 (2%)**	**258 (88%)**	**220 (75%)**	**106 (36%)**	**69 (24%)**
Dorset County Hospitals NHS Foundation Trust	94	83	83	Y	88	82 (99%)	3 (4%)	83 (100%)	68 (82%)	83 (100%)	67 (81%)
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	205	209	41	Y	20	0	2 (1%)	175 (84%)	152 (73%)	23 (11%)	2 (1%)
Royal Marsden	**321**	**316**	**248**		**77**	**48 (15%)**	**32 (10%)**	**186 (59%)**	**154 (49%)**	**219 (69%)**	**152 (48%)**
Kingston Hospital NHS Trust	70	0	0	N	0	0	0	0	0	0	0
Croydon Health Services NHS Trust	39	56	44	Y	>100	1 (2%)	7 (13%)	41 (73%)	4 (7%)	44 (79%)	48 (86%)
St George's Healthcare NHS Trust	70	85	66	Y	94	5 (6%)	0	8 (9%)	3 (4%)	41 (48%)	0
The Royal Marsden NHS Foundation Trust	65	104	91	Y	>100	39 (38%)	17 (16%)	89 (86%)	99 (95%)	89 (86%)	57 (55%)
Epsom And St Helier University Hospitals NHS Trust	77	71	47	Y	61	3 (4%)	8 (11%)	48 (68%)	48 (68%)	45 (63%)	47 (66%)

Specialist MDT / Trust	No. of expected cases	No. patients with NPCA record	No. of patients with ≥1 TNM	Trust participation in NPCA Y/N (> 5 patients with TNM%)	Case ascertainment: % of expected cases with NPCA record and ≥1 TNM	Performance status completed N(%)	ASA completed N(%)	PSA completed N(%)	Gleason Score Completed N(%)	TNM Completed[2] N(%)	≥1 planned treatment recorded N (%)
UCL	**190**	**143**	**89**		**47**	**13 (9%)**	**8 (6%)**	**42 (29%)**	**44 (31%)**	**69 (48%)**	**22 (15%)**
Royal Free Hampstead NHS Trust	21	19	19	Y	90	0	3 (16%)	16 (84%)	13 (68%)	18 (95%)	7 (37%)
The Whittington Hospital NHS Trust	31	17	16	Y	52	13 (76%)	0	16 (94%)	15 (88%)	13 (76%)	15 (88%)
University College London Hospitals NHS Foundation Trust	138	107	54	Y	39	0	5 (5%)	10 (9%)	16 (15%)	38 (36%)	0
South Manchester	**54**	**14**	**4**		**7**	**9 (64%)**	**1 (7%)**	**13 (93%)**	**12 (86%)**	**3 (21%)**	**0**
University Hospital of South Manchester NHS Foundation Trust	54	14	4	N	7	9 (64%)	1 (7%)	13 (93%)	12 (86%)	3 (21%)	0
Birmingham	**181**	**324**	**165**		**91**	**41 (13%)**	**66 (20%)**	**282 (87%)**	**272 (84%)**	**141 (44%)**	**127 (39%)**
University Hospital Birmingham NHS Foundation Trust	88	234	138	Y	>100	41 (18%)	66 (28%)	193 (82%)	186 (79%)	122 (52%)	47 (20%)
Sandwell and West Birmingham Hospitals NHS Trust	93	90	27	Y	29	0	0	89 (99%)	86 (96%)	19 (21%)	80 (89%)
Coventry and Warwickshire	**201**	**113**	**58**		**29**	**31 (27%)**	**31 (27%)**	**113 (100%)**	**103 (91%)**	**37 (33%)**	**76 (67%)**
South Warwickshire General Hospitals NHS Trust	66	37	37	Y	56	0	0	37 (100%)	30 (81%)	28 (76%)	2 (5%)
University Hospitals Coventry and Warwickshire NHS Trust	98	34	10	Y	10	25 (74%)	26 (76%)	34 (100%)	32 (94%)	4 (12%)	32 (94%)
George Eliot Hospital NHS Trust	37	42	11	Y	30	6 (14%)	5 (12%)	42 (100%)	41 (98%)	5 (12%)	42 (100%)
North Staffordshire	**475**	**472**	**199**		**42**	**41 (9%)**	**84 (18%)**	**213 (45%)**	**368 (78%)**	**155 (33%)**	**199 (42%)**
Mid Staffordshire General Hospitals NHS Trust	53	0	0	N	0	0	0	0	0	0	0
University Hospital of North Midlands (Was University Hospital of North Staffordshire NHS Trust)	114	169	23	Y	20	0	0	41 (24%)	142 (84%)	22 (13%)	23 (14%)
The Royal Wolverhampton Hospitals NHS Trust	73	132	120	Y	>100	0	43 (33%)	117 (89%)	106 (80%)	101 (77%)	107 (81%)
The Dudley Group NHS Hospitals Foundation Trust	109	58	34	Y	31	41 (71%)	41 (71%)	54 (93%)	41 (71%)	29 (50%)	44 (76%)
The Shrewsbury and Telford Hospital NHS Trust	126	113	22	Y	17	0	0	1 (1%)	79 (70%)	3 (3%)	25 (22%)
Leicester	**362**	**294**	**31**		**9**	**0**	**2 (1%)**	**4 (1%)**	**3 (1%)**	**16 (5%)**	**0**
United Lincolnshire Hospitals NHS Trust	198	175	15	Y	8	0	1 (1%)	2 (1%)	2 (1%)	7 (4%)	0
University Hospitals of Leicester NHS Trust	164	119	16	Y	10	0	1 (1%)	2 (2%)	1 (1%)	9 (8%)	0
Southampton	**227**	**165**	**132**		**58**	**97 (59%)**	**71 (43%)**	**128 (78%)**	**140 (85%)**	**112 (68%)**	**136 (82%)**
Poole Hospital NHS Foundation Trust	8	0	0	N	0	0	0	0	0	0	0
University Hospital Southampton NHS Trust	127	85	63	Y	50	28 (33%)	0	62 (73%)	63 (74%)	58 (68%)	62 (73%)
Salisbury NHS Foundation Trust	92	80	69	Y	75	69 (86%)	71 (89%)	66 (83%)	77 (96%)	54 (68%)	74 (93%)
Wirral	**259**	**247**	**223**		**86**	**150 (61%)**	**116 (47%)**	**232 (94%)**	**201 (81%)**	**200 (81%)**	**191 (77%)**
Wirral University Teaching Hospital NHS Foundation Trust	105	133	126	Y	>100	102 (77%)	62 (47%)	128 (96%)	116 (87%)	117 (88%)	114 (86%)
Clatterbridge Cancer Centre NHS Foundation Trust	6	0	0	N	0	0	0	0	0	0	0
Countess of Chester Hospital NHS Foundation Trust	72	65	55	Y	76	34 (52%)	19 (29%)	55 (85%)	47 (72%)	41 (63%)	33 (51%)
Warrington and Halton Hospitals NHS Foundation Trust	76	49	42	Y	55	14 (29%)	35 (71%)	49 (100%)	38 (78%)	42 (86%)	44 (90%)

[1] A number of NHS Trusts refer patients to more than one specialist MDT including Queen Elizabeth Hospital King's Lynn NHS Trust and Ipswich Hospital NHS Trust (also refer patients to Norfolk & Norwich University Hospital NHS Trust sMDT), County Durham and Darlington NHS Foundation Trust (South Tees Hospitals NHS Foundation Trust sMDT), Worcestershire Acute Hospitals NHS Trust (University Hospitals Coventry and Warwickshire NHS Trust sMDT), York Hospitals NHS Trust (Leeds Teaching Hospitals NHS Trust sMDT) and Hampshire Hospitals Foundation Trust (University Hospital Southampton NHS Trust sMDT). Where this occurs due to different hospitals within the same Trust accessing different specialist MDTs, individual hospital data were included in the relevant specialist MDT, otherwise data was included in the specialist MDT most frequently accessed by the Trust.

[2] % of total for whom all three T, N and M are non-missing (X allowed)

[3] Includes Mount Vernon

Appendix 3. Preliminary results for selected data items in the NPCA Prospective Audit by specialist MDT in England for patients newly diagnosed between 1 April 2014 and 31 July 2014.

Specialist MDT submissions with ≥50% missing data highlighted in light blue.

