Detection, Asse… Surveillanc… Where does PSA fit in? …nagement of …state cancer

Professor Caroline Moore MD FRCS(Urol)
NIHR Research Professor
Head of Urology, University College London
Consultant Urologist, University College London Hospitals Trust

Disclosures

- I am a urologist
- I work full time in prostate cancer
- I don’t do radical prostatectomy

Disclosures

Grant funding

- National Institute for Health Research
- Medical Research Council
- Movember
- Prostate Cancer UK
- Cancer Research UK
- EAU Research Foundation

Commercial funding

- Trial funding Spectracure
- Proctor fees from Sonablate
- Speaker bureau fees from Astellas, Janssen, Bayer

The Guardian
Int

Prostate cancer becomes most common cancer diagnosis in England

There were 55,033 diagnoses of prostate cancer in England in 2023 compared with 47,526 diagnoses of breast cancer

‘Better and cheaper’: the case for prostate cancer screening among black men

Decision over routine PSA testing is due at end of this month, though some feel the supporting data is unclear

21st November 2025

Bigge
in dec

20 hours ago

Fergus Walsh
Medical Editor

TRANSFORM
is now recruiting

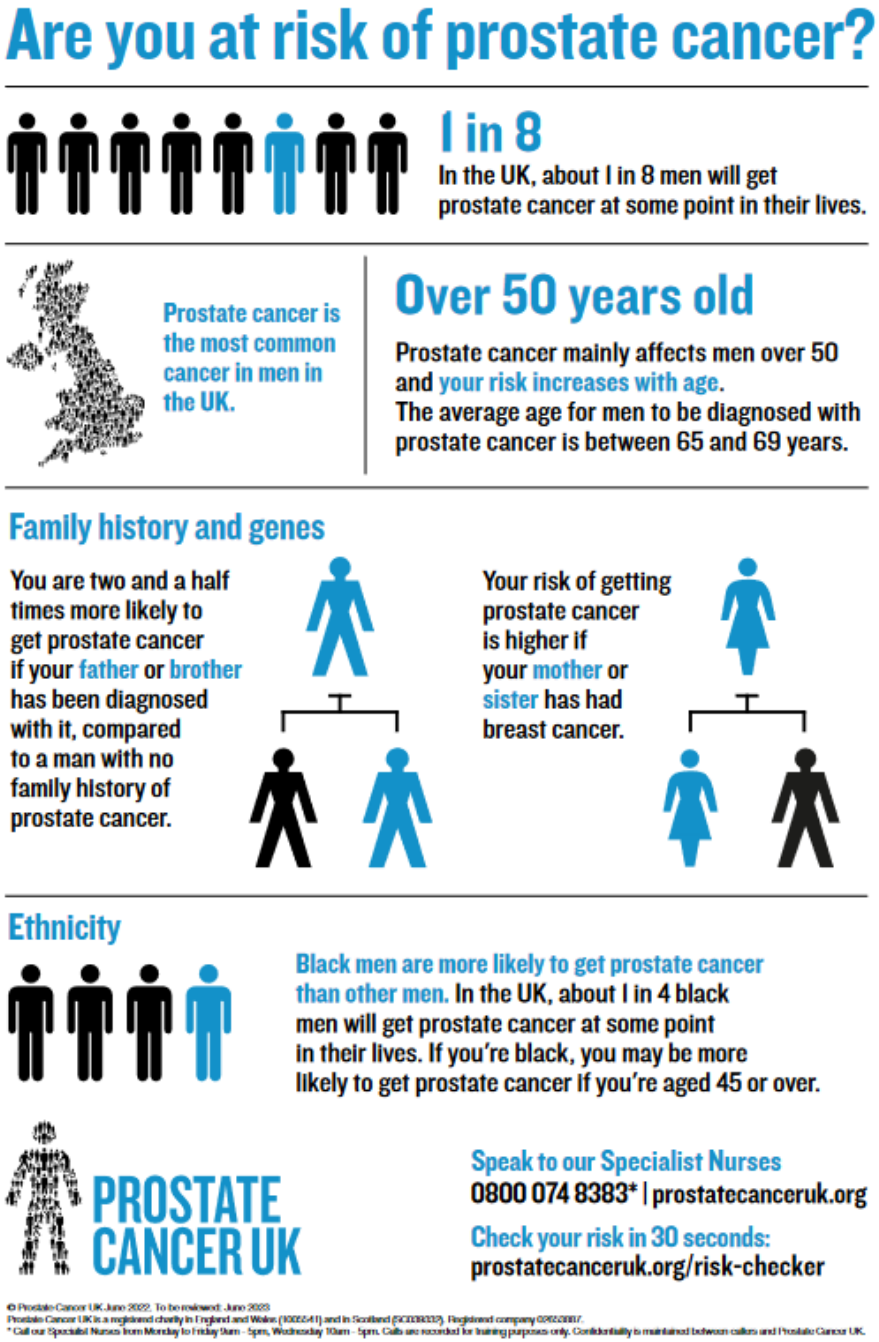
If you're invited, please take part in the largest prostate cancer screening trial in 20 years

PROSTATE CANCER UK
TRANSFORM

PROSTATE CANCER UK
TRANSFORM

Prostate Cancer

- Most commonly diagnosed cancer in UK men
  - 55,485 UK men diagnosed in 2022
  - 1 in 8 UK men diagnosed in lifetime
  - 1 in 4 UK Black men diagnosed in lifetime
- Second commonest cause of cancer death
  - 13,237 UK deaths in 2022



1. European Cancer Information System (ECIS) Data Explorer accessed 14/5/2024 at https://ecis.jrc.ec.europa.eu/index.php

Diagnosis & staging

2024 in England

58,218

men were **diagnosed** with prostate cancer

9%

increase compared with 53,462 men in 2023

2023 in Wales

2,402

men were **diagnosed** with prostate cancer

6%

decrease compared with 2,551 men in 2022

Disease presentation

For men diagnosed between January - December 2022 in England and between April - December 2023 in Wales*

12% E 20% W

of men presented with **metastatic** disease in England (E) and Wales (W)

5-19%

17-22%

5,696 2022
men were diagnosed with metastatic disease in England

8%

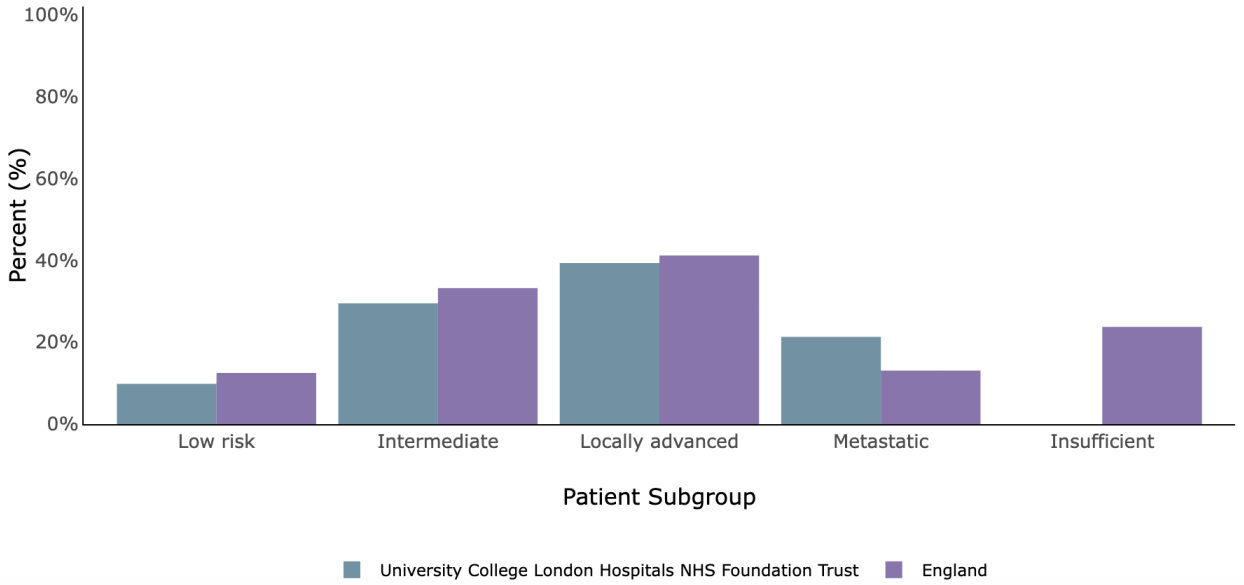
decrease compared with **6,161** 2021

NPCA
National Prostate Cancer Audit

National Prostate Cancer Audit - State of the Nation Report (01 Jan 2022 - 31 Dec 2022)

Prostate cancer risk group

Note, the time periods differ between England and Wales. England is patients diagnosed 1st Jan - 31st Dec 2022 and Wales is patients diagnosed 1st April - 31st December 2023.



NPCA
National Prostate Cancer Audit

Treatment allocation

For men diagnosed between January - December 2022 in England and between April - December 2023 in Wales

Low-risk*, localised disease

7% E — 2-40%

7% W — 3-10%

High-risk/locally advanced disease

69% E — 46-87%

68% W — 48-87%

of men had **radical treatments** in England (E) and Wales (W)

Low-risk: T stage 1/2, Gleason ≤6, M/N 0 or missing = CPG 1 (Cambridge Prognostic Group 1)

Should we screen for prostate cancer?

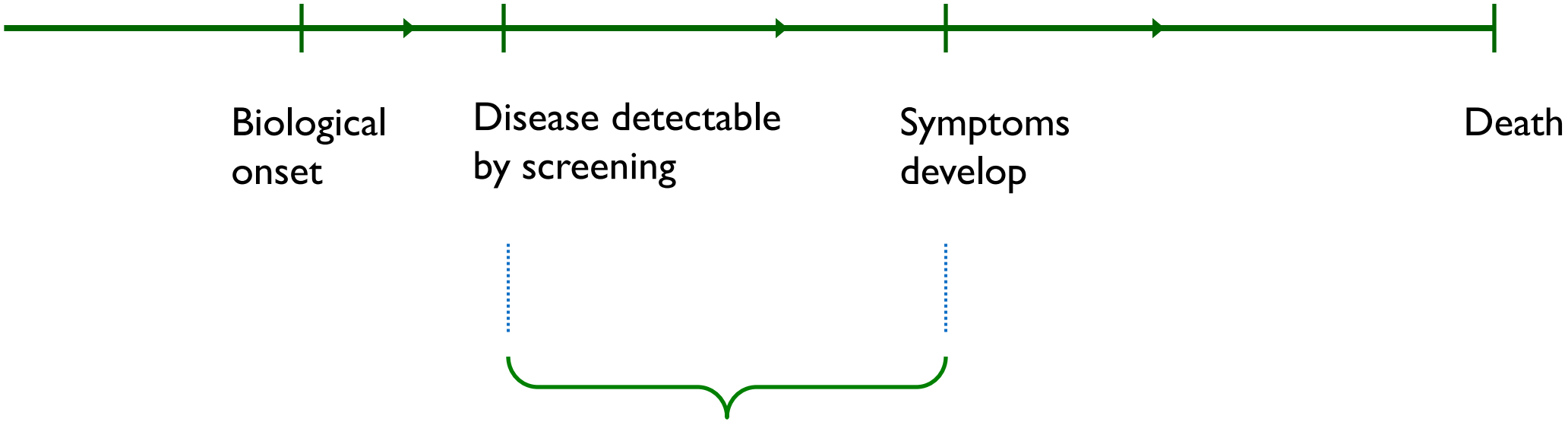
Screening

- *“identifying apparently healthy people who may have an increased chance of a disease or condition….Individuals can then be offered more information, further tests or treatment as appropriate.” UK National Screening Committee”*

- Proactive approach by a screening provider (NHS) to people who are largely asymptomatic and not yet diagnosed with prostate cancer
- Does NOT rely on people approaching their GPs

PROSTATE CANCER UK
TRANSFORM

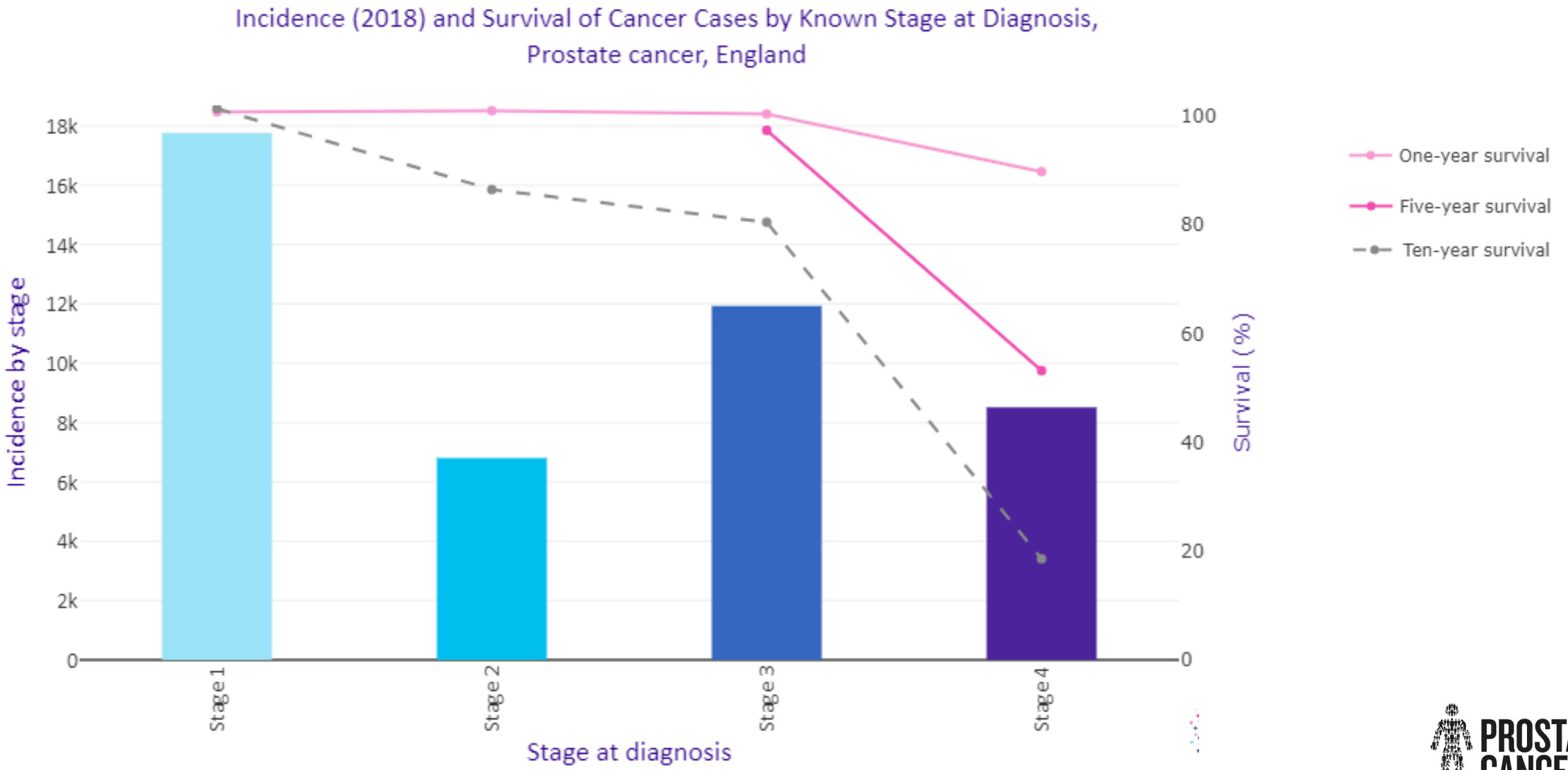
How screening works



PROSTATE CANCER UK
TRANSFORM

With thanks to Professor Rhian Ghabe, QMUL

Earlier Stage, Better Survival

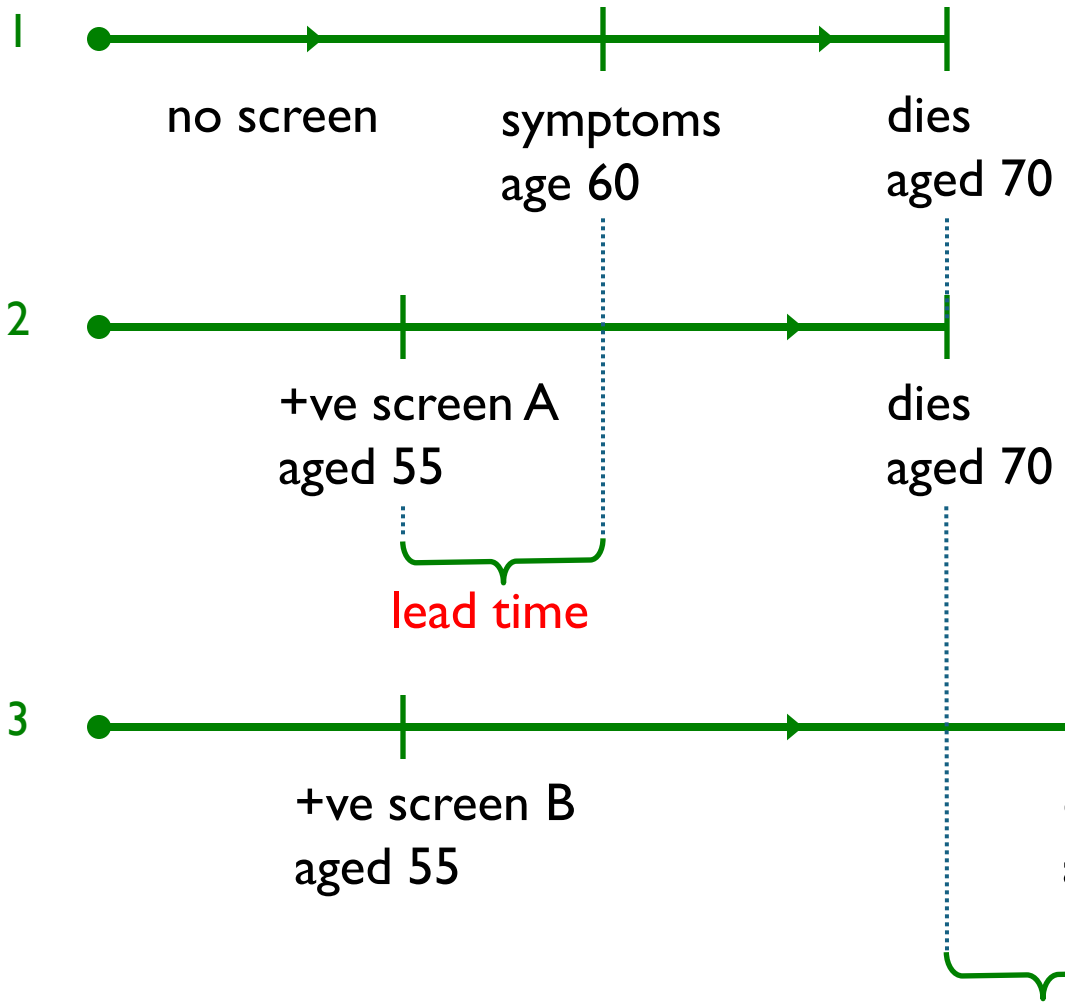


Screening or early detection could save lives

PROSTATE CANCER UK
TRANSFORM

Is there a benefit of earlier diagnosis?

Example: 3 scenarios for the same person



	Measured survival from diagnosis	True increase in survival ?
1	10 years	
2	15 years	✗,0 years (because of 5 years lead time)
3	20 years	✔ , 5 years

With thanks to Professor Rhian Ghabe, QMUL

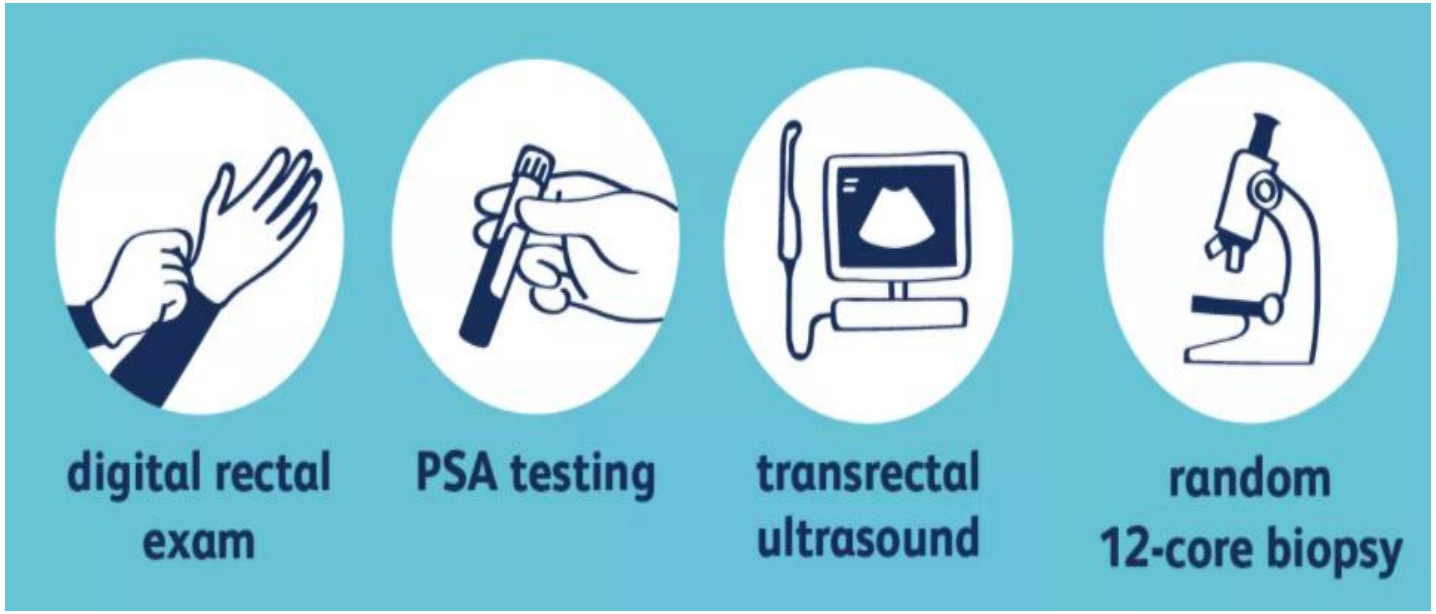
PROSTATE CANCER UK
TRANSFORM

Potential harms of screening

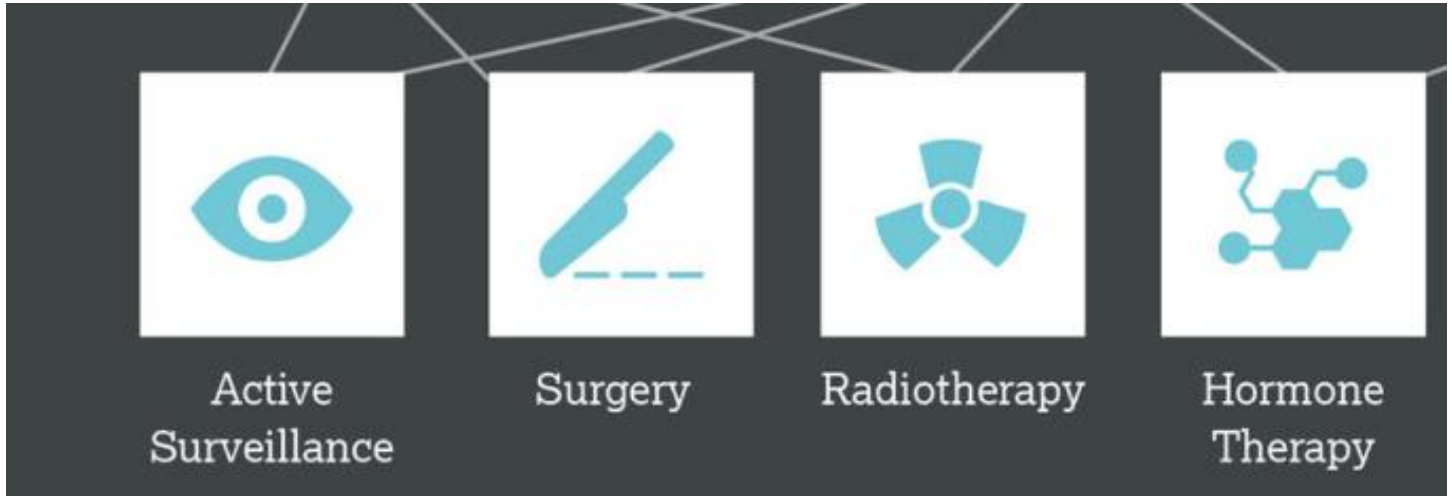
- Does it save lives?
  - Lead time bias – know they have cancer for longer
  - Length bias – screening picks up slow growing, better prognosis cancers
  - Selection bias – healthy volunteers might be at lower risk of prostate cancer death due to other healthy behaviours
- Potential harms
  - Anxiety
  - Unnecessary invasive biopsies
  - Overdiagnosis
  - Overtreatment
- Costs
- Logistics

PROSTATE CANCER UK
TRANSFORM

Traditional prostate cancer assessment



Traditional prostate cancer treatment



PSA as a screening test

JAMA | Original Investigation

Prostate-Specific Antigen Screening and 15-Year Prostate Cancer Mortality
A Secondary Analysis of the CAP Randomized Clinical Trial

Richard M. Martin, BM, BS, PhD; Emma L. Turner, PhD; Grace J. Young, MSc; Chris Metcalfe, PhD; Eleanor I. Walsh, MSc; J. Athene Lane, PhD; Jonathan A. C. Sterne, PhD; Sian Noble, PhD; Peter Holding, MSc; Yoav Ben-Shlomo, MBBS, PhD; Naomi J. Williams, PhD; Nora Pashayan, MD, PhD; Mai Ngoc Bui, PhD; Peter C. Albertsen, MD; Tyler M. Seibert, MD, PhD; Anthony L. Zietman, MD; Jon Oxley, MD; Jan Adolfsson, MD; Malcolm D. Mason, MD; George Davey Smith, DSc; David E. Neal, MD; Freddie C. Hamdy, MD; Jenny L. Donovan, PhD; for the CAP Trial Group

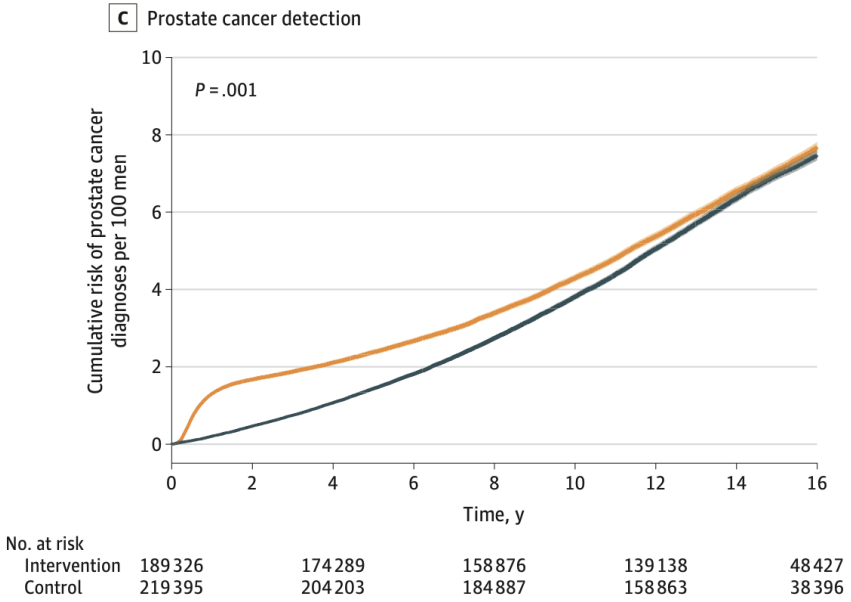
- **Men aged 50 to 69 years at 573 primary care practices in England and Wales**
- **Patients enrolled 2002 – 2009 with follow up to 2021**
- **Randomised to invitation for single PSA test (195, 912) or no invitation (219,445)**
  - Standard TRUS biopsy recommended if PSA $\geq$ 3ng/ml
- **98% of participants in control group were white**
- **Rate of low risk cancer increased in intervention group (2.2% vs 1.6%)**
- **Rate of high risk cancer reduced from 1.3% to 1.2% in intervention group**

JAMA. 2024;331(17):1460-1470. doi:10.1001/jama.2024.4011
Published online April 6, 2024.

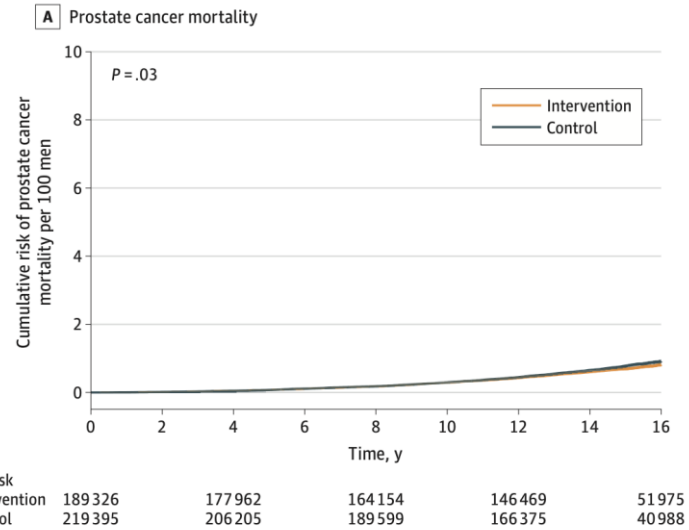
JAMA | Original Investigation

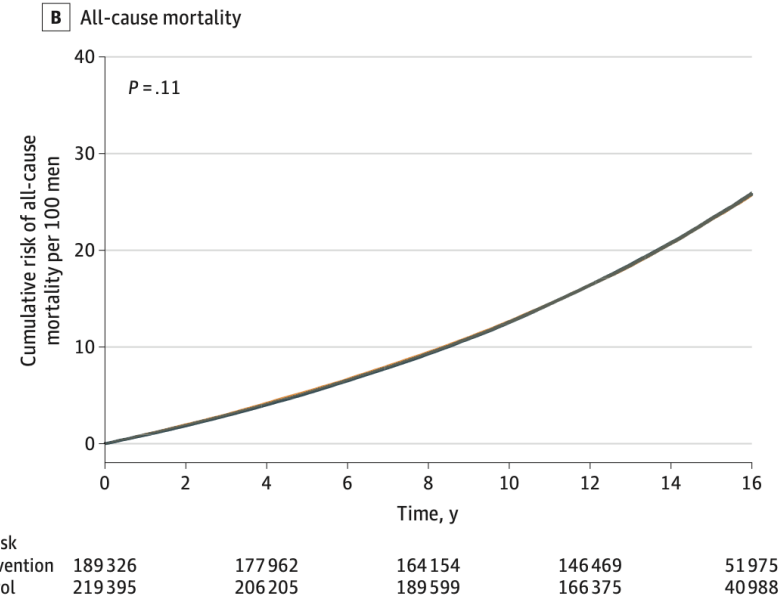
Prostate-Specific Antigen Screening and 15-Year Prostate Cancer Mortality
A Secondary Analysis of the CAP Randomized Clinical Trial

Richard M. Martin, BM, BS, PhD; Emma L. Turner, PhD; Grace J. Young, MSc; Chris Metcalfe, PhD; Eleanor I. Walsh, MSc; J. Athene Lane, PhD; Jonathan A. C. Sterne, PhD; Sian Noble, PhD; Peter Holding, MSc; Yoav Ben-Shlomo, MBBS, PhD; Naomi J. Williams, PhD; Nora Pashayan, MD, PhD; Mai Ngoc Bui, PhD; Peter C. Albertsen, MD; Tyler M. Seibert, MD, PhD; Anthony L. Zietman, MD; Jon Oxley, MD; Jan Adolfsson, MD; Malcolm D. Mason, MD; George Davey Smith, DSc; David E. Neal, MD; Freddie C. Hamdy, MD; Jenny L. Donovan, PhD; for the CAP Trial Group



A single PSA test is not adequate for screening for prostate cancer





Screening reduced risk of death from prostate cancer (0.69% vs 0.78%; mean difference, 0.09%) but the effect was small.

JAMA. 2024;331(17):1460-1470. doi:10.1001/jama.2024.4011
Published online April 6, 2024.

The NEW ENGLAND JOURNAL of MEDICINE

European Study of Prostate Cancer Screening — 23-Year Follow-up

Monique J. Roobol, Ph.D.,[1] Ivo I. de Vos, M.D.,[1] Marianne Månsson, Ph.D.,[2] Rebecka A. Godtman, M.D., Ph.D.,[2] Kirsi M. Talala, Ph.D.,[3] Elly den Hond, Ph.D.,[4] Vera Nelen, M.D., Ph.D.,[4] Arnauld Villers, M.D., Ph.D.,[5] Gregoire Poinas, M.D.,[6] Maciej Kwiatkowski, M.D., Ph.D.,[7-9] Stephen Wyler, Ph.D., M.D.,[7,8] Franz Recker, M.D., Ph.D.,[7] Donella Puliti, Ph.D.,[10] Giuseppe Gorini, M.D., Ph.D.,[10] Marco Zappa, Ph.D.,[10] Alvaro Paez, M.D.,[11] Marcos Lujan, M.D.,[12] Chris H. Bangma, M.D., Ph.D.,[1] Teuvo Tammela, M.D., Ph.D.,[13,14] Fritz H. Schröder, M.D., Ph.D.,[1] Sebastiaan Remmers, Ph.D.,[1] Jonas Hugosson, M.D., Ph.D.,[2] and Anssi Auvinen, M.D., Ph.D.,[15] for the ERSPC Investigators*

ERSPC
European Randomized Study of Screening for Prostate Cancer

- ERSPC 23 year data on 162 389 men (55–69 yrs) from 1993 to 2020 or 23 years
- PSA testing with Hybritech assay systems (Beckman Coulter)
- Most centres used a cut off of 3ng/ml but
  - Italy used 4 ng/ml with DRE and TRUS for PSA 3-39.9 ng/ml
  - Finland added DRE for PSA 3 - 3.9 ng/ml until 1998 then F:T $\leq$ 0.16 after that
- 4 year interval in most but
  - Sweden & France 2 year interval
  - Belgium 7 year interval
- Average 2 screening visits per person

N Engl J Med 2025;393:1669-80.
DOI: 10.1056/NEJMoa2503223

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 OCTOBER 30, 2025 VOL. 393 NO. 17

European Study of Prostate Cancer Screening — 23-Year Follow-up

Monique J. Roobol, Ph.D.,[1] Ivo I. de Vos, M.D.,[1] Marianne Månsson, Ph.D.,[2] Rebecka A. Godtman, M.D., Ph.D.,[2] Kirsi M. Talala, Ph.D.,[3] Elly den Hond, Ph.D.,[4] Vera Nelen, M.D., Ph.D.,[4] Arnauld Villers, M.D., Ph.D.,[5] Gregoire Poinas, M.D.,[6] Maciej Kwiatkowski, M.D., Ph.D.,[7-9] Stephen Wyler, Ph.D., M.D.,[7,8] Franz Recker, M.D., Ph.D.,[7] Donella Puliti, Ph.D.,[10] Giuseppe Gorini, M.D., Ph.D.,[10] Marco Zappa, Ph.D.,[10] Alvaro Paez, M.D.,[11] Marcos Lujan, M.D.,[12] Chris H. Bangma, M.D., Ph.D.,[1] Teuvo Tammela, M.D., Ph.D.,[13,14] Fritz H. Schröder, M.D., Ph.D.,[1] Sebastiaan Remmers, Ph.D.,[1] Jonas Hugosson, M.D., Ph.D.,[2] and Anssi Auvinen, M.D., Ph.D.,[15] for the ERSPC Investigators*

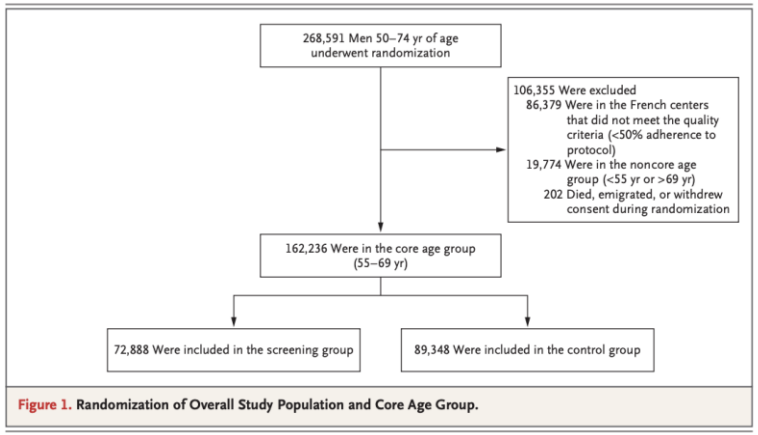


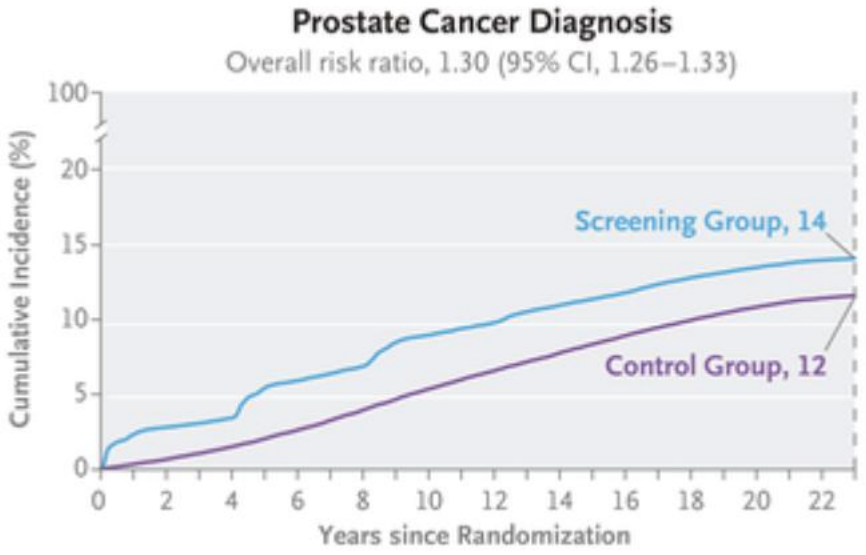
Figure 1. Randomization of Overall Study Population and Core Age Group.

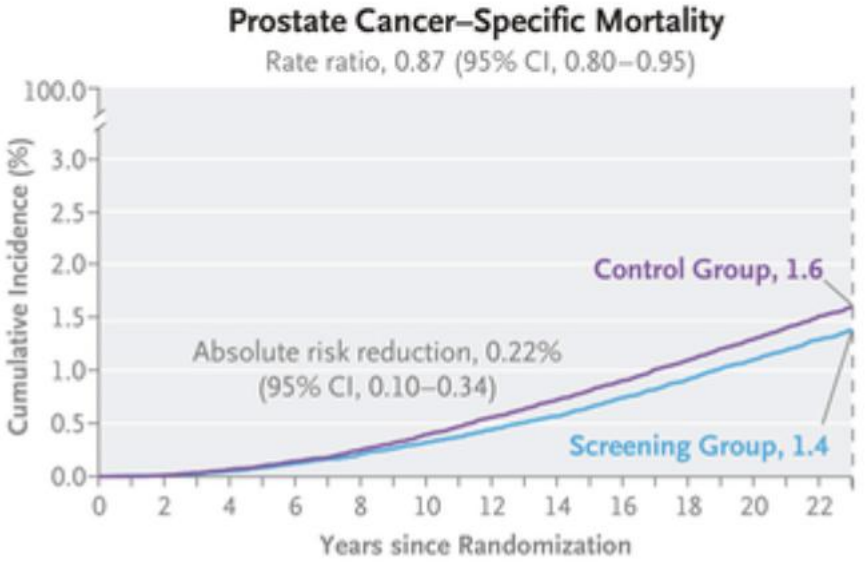
- Harms of screening
  - 28% had a positive screening test & offered biopsy
- Over 3 in 4 biopsies (76%) were negative & hence ‘unnecessary’
  - Over half of diagnoses were of low risk disease
  - Only 1 in 10 biopsies showed intermediate risk disease

N Engl J Med 2025;393:1669-80.
DOI: 10.1056/NEJMoa2503223

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 OCTOBER 30, 2025 VOL. 393 NO. 17





Screening group had more Pca diagnoses
14% vs 12%
27 more diagnoses per 1000 men
Risk ratio 1.3

Screening group had fewer Pca deaths
1.4% vs 1.6%
Risk ratio 0.87 intention to treat (13% reduction)
Risk ratio 0.84 if attended one screening visit
22% reduction in absolute risk of Pca death

N Engl J Med 2025;393:1669-80.
DOI: 10.1056/NEJMoa2503223

The NEW ENGLAND JOURNAL of MEDICINE

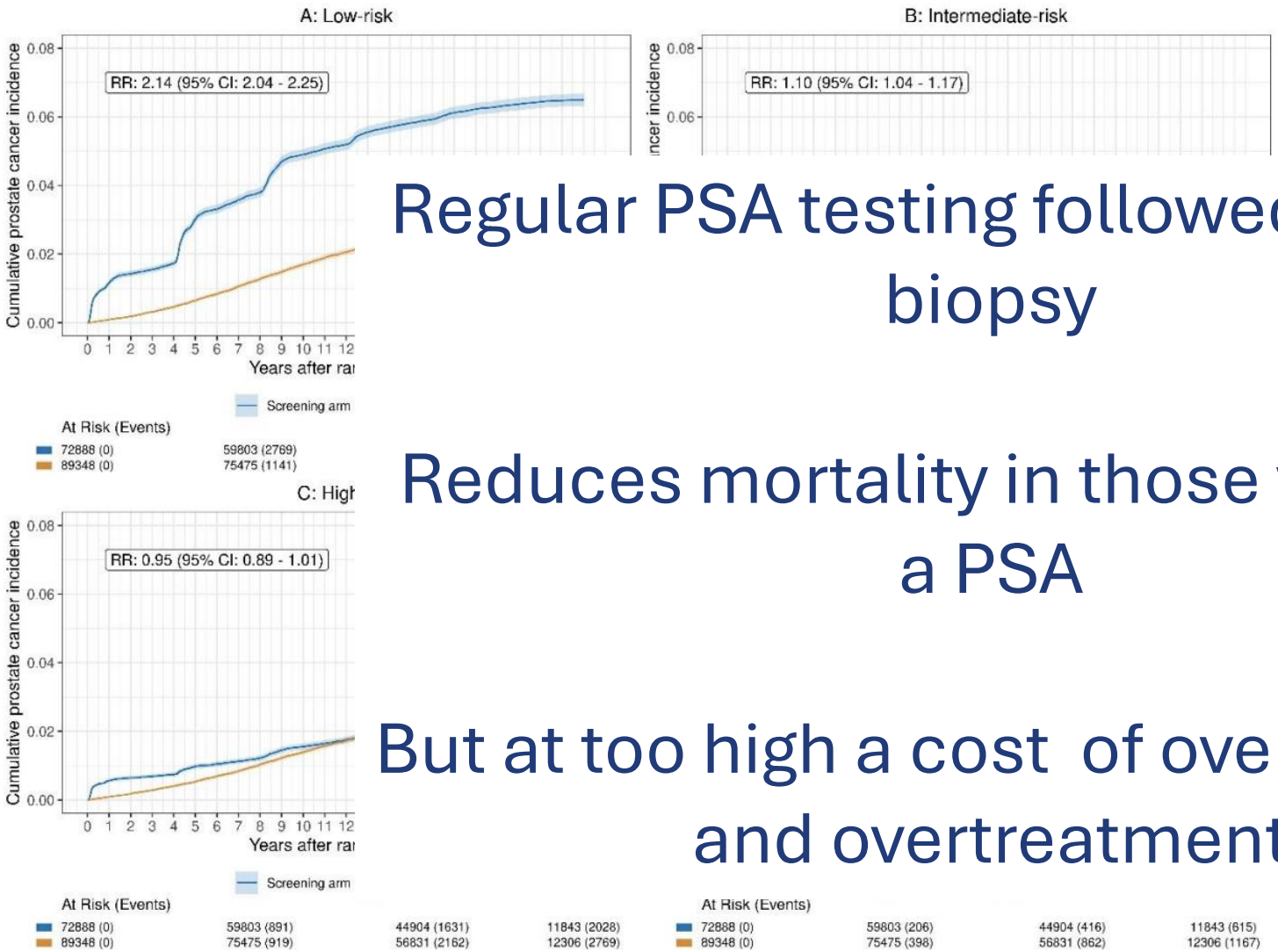
ESTABLISHED IN 1812 OCTOBER 30, 2025 VOL. 393 NO. 17

- Prostate cancer mortality
  - 1.4 vs 1.6% in screened vs control
- Other cause mortality
  - 49% at 23 years
  - No difference in screening vs control
- 30 x more likely to die of a non-prostate cancer cause
- Only 5.8% of men never screened in the intention to screen group
  - 7.4% one screening
  - 26% 2 screenings
  - 61% 3 or more screenings

N Engl J Med 2025;393:1669-80.
DOI: 10.1056/NEJMoa2503223

Does PSA testing find the cancers that will kill?

Prostate cancer by EAU risk group at diagnosis



Screened men had a rate ratio of:

Regular PSA testing followed by TRUS biopsy

Reduces mortality in those who have a PSA

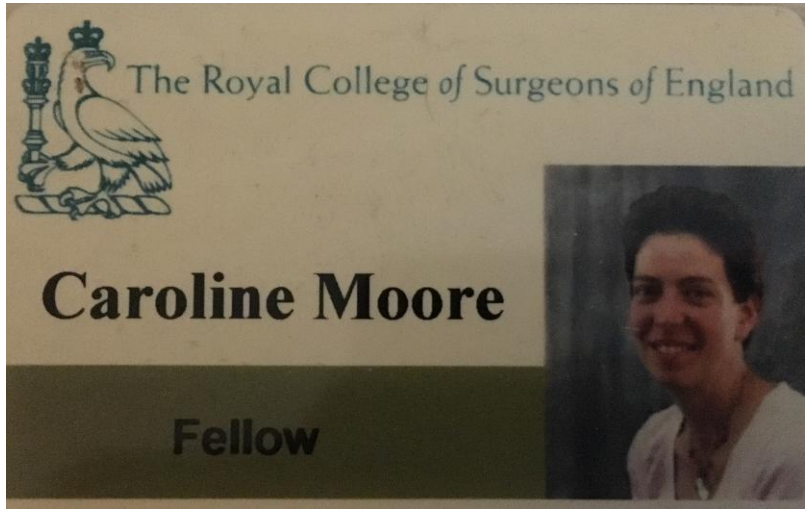
But at too high a cost of overdiagnosis and overtreatment

N risk disease
ermediate risk
r high risk
vanced cancer

anced prostate cancer
mph node or
ne metastasis
or
A >100 ng/ml

N Engl J Med 2025;393:1669-80.
DOI: 10.1056/NEJMoa2503223

Things change over time….

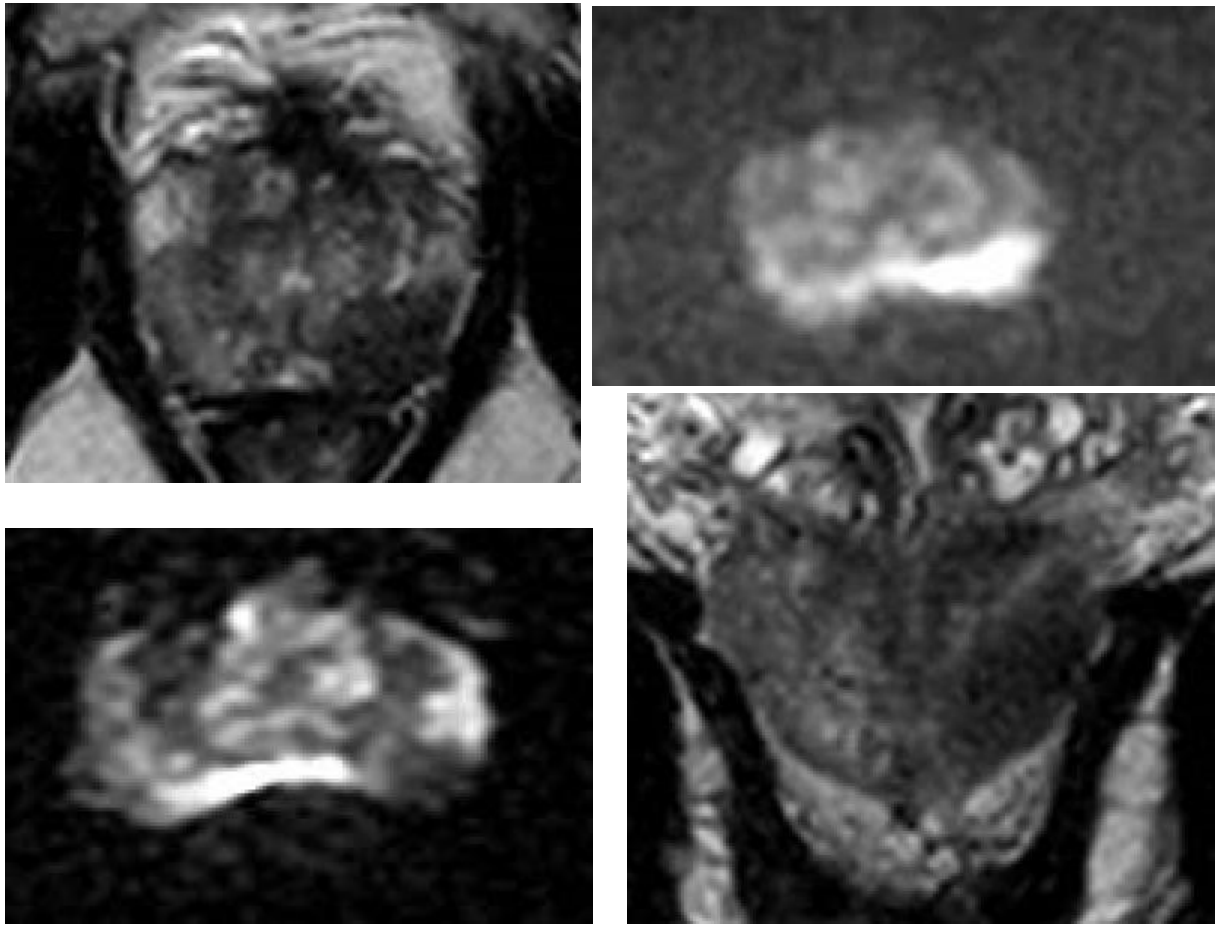


October 2002

Now!

@mrsprostate

MRI can selectively detect significant cancer



We become what we behold. We shape our tools and then our tools shape us.

— Marshall McLuhan —

What we want from modern screening

Maximise benefit

- Reduce prostate cancer deaths by finding the most harmful cancers
- Use the best tests available
- Optimise prostate cancer treatment

Minimise harm

- Reduce overdiagnosis
  - Reduce anxiety
  - Reduce unnecessary re-testing
- Reduce over treatment

PROSTATE CANCER UK

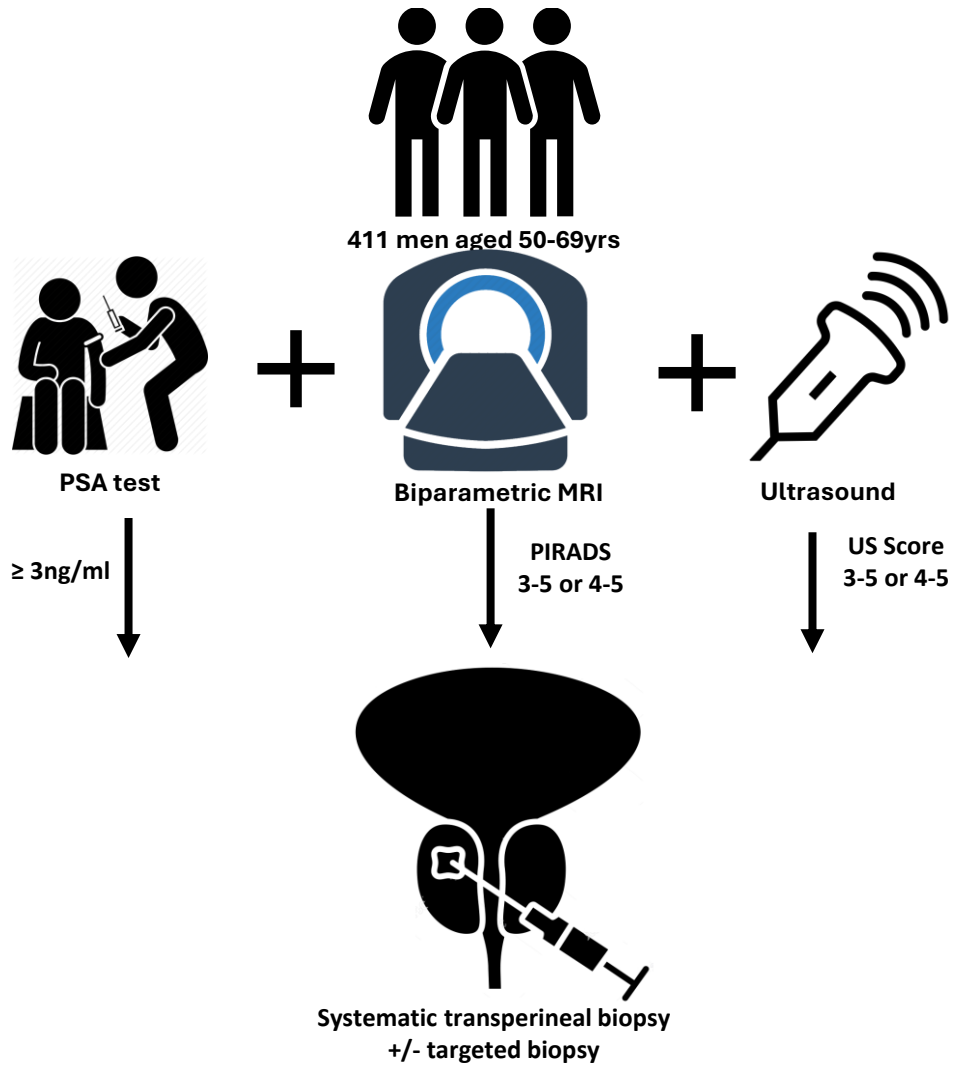
TRANSFORM

What happens when we use MRI to screen?

PROSTATE CANCER UK
TRANSFORM

PROSTAGRAM

Design:	• Blinded, paired screen positive design • Two screening centres
Participants:	• 411 men aged 50-69 years invited for screening • 7 primary care practices + community recruitment
Screening Tests:	• MRI PIRADS Score + US Thresholds ≥3 OR ≥4 • PSA screen-positive: ≥3ng/ml
Reference test:	• Transperineal systematic 12-core biopsy +/- targeting • Clinically significant disease: Any Gