















National Cancer Audit Collaborating Centre (NATCAN)

Julie Nossiter PhD
Director of Operations, NATCAN

31st October 2024



Issues with quality of cancer care in England & Wales NHS

- Deficits & inequalities in receipt of evidence-based care
- Cancer outcomes and experience of care varies between hospitals
- UK lags behind other countries in cancer outcomes
- Increasing waiting times





National Cancer Audit Collaborating Centre (NATCAN)

NATCAN aims to:

- 1. Provide regular, timely evidence to cancer services of variations in care in England & Wales
- 2. Identify reasons for the variation in care and help guide quality improvement initiatives
- 3. Stimulate improvements in cancer detection, access to treatment and outcomes

Funded by National Health Service (NHS) England and the Welsh Government initially for 3 years





Clinical Effectiveness Unit









Academic partnership since 1998
Clinical Effectiveness Unit (CEU)
supports 10 LSHTM academic
posts currently

Career progression
Research Fellows to Professors



- Key feature is a multidisciplinary approach to audit and research, combining clinical and methodological expertise
- > 35 Clinical Fellows gained methodological & research skills







Grant-funded research projects and fellowships

In-depth methodological research

7 ongoing NIHR/MRC projects based at LSHTM (current funding £8.5M)

National Clinical Audits



Journal articles

Focussed methodological topics

170 peer-reviewed CEU publications since 2018

Roots into NHS

Clinicians
Patients
Professional bodies





LSHTM PhDs

Methodological development clinical epidemiology

Audit clinical fellows 13 ongoing PhDs 9 completed PhDs



Home of the ten national cancer audits in England & Wales

New cancer audits – contract started October 2022

- Kidney Cancer
- NKCA
 National Kidney
 Cancer Audit
- Non-Hodgkin Lymphoma



- Ovarian Cancer
- NOCA

 National Ovarian
 Cancer Audit
- Pancreatic Cancer



- 🕨 Primary & 🁩
- National Audit of
- Metastatic Breast Cancer



Established cancer audits moved into NATCAN – throughout 2023

- Lung Cancer 2005 NLCA | National Lung Cancer Audit
- NLCA

 National Lung
 Cancer Audit

- OG Cancer 2006
- NOGCA | National Oesophago-Gastric



- Bowel Cancer 2010
- NBOCA | National Bowel Cancer Audit



Prostate Cancer – 2013





NATCAN: key features

- Close clinical-methodological partnership
- Close links with all stakeholder groups
 - Clinical professional bodies
 - NHS commissioners & regulators
 - Patients, charities, public
- Use of routine, national (existing and linked) datasets only
- Audit delivery & QI informed by research & development:
 - Methodological development
 - Clinical epidemiology
 - Health services research





NATCAN: innovations

- Use of more timely, more frequent data
 - Rapid cancer registration data (RCRD) as well as gold-standard registration data
- Shorten delays & increase frequency of reporting quarterly
- 'State of the Nation' reports (10 pages, 5 recommendations)
 - Previous Annual Reports often lengthy
 - Patient Summaries and infographics
- Greater focus on Quality Improvement (QI)
 - Define 5 QI goals mapped to 10 performance indicators
 - QI tools & activities: flexible and responsive, based on experience in CEU
 - Aiming to 'close the audit cycle' design, implement & evaluate QI initiatives
 - Closely aligned with existing national initiatives for QI



NATCAN: progress so far & next steps

First year (from Oct 2022)

- Establish organisational & governance structures
- Develop NATCAN communication strategy
- Creation of common data access channels
- Establish 6 'new' audits
- Move 4 'existing' audits into NATCAN
- Recruitment for PPI Forums
- Audit scoping & development

From second year onwards (from Oct 2023)

- Develop NATCAN QI strategy & QI plans for each audit
- Reporting & feedback of audit results (quarterly & annual)

From third year onwards (from Oct 2024)

- Design QI initiatives
- Roll out of 'full audit cycle' projects



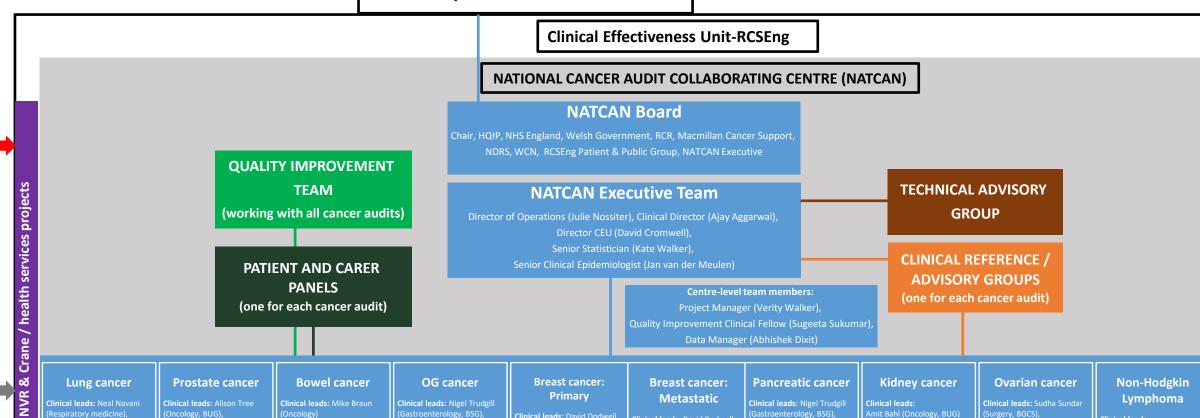


NATCAN team & stakeholders

NATCAN: Current Organisation



HEALTHCARE QUALITY IMPROVEMENT PARTNERSHIP



Clinical leads: Neal Navani Doug West (Surgery, SCTS)

Senior Methodologists: Statistician/Data Scientist Clinical Fellow: Lauren Dixor Audit Manager:

Clinical leads: Alison Tree Statistician/Data Scientist: Adrian Cook, Emily Mayne Clinical Fellow: Joanna

Audit Manager: Marina Parry

Clinical leads: Mike Braun Senior Methodologists: Jar van der meulen, Kate Walke Clinical Fellow: Adil Rashid, Data Scientists: Angela Audit Manager: Karen Darley Clinical leads: Nigel Trudgill AUGIS), Tom Crosby/Betsan Senior Methodologist: David

Cromwell/Methodologist: Data Scientist: Amanda Audit Manager: Karen Darley Clinical leads: David Dodwell Keiran Horgan (Surgery, ABS) Senior Methodologist: David

Methodologist: Diana

Clinical Fellows: Jemma Boyle Data Scientist: Christine Delo Audit Manager: Jibby Medina

Metastatic

Clinical leads: David Dodwell.

Senior Methodologist: David

Methodologist: Diana Withro Sarah Blacker, Liyang Wang Data Scientist: Christine Delo Audit Manager: Jibby Medina

Clinical leads: Nigel Trudgill enior Methodologist: Davi

Cromwell/ Methodologist: Clinical Fellow: Suzi Nallam Audit Manager: Vikki Hart

Clinical leads:

Senior Methodologists: an van der Meulen, Clinical Fellow: Raghav

Data Scientist: Emily Mayne Audit Manager: Marina Pari Clinical leads: Sudha Sundar Senior Methodologists: Jar van der Meulen, Clinical Fellow: Georgia

Audit Manager:

Lymphoma Clinical leads:

David Cutter (Oncology, BSH) Senior Methodologists: Kate Methodologist: Lu Han

Data Scientist: Ella Barber Audit Manager: Vikki Hart

ABS, Association of Breast Surgery; ACPGBI, Association of Coloproctology of Great Britain and Ireland; AUGIS, Association of Upper Gastrointestinal Surgeons; BAUS, British Association of Urological Surgeons; BSG, British Society of Gastroenterology;

BSH, British Society of Haematology; BUG, British Uro-oncology Group; CEU, Clinical Effectiveness Unit; HQIP, Healthcare Quality Improvement Partnership; LSHTM, London School of Hygiene & Tropical Medicine; MRC, Medical Research Council; NHSE, National Health Service England; NIHR, National Institute for Health and Care Research; NVR, National Vascular Registry; UKBCG, UK Breast Cancer Group; RCR, Royal College of Radiologists; RCSEng, Royal College of Surgeons of England; SCTS, Society for Cardiothoracic Surgery.

Clinical – methodological partnerships

Views of all stakeholders shape the Audits







NKCA











GIG



Action Kidney Cancer







Bowel Cancer UK













The National Cancer Audit Collaborating Centre (NATCAN)

x10

x1

NATCAN board comprising 18 members

x10 Patient and Public Forums

x20

who we work





















BREAST SURGER











































NATCAN

National Cancer Audit Collaborating Centre

x33

clinicians

x17

academics

x1

NATCAN

Reference

x10

clinical professional organisations who we collaborate with







Scoping & Quality Improvement plans



NATCAN Quality Improvement Plans

- Summer 2023 Scoping Exercise with key stakeholders
 - Defined the scope and care pathway for the 'new' cancer audits
 - Refreshed the scope for the 'established' audits
- Spring 2024 Continued this work to develop Quality Improvement Plans
 - 5 QI goals mapped to national guidelines and standards
 - 10 performance indicators measurable, actionable, improvable
 - Improvement methods and activities that will support implementation of QI plans
 - Strategies for reporting and disseminating results
 - Published September 2024



NATCAN publishes Quality Improvement Plans











Data & Performance Indicators

Use of routine, national cancer datasets



England

Cancer Outcomes and Services Dataset (COSD)

National Cancer Registration data (NCRD & RCRD)



CaNISC or Cancer Information System







- Only existing, routinely collected data are utilised no bespoke manual, data entry
- Model first developed by the National Prostate Cancer Audit in 2013
- Lung (2015), bowel & OG (2024) moved from a model based on their 'own' core dataset & bespoke data portal
- Single, data application in each country across all diagnostic codes



Patient journey





Data collection

NDRS develops & manages several information standards, and supports secondary care teams to code, collate and submit data throughout the patient journey













NDRS

NDRS registration teams curate the data. The data is put into a secure system where it can be linked with other data sources











The data is then used by

NDRS analysts, researchers, charities, NHS policy makers and commissioners and others









Who use the data to produce data outputs, knowledge sharing & communication

This includes evaluating service provisions, addressing health inequalites, environmental causes and improving outcomes for patients

Cancer Outcomes and Services Dataset (COSD)

- National standard for cancer data covering all patients diagnosed with cancer or receiving cancer treatment in or funded by the NHS in England
- Site-specific & generic data items
- Submitted from different hospital & pathology systems on a monthly basis

*Slide adapted from NDRS presentation during COSD Roadshows 2024



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'Gold-standard' Cancer Registration data (NCRD)

National Cancer Registration data (NCRD)

- Available on an annual basis
- Considerable delay between the last recorded episode and the data being available for analysis (> 24 months following diagnosis)





Rapid Cancer Registration Data (RCRD): England

- Key innovation in 2020/21 in response to Covid pandemic
- Contains proxy tumour registrations from 2018 onwards and some associated events on the cancer patient pathway
- Provides a quicker, indicative source of cancer data compared to the National Cancer Registration Data (NCRD)
- Available on a quarterly basis
- Much shorter delay: 3-4 months following diagnosis
- Challenges
 - Lower case ascertainment
 - Contains only limited data items
 - Focuses on data items generic across cancer sites



Linkage to routine, national datasets: annual



 Administrative hospital data and cancer treatment data for describing diagnostic pathway patterns, treatments received and clinical outcomes

England Cancer Outcomes and Services Dataset (COSD) National Cancer Registration data (NCRD) Hospital Episode Statistics (HES) Systemic Anti-Cancer Therapy (SACT) dataset National Radiotherapy Dataset (RTDS) Mortality data - Office for National Statistics (ONS) Medicines Dispensed in Primary Care (NHSBSA) Somatic Molecular Testing Dataset Cancer Waiting Times (CWT) Diagnostic Imaging Dataset (DIDS)

National Cancer Patient Experience Survey

Wales

CaNISC or Cancer Information System

Patient Episode Database for Wales (PEDW)

Radiotherapy Data available in Canisc

Mortality data - Office for National Statistics (ONS)

Linkage to routine, national datasets: quarterly



 Administrative hospital data and cancer treatment data for describing diagnostic pathway patterns, treatments received and clinical outcomes

England

Cancer Outcomes and Services Dataset (COSD)

National Cancer Registration data (RCRD)

Hospital Episode Statistics (HES)

Systemic Anti-Cancer Therapy (SACT) dataset

National Radiotherapy Dataset (RTDS)

Mortality data - Office for National Statistics (ONS)

Cancer Waiting Times (CWT)

HES – inpatient, outpatient, A&E

- Clinical information about diagnoses and procedures
- Patient information, such as age group, gender and ethnicity
- Administrative information, such as dates and methods of admission and discharge
- Geographical information such as where patients are treated and the area where they live

RTDS

Radiotherapy treatment (region, dose, fractions)

SACT

Systemic anti-cancer treatment (regimens, dose, duration)

Audit delivery & quality improvement is informed by research & development



Indicator development

Accurately measure care by provider Valid? Technically rigorous?

Risk adjustment

Fair comparisons

Methods for reporting

Timely reliable feedback, statistical power



Understanding variation

Establishing drivers of variation in care



Drive local quality improvement



Reporting & dissemination



NATCAN Reporting: Quarterly

Data Quality Indicators—published in April & July 2024

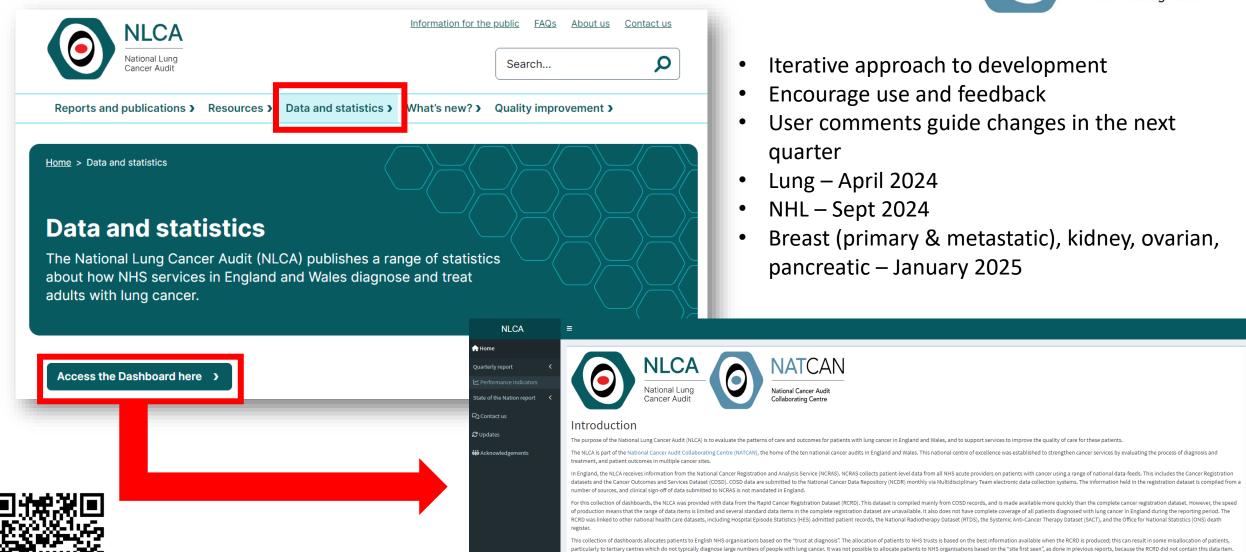
- Provide a local perspective on data completeness & identify where improvements are needed
- Data items chosen in collaboration with audit's clinical and methodological experts

Clinical Performance Indicator (PI) reports – published in October 2024

- Timely reporting of initial subset of PIs outlined in each audit's QI Plan, allowing providers to track progress of local QI activities
- Development work, in consultation with stakeholders, is in progress to determine which additional PIs are appropriate for quarterly reporting using RCRD and linked, routine hospital data

NATCAN Reporting: Quarterly Online Interactive Dashboards





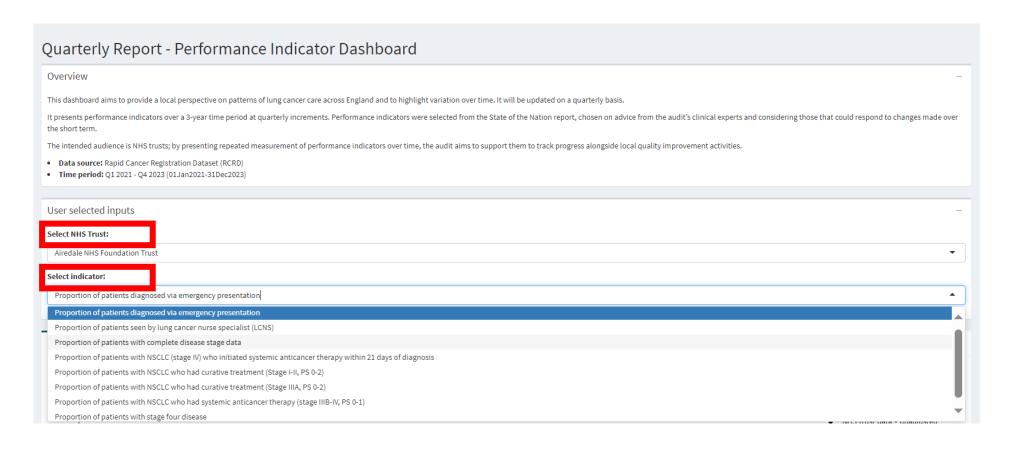
Dashboard overview

The algorithm used previously to determine "site first seen" could not be used with the data supplied for these analyses, and we encourage NHS trusts to ensure the COSD field "place first seen" is completed to enable this approach in futur

This app contains two sets of dashboards; one set are supplementary resources to accompany the State of the Nation Report and the other set form the basis of our Quarterly Report



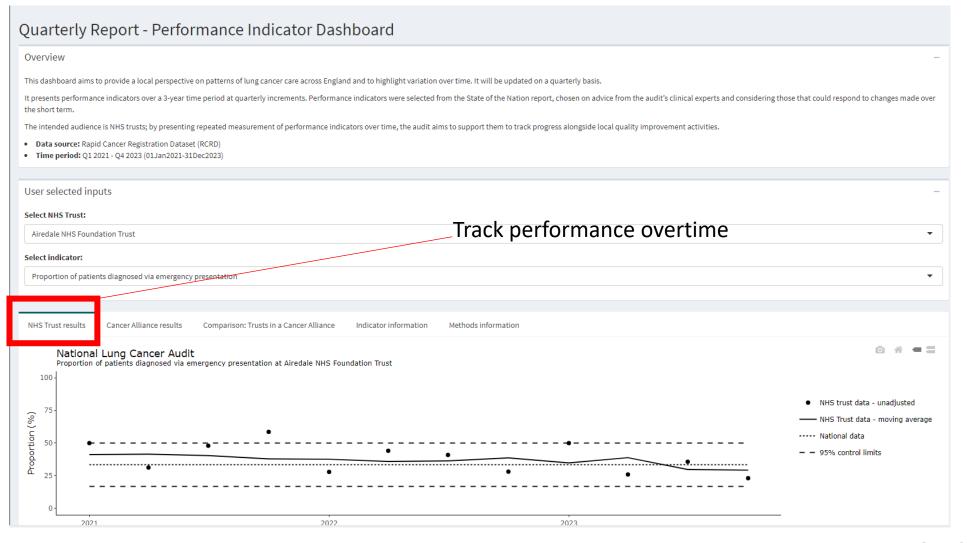




















NATCAN Reporting: Annual 'State of the Nation' Reports

The first results from six new national cancer audits have been published



12.09.24

The first results from six new national cancer audits in breast (primary and metastatic), ovarian, pancreatic, non-Hodgkin lymphoma and kidney cancer have been published by the National Cancer Audit Collaborating Centre (NATCAN).

Read the reports here:

- · National Kidney cancer Audit (NKCA)
- · National Audit of Metastatic Breast Cancer (NAoMe)
- National Ovarian Cancer Audit (NOCA)
- National Non-Hodgkin Lymphoma Cancer Audit (NNHLA)
- National Pancreatic Cancer Audit (NPaCA)
- National Audit of Primary Breast Cancer (NAoPri)



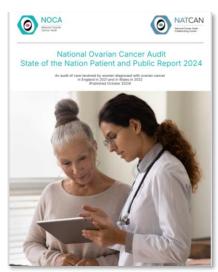
- Provides a concise overview of care received across England and Wales
- Describe national patterns of care against measurable standards
- Provide five key recommendations for action
- Accompanying provider-level results
 - benchmarking and identify unwarranted variation in care and outcomes
- Patient summary also available





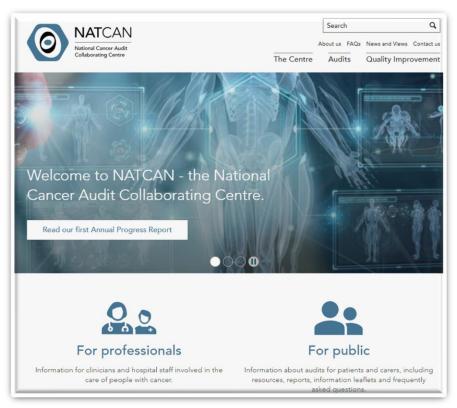
NATCAN

National Cancer Audit Collaborating Centre



NATCAN website

- All stakeholders can explore our comprehensive range of information and resources
- Latest updates and announcements



Audit team pages





Methodologist

Clinical Fellow





Senior Methodologist



30



Ella Barber Data Scientist



• Interviews



NATCAN

National Cancer Audit Collaborating Centre

Cathy Burton, Clinical Lead (Haematology), National Non-Hodgkin Lymphoma Audit



Rincy George, Policy Officer, Blood Cancer UK

@NATCAN_news

www.natcan.org.uk



NATCAN: next steps 2024/25

Innovations in reporting & feedback

- Design and rollout of interactive dashboards across all audits
- Further development will expand features of the dashboards
 - Downloadable reports, bespoke design responding to needs of each type of end-user

Stimulating improvement of cancer services

- Each audit will design & implement a national QI initiative
 - QI tools for local teams to identify good practice / areas of weakness
 - National programme of QI workshops / webinars
- Part of a development & research programme of QI methods

And beyond...

- Addition of other cancer types
- Expand datasets primary care data, PROMs
- UK wide
- International collaborations



National Prostate Cancer Audit: use of PROMs

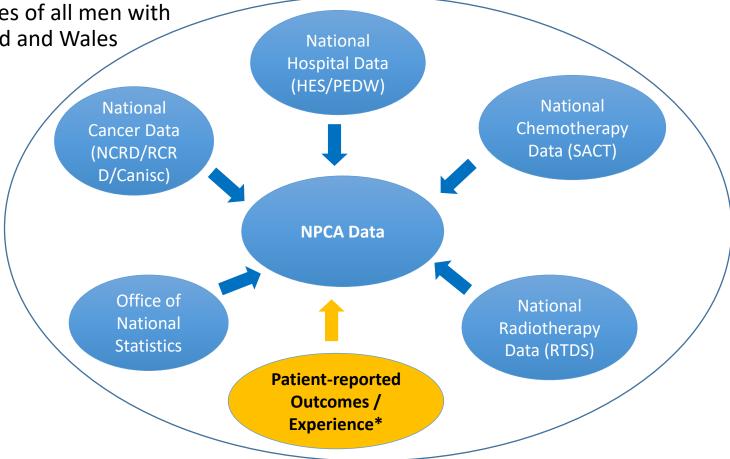


National Prostate Cancer Audit: routine, national data





Evaluates the care and outcomes of all men with newly diagnosed PCa in England and Wales



- One of the largest PROMs/PREMs programmes
- Contemporary evidence on functional outcomes from large-scale, real-world clinical practice





Background

- Patients undergoing radical treatments for localised prostate cancer (PC) usually survive for many years
 - adverse impact on sexual, urinary or bowel functioning
- PROMs determine patients' views of their symptoms, functional status and health-related QoL
 - measure safety and effectiveness of care
 - early performance assessment
- PREMs focus on aspects of the humanity of care received
 - measure experience of care
- PROMs/PREMs: measure the quality of clinical care





NPCA patient survey

- Aims: to determine variation among providers in men's
 - functional outcomes after radical treatment
 - experience of care
- Questionnaire developed in consultation with clinical and patient representatives
 - generic (EQ-5D-5L) and disease specific (EPIC-26) validated PROMs instruments
 - selected PREMs questions from National Cancer Patient Experience Survey (CPES)
- Survey sent to men at least 18 months after diagnosis:
 - who had radical treatment or who were on active surveillance
 - First round: diagnosed between 1st April 2014 30th September 2016 in England and 1st April 2015 30th September 2016 in Wales
 - Second round: diagnosed between 1st April 2018 30th September 2018 in England & Wales
- Successful patient engagement high response rates
 - Overall: survey sent to 60,817 men 73% responded (44,355)





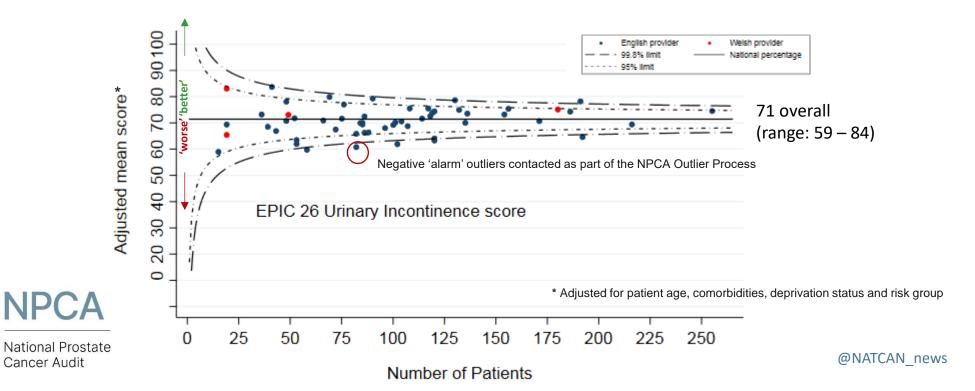
What are the outcomes reported by men after radical treatment for prostate cancer?

- Men were asked questions related to urinary, bowel and sexual function (EPIC-26)
- The answers to the questions were used to generate a validated summary score for each domain from 0-100
 - Higher scores represent better function
- Linked patient survey data to routine clinical data
 - Patient characteristics, tumour characteristics, disease status
 - Risk-adjustment for case-mix to enable provider comparisons



Outcomes reported by men after surgery

- On a scale of 0 to 100 where 100 is the best possible function:
 - Men rated their urinary function 71 out of 100
 - Men rated their sexual function 23 out of 100
- This varied by surgical centre:







Patient survey – key findings

- Significant variation in care experienced by patients, hospital outcomes and unmet morbidity burden following surgery and radiotherapy
- Men report poor sexual function after radical treatment (surgery: rated 23/100; radiotherapy: rated 17 100)
- Men may also report problems with urinary incontinence after surgery (rated 71/100) or bowel issues following radiotherapy (rated 85/100)





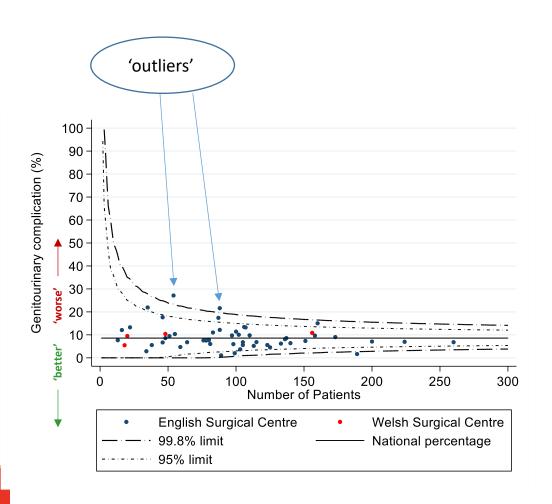
- Urinary toxicity after surgery
 - Performance Indicator, 2 years after surgery
 - PROMs (EPIC Urinary Domain)
- Gastrointestinal toxicity after radiotherapy
 - Performance Indicator, 2 years after radiotherapy
 - PROMs (EPIC Bowel Domain)
- Sexual function after surgery/radiotherapy
 - PROMs (EPIC Sexual Domain)
- 90-day readmissions after surgery





Public reporting of outcomes in radiation oncology: the National Prostate Cancer Audit

Ajay Aggarwal, PhD & 🖾 • Julie Nossiter, PhD • Matthew Parry, PhD • Arunan Sujenthiran, MD • Prof Anthony Zietman, MD • Prof Noel Clarke, ChM • et al. Show all authors



Changes in practice - compare outcomes between different treatment strategies in a "real-world" setting





National cohort study comparing severe medium-term urinary complications after robot-assisted vs laparoscopic vs retropubic open radical prostatectomy

Arunan Sujenthiran*, Julie Nossiter*, Matthew Parry*[†], Susan C. Charman*[†], Ajay Aggarwal[†], Heather Payne[‡], Prokar Dasgupta[§], Noel W. Clarke[¶], Jan van der Meulen[†] and Paul Cathcart*

*Clinical Effectiveness Unit, Royal College of Surgeons of England, London, UK, †Department of Health Services Research and Policy, London School of Hygiene and Tropical Medicine, London, UK, †Department of Oncology, University College London Hospitals, London, UK, §MRC Centre for Transplantation, King's College London, London, UK, †Department of Urology, Christie and Salford Royal NHS Foundation Trusts, Manchester, UK, and **Department of Urology, Guy's and \$1 Thomas' NHS Foundation Trust, London, UK



Robot-assisted radical prostatectomy vs laparoscopic and open retropubic radical prostatectomy: functional outcomes 18 months after diagnosis from a national cohort study in England

Julie Nossiter*,1,2, Arunan Sujenthiran², Susan C Charman¹,2, Paul J Cathcart³, Ajay Aggarwal¹,2, Heather Payne⁴, Noel W Clarke⁵,6 and Jan van der Meulen¹,2



Changes in practice - compare outcomes between different treatment strategies in a "real-world" setting



Comparison of Treatment-Related Toxicity With Hypofractionated or Conventionally Fractionated Radiation Therapy for Prostate Cancer: A National Population-Based Study

A. Sujenthiran †‡*, M. Parry †§*, J. Nossiter †, B. Berry †, P.J. Cathcart ‡, N.W. Clarke ||, H. Payne ¶, J. van der Meulen §, A. Aggarwal §**

Patient-Reported Functional Outcomes After Hypofractionated or Conventionally Fractional **Hypofractionated or Conventionally Fractionated Radiation for Prostate Cancer: A National Cohort Study in England**

Julie Nossiter, PhD1.2; Arunan Sujenthiran, MD2; Thomas E. Cowling, PhD1; Matthew G. Parry, MBChB, MSc2; Susan C. Charman, MSc1; Paul Cathcart, MD3; Noel W. Clarke, MBBS, ChM4.5; Heather Payne, MBBS, MD6; Jan van der Meulen, PhD1; and Ajay Aggarwal, MD, PhD7.8







Patient survey – key learnings

- PROMs are important for audits of services that aim to improve/protect functional outcomes (NPCA) >> measure of safety
- Provide additional information over and above what clinical data/routinely collected data provide
 - Changes in clinical measures may not always translate into benefits for patients
- Important tool to measure impact of ongoing changes in practice on outcomes
- Clinicians/providers accept PROMs as authoritative information
- Patients want PROMs patient centred care and shared decision making

Feedback from the NPCA PPI Forum:

'Patients need to understand the likelihood, severity and duration of the side effects from potential treatment options in order to make an informed decision about initial treatment'



Thank you!

Acknowledgements

NATCAN teams, Board, Executive, Stakeholders, Patients