specialist MDT	No. patients with NPCA record	Patients with age recorded		Performance status recorded		ASA score recorded		PSA level recorded		TNM recorded						Gleason score recorded		Biopsy type recorded		mpMRI performed		Planned prostate cancer treatment		
		miss. (%)	age>70 %	miss. (%)	PS=0	miss. (%)	ASA=1 %	miss. (%)	PSA>10 %	miss. (%)	T3/4 %	miss. (%)	N1	miss. (%)	M!	miss. (%)	Gls≥8	miss. (%)	TRUS	miss. (%)	before biopsy	miss. (%)	Radical surgery	Radical RT
Overall	**12305**	**0**	**6055 (49%)**	**7603 (62%)**	**3157 (67%)**	**8110 (66%)**	**2125 (51%)**	**3391 (28%)**	**4780 (54%)**	**5389 (44%)**	**2538 (37%)**	**6111 (50%)**	**523 (8%)**	**6296 (51%)**	**776 (13%)**	**4038 (33%)**	**2080 (25%)**	**6557 (53%)**	**4884 (85%)**	**9717 (79%)**	**1295 (50%)**	**5816 (47%)**	**1270 (20%)**	**1872 (29%)**
Barking, Havering & Redbridge	81	0	36 (44%)	71 (88%)	8 (80%)	70 (86%)	7 (64%)	16 (20%)	27 (42%)	15 (19%)	25 (38%)	15 (19%)	5 (8%)	27 (33%)	3 (6%)	20 (25%)	17 (28%)	62 (77%)	10 (53%)	68 (84%)	10 (77%)	50 (62%)	5 (16%)	1 (3%)
Barts	131	0	66 (50%)	112 (85%)	9 (47%)	106 (81%)	18 (72%)	87 (66%)	20 (45%)	61 (47%)	31 (44%)	57 (44%)	2 (3%)	57 (44%)	5 (7%)	32 (24%)	24 (24%)	109 (83%)	19 (86%)	112 (85%)	18 (95%)	112 (85%)	3 (16%)	0
Bradford	193	0	98 (51%)	117 (61%)	42 (55%)	121 (63%)	36 (50%)	12 (6%)	107 (59%)	153 (79%)	24 (60%)	167 (87%)	8 (31%)	178 (92%)	4 (27%)	39 (20%)	43 (28%)	64 (33%)	11 (9%)	193 (100%)	0	126 (65%)	14 (21%)	28 (42%)
Brighton and Sussex	484	0	276 (57%)	297 (61%)	110 (59%)	474 (98%)	7 (70%)	145 (30%)	182 (54%)	203 (42%)	117 (42%)	273 (56%)	15 (7%)	245 (51%)	35 (15%)	191 (39%)	73 (25%)	315 (65%)	157 (93%)	357 (74%)	5 (4%)	272 (56%)	13 (6%)	67 (32%)
Cambridge	469	0	257 (55%)	219 (47%)	169 (68%)	296 (63%)	87 (50%)	13 (3%)	243 (53%)	158 (34%)	73 (23%)	201 (43%)	17 (6%)	167 (36%)	43 (14%)	115 (25%)	84 (24%)	191 (41%)	232 (83%)	396 (84%)	15 (21%)	49 (10%)	69 (16%)	126 (30%)
Central Manchester	201	0	102 (51%)	43 (21%)	94 (59%)	177 (88%)	7 (29%)	13 (6%)	110 (59%)	26 (13%)	53 (30%)	28 (14%)	15 (9%)	28 (14%)	26 (15%)	38 (19%)	35 (21%)	69 (34%)	126 (95%)	195 (97%)	2 (33%)	80 (40%)	13 (11%)	5 (4%)
City Hospitals Sunderland	191	0	103 (54%)	2 (1%)	150 (79%)	31 (16%)	115 (72%)	22 (12%)	96 (57%)	119 (62%)	35 (49%)	153 (80%)	9 (24%)	166 (87%)	7 (28%)	70 (37%)	26 (21%)	67 (35%)	115 (93%)	174 (91%)	3 (18%)	0	21 (11%)	30 (16%)
Colchester Hospital	386	0	194 (50%)	379 (98%)	6 (86%)	328 (85%)	23 (40%)	86 (22%)	165 (55%)	207 (54%)	74 (41%)	247 (64%)	13 (9%)	230 (60%)	19 (12%)	125 (32%)	51 (20%)	193 (50%)	104 (54%)	206 (53%)	150 (83%)	192 (50%)	19 (10%)	74 (38%)
Derby Hospitals	221	0	124 (56%)	120 (54%)	44 (44%)	131 (59%)	32 (36%)	76 (34%)	90 (62%)	107 (48%)	43 (38%)	122 (55%)	11 (11%)	116 (52%)	29 (28%)	64 (29%)	50 (32%)	49 (22%)	155 (90%)	200 (90%)	0	57 (26%)	21 (13%)	48 (29%)
East & North Hertfordshire	266	0	142 (53%)	162 (61%)	65 (63%)	96 (36%)	72 (42%)	29 (11%)	130 (55%)	135 (51%)	38 (29%)	138 (52%)	15 (12%)	166 (62%)	15 (15%)	160 (60%)	35 (33%)	114 (43%)	125 (82%)	124 (47%)	57 (40%)	26 (10%)	46 (19%)	48 (20%)
East Kent Hospitals	189	0	94 (50%)	109 (58%)	60 (75%)	189 (100%)	0	188 (99%)	0	81 (43%)	35 (32%)	85 (45%)	9 (9%)	98 (52%)	5 (5%)	68 (36%)	30 (25%)	189 (100%)	0	189 (100%)	0	189 (100%)	0	0
Gloucestershire Hospitals	337	0	192 (57%)	98 (29%)	175 (73%)	75 (22%)	108 (41%)	31 (9%)	200 (65%)	136 (40%)	73 (36%)	163 (48%)	12 (7%)	142 (42%)	35 (18%)	136 (40%)	54 (27%)	89 (26%)	238 (96%)	195 (58%)	81 (57%)	32 (9%)	52 (17%)	75 (25%)
Guy's and St Thomas'	235	0	86 (37%)	134 (57%)	74 (73%)	150 (64%)	44 (52%)	98 (42%)	70 (51%)	148 (63%)	26 (30%)	148 (63%)	3 (3%)	150 (64%)	4 (5%)	114 (49%)	26 (21%)	190 (81%)	35 (78%)	166 (71%)	63 (91%)	185 (79%)	5 (10%)	1 (2%)
Heart of England	197	0	88 (45%)	188 (95%)	0	20 (10%)	6 (3%)	11 (6%)	83 (45%)	117 (59%)	22 (28%)	117 (59%)	1 (1%)	149 (76%)	15 (31%)	15 (8%)	65 (36%)	20 (10%)	177 (100%)	186 (94%)	0	13 (7%)	62 (34%)	25 (14%)
Hull and East Yorkshire	322	0	148 (46%)	119 (37%)	105 (52%)	107 (33%)	81 (38%)	25 (8%)	166 (56%)	129 (40%)	62 (32%)	166 (52%)	16 (10%)	180 (56%)	27 (19%)	87 (27%)	45 (19%)	95 (30%)	177 (78%)	249 (77%)	27 (37%)	138 (43%)	38 (21%)	40 (22%)
Imperial College	281	0	120 (43%)	153 (54%)	104 (81%)	145 (52%)	101 (74%)	14 (5%)	153 (57%)	68 (24%)	63 (30%)	76 (27%)	16 (8%)	82 (29%)	25 (13%)	55 (20%)	54 (24%)	74 (26%)	148 (71%)	109 (39%)	118 (69%)	39 (14%)	52 (21%)	48 (20%)
Lancashire Teaching Hospitals	401	0	192 (48%)	101 (25%)	210 (70%)	241 (60%)	70 (44%)	27 (7%)	208 (56%)	70 (17%)	147 (44%)	78 (19%)	27 (8%)	74 (18%)	37 (11%)	56 (14%)	111 (32%)	139 (35%)	241 (92%)	291 (73%)	10 (9%)	66 (16%)	62 (19%)	150 (45%)
Leeds Teaching Hospitals	194	0	96 (49%)	192 (99%)	1 (50%)	157 (81%)	18 (49%)	153 (79%)	18 (44%)	145 (75%)	19 (39%)	151 (78%)	7 (16%)	153 (79%)	9 (22%)	61 (31%)	25 (19%)	154 (79%)	29 (73%)	191 (98%)	1 (33%)	81 (42%)	28 (25%)	31 (27%)
Medway	278	0	128 (46%)	15 (5%)	178 (68%)	62 (22%)	109 (50%)	79 (28%)	88 (44%)	25 (9%)	89 (35%)	24 (9%)	11 (4%)	22 (8%)	22 (9%)	41 (15%)	67 (28%)	162 (58%)	99 (85%)	203 (73%)	34 (45%)	160 (58%)	13 (11%)	41 (35%)
Newcastle Upon Tyne	351	0	161 (46%)	293 (83%)	36 (62%)	244 (70%)	43 (40%)	111 (32%)	142 (59%)	213 (61%)	76 (55%)	231 (66%)	5 (4%)	216 (62%)	18 (13%)	96 (27%)	55 (22%)	231 (66%)	104 (87%)	297 (85%)	7 (13%)	215 (61%)	29 (21%)	34 (25%)
Norfolk & Norwich	256	0	130 (51%)	59 (23%)	146 (74%)	142 (55%)	87 (76%)	7 (3%)	143 (57%)	171 (67%)	32 (38%)	172 (67%)	4 (5%)	180 (70%)	3 (4%)	47 (18%)	51 (24%)	147 (57%)	103 (94%)	190 (74%)	3 (5%)	116 (45%)	49 (35%)	66 (47%)

Specialist MDT submissions with ≥50% missing data highlighted in light blue.

specialist MDT	No. patients with NPCA record	Patients with age recorded		Performance status recorded		ASA score recorded		PSA level recorded		TNM recorded						Gleason score recorded		Biopsy type recorded		mpMRI performed		Planned prostate cancer treatment		
		miss. (%)	age>70 %	miss. (%)	PS=0	miss. (%)	ASA=1 %	miss. (%)	PSA>10 %	miss. (%)	T3/4 %	miss. (%)	N1	miss. (%)	M!	miss. (%)	Gls≥8	miss. (%)	TRUS	miss. (%)	before biopsy	miss. (%)	Radical surgery	Radical RT
North Bristol NHS Trust	514	0	247 (48%)	385 (75%)	78 (60%)	423 (82%)	42 (46%)	126 (25%)	204 (53%)	172 (33%)	103 (30%)	188 (37%)	17 (5%)	190 (37%)	34 (10%)	161 (31%)	74 (21%)	396 (77%)	103 (87%)	465 (90%)	8 (16%)	277 (54%)	27 (11%)	42 (18%)
Northampton General Hospital	159	0	73 (46%)	84 (53%)	55 (73%)	100 (63%)	23 (39%)	3 (2%)	84 (54%)	35 (22%)	48 (39%)	43 (27%)	13 (11%)	33 (21%)	14 (11%)	21 (13%)	30 (22%)	89 (56%)	58 (83%)	159 (100%)	0	36 (23%)	10 (8%)	32 (26%)
Nottingham University Hospitals	190	0	76 (40%)	190 (100%)	0	184 (97%)	6 (100%)	18 (9%)	94 (55%)	109 (57%)	24 (30%)	125 (66%)	6 (9%)	125 (66%)	8 (12%)	87 (46%)	32 (31%)	98 (52%)	80 (87%)	163 (86%)	6 (22%)	126 (66%)	11 (17%)	9 (14%)
Oxford University Hospitals	256	0	123 (48%)	205 (80%)	32 (63%)	120 (47%)	92 (68%)	105 (41%)	70 (46%)	209 (82%)	19 (40%)	215 (84%)	10 (24%)	225 (88%)	4 (13%)	157 (61%)	23 (23%)	102 (40%)	149 (97%)	182 (71%)	10 (14%)	68 (27%)	30 (16%)	41 (22%)
Plymouth Hospitals	239	0	113 (47%)	219 (92%)	16 (80%)	226 (95%)	4 (31%)	15 (6%)	147 (66%)	79 (33%)	66 (41%)	84 (35%)	8 (5%)	55 (23%)	31 (17%)	73 (31%)	28 (17%)	153 (64%)	77 (90%)	215 (90%)	9 (38%)	138 (58%)	14 (14%)	22 (22%)
Portsmouth Hospitals	167	0	99 (59%)	103 (62%)	24 (38%)	75 (45%)	83 (90%)	8 (5%)	78 (49%)	71 (43%)	40 (42%)	78 (47%)	14 (16%)	84 (50%)	12 (14%)	30 (18%)	40 (29%)	33 (20%)	126 (94%)	161 (96%)	1 (17%)	5 (3%)	14 (9%)	19 (12%)
Princess Alexandra Hospital	185	0	111 (60%)	185 (100%)	0	185 (100%)	0	127 (69%)	25 (43%)	130 (70%)	24 (44%)	139 (75%)	7 (15%)	140 (76%)	4 (9%)	180 (97%)	0	185 (100%)	0	185 (100%)	0	185 (100%)	0	0
Royal Berkshire	178	0	86 (48%)	178 (100%)	0	178 (100%)	0	175 (98%)	2 (67%)	135 (76%)	24 (56%)	143 (80%)	5 (14%)	173 (97%)	2 (40%)	176 (99%)	1 (50%)	177 (99%)	1 (100%)	177 (99%)	0	177 (99%)	1 (100%)	0
Royal Devon and Exeter	414	0	224 (54%)	163 (39%)	183 (73%)	124 (30%)	158 (54%)	65 (16%)	196 (56%)	40 (10%)	141 (38%)	73 (18%)	38 (11%)	71 (17%)	46 (13%)	74 (18%)	110 (32%)	95 (23%)	278 (87%)	264 (64%)	129 (86%)	52 (13%)	76 (21%)	103 (28%)
The Royal Liverpool and Broadgreen	251	0	123 (49%)	144 (57%)	70 (65%)	92 (37%)	83 (52%)	32 (13%)	129 (59%)	86 (34%)	62 (38%)	99 (39%)	7 (5%)	108 (43%)	5 (3%)	52 (21%)	66 (33%)	106 (42%)	98 (68%)	181 (72%)	58 (83%)	90 (36%)	37 (23%)	25 (16%)
Royal Surrey County	525	0	252 (48%)	366 (70%)	117 (74%)	364 (69%)	110 (68%)	229 (44%)	141 (48%)	334 (64%)	57 (30%)	350 (67%)	16 (9%)	384 (73%)	23 (16%)	249 (47%)	50 (18%)	391 (74%)	87 (65%)	438 (83%)	78 (90%)	419 (80%)	9 (8%)	26 (25%)
Salford Royal Hospitals	151	0	77 (51%)	43 (28%)	89 (82%)	45 (30%)	63 (59%)	14 (9%)	63 (46%)	33 (22%)	32 (27%)	35 (23%)	13 (11%)	38 (25%)	7 (6%)	10 (7%)	50 (35%)	44 (29%)	100 (93%)	148 (98%)	0	65 (43%)	20 (23%)	33 (38%)
Sheffield Teaching Hospitals	379	0	193 (51%)	110 (29%)	221 (82%)	157 (41%)	158 (71%)	199 (53%)	103 (57%)	60 (16%)	125 (39%)	97 (26%)	22 (8%)	73 (19%)	46 (15%)	140 (37%)	70 (29%)	169 (45%)	182 (87%)	264 (70%)	24 (21%)	111 (29%)	65 (24%)	57 (21%)
South Tees Hospitals	200	0	100 (50%)	66 (33%)	67 (50%)	200 (100%)	0	14 (7%)	94 (51%)	81 (41%)	36 (30%)	85 (43%)	9 (8%)	129 (65%)	18 (25%)	22 (11%)	47 (26%)	41 (21%)	159 (100%)	192 (96%)	0	154 (77%)	7 (15%)	24 (52%)
Stockport	226	0	111 (49%)	203 (90%)	21 (91%)	223 (99%)	0	59 (26%)	91 (54%)	134 (59%)	46 (50%)	145 (64%)	15 (19%)	148 (65%)	10 (13%)	54 (24%)	38 (22%)	204 (90%)	21 (95%)	217 (96%)	4 (44%)	199 (88%)	5 (19%)	3 (11%)
The Christie	128	0	54 (42%)	108 (84%)	20 (100%)	88 (69%)	28 (70%)	47 (37%)	46 (57%)	16 (13%)	23 (21%)	32 (25%)	5 (5%)	33 (26%)	5 (5%)	49 (38%)	23 (29%)	76 (59%)	44 (85%)	126 (98%)	0	108 (84%)	21 (105%)	21 (105%)
Mid Yorkshire Hospitals	99	0	40 (40%)	0	40 (40%)	0	45 (45%)	3 (3%)	53 (55%)	6 (6%)	40 (43%)	46 (46%)	1 (2%)	67 (68%)	7 (22%)	10 (10%)	25 (28%)	10 (10%)	86 (97%)	49 (49%)	1 (2%)	0	56 (57%)	76 (77%)
Royal Bournemouth & Christchurch	292	0	150 (51%)	210 (72%)	37 (45%)	287 (98%)	4 (80%)	34 (12%)	119 (46%)	168 (58%)	51 (41%)	173 (59%)	10 (8%)	186 (64%)	8 (8%)	72 (25%)	54 (25%)	218 (75%)	61 (82%)	231 (79%)	23 (38%)	223 (76%)	10 (14%)	27 (39%)
Royal Marsden	316	0	145 (46%)	268 (85%)	27 (56%)	284 (90%)	12 (38%)	130 (41%)	88 (47%)	95 (30%)	106 (48%)	75 (24%)	23 (10%)	71 (22%)	30 (12%)	162 (51%)	35 (23%)	164 (52%)	133 (88%)	175 (55%)	123 (87%)	164 (52%)	22 (14%)	66 (43%)
University College London Hospitals	143	0	47 (33%)	130 (91%)	8 (62%)	135 (94%)	5 (63%)	101 (71%)	19 (45%)	60 (42%)	33 (40%)	66 (46%)	4 (5%)	70 (49%)	6 (8%)	99 (69%)	6 (14%)	111 (78%)	28 (88%)	128 (90%)	14 (93%)	121 (85%)	4 (18%)	2 (9%)
University Hospital of South Manchester	14	0	6 (43%)	5 (36%)	6 (67%)	13 (93%)	0	1 (7%)	4 (31%)	10 (71%)	0	13 (93%)	0	13 (93%)	0	2 (14%)	1 (8%)	13 (93%)	1 (100%)	13 (93%)	0	14 (100%)	0	0

Specialist MDT submissions with ≥50% missing data highlighted in light blue.

specialist MDT	No. patients with NPCA record	Patients with age recorded		Performance status recorded		ASA score recorded		PSA level recorded		TNM recorded						Gleason score recorded		Biopsy type recorded		mpMRI performed		Planned prostate cancer treatment		
		miss. (%)	age>70 %	miss. (%)	PS=0	miss. (%)	ASA=1 %	miss. (%)	PSA>10 %	miss. (%)	T3/4 %	miss. (%)	N1	miss. (%)	M!	miss. (%)	Gls≥8	miss. (%)	TRUS	miss. (%)	before biopsy	miss. (%)	Radical surgery	Radical RT
University Hospital Birmingham	324	0	131 (40%)	283 (87%)	34 (83%)	258 (80%)	11 (17%)	42 (13%)	136 (48%)	161 (50%)	48 (29%)	234 (72%)	11 (12%)	266 (82%)	12 (21%)	52 (16%)	85 (31%)	114 (35%)	206 (98%)	297 (92%)	10 (37%)	197 (61%)	48 (38%)	78 (61%)
University Hospitals Coventry & Warwickshire	113	0	47 (42%)	82 (73%)	25 (81%)	82 (73%)	15 (48%)	0	60 (53%)	56 (50%)	22 (39%)	74 (65%)	7 (18%)	73 (65%)	7 (18%)	10 (9%)	29 (28%)	55 (49%)	55 (95%)	87 (77%)	1 (4%)	37 (33%)	12 (16%)	19 (25%)
University Hospital of North Midlands (WAS University of North Staffordshire NHS Trust)	472	0	236 (50%)	431 (91%)	22 (54%)	388 (82%)	25 (30%)	259 (55%)	111 (52%)	288 (61%)	74 (40%)	310 (66%)	15 (9%)	315 (67%)	21 (13%)	104 (22%)	68 (18%)	337 (71%)	131 (97%)	367 (78%)	56 (53%)	273 (58%)	41 (21%)	45 (23%)
University Hospitals of Leicester	294	0	161 (55%)	294 (100%)	0	292 (99%)	2 (100%)	290 (99%)	3 (75%)	268 (91%)	11 (42%)	270 (92%)	5 (21%)	274 (93%)	4 (20%)	291 (99%)	0	291 (99%)	2 (67%)	294 (100%)	0	294 (100%)	0	0
University Hospital Southampton	165	0	91 (55%)	68 (41%)	69 (71%)	94 (57%)	30 (42%)	37 (22%)	55 (43%)	35 (21%)	49 (38%)	59 (36%)	5 (5%)	82 (50%)	4 (5%)	25 (15%)	22 (16%)	95 (58%)	44 (63%)	163 (99%)	1 (50%)	29 (18%)	37 (27%)	60 (44%)
Wirral	247	0	106 (43%)	97 (39%)	110 (73%)	131 (53%)	55 (47%)	15 (6%)	124 (53%)	31 (13%)	77 (36%)	48 (19%)	16 (8%)	44 (18%)	22 (11%)	46 (19%)	52 (26%)	67 (27%)	169 (94%)	85 (34%)	135 (83%)	56 (23%)	79 (41%)	104 (54%)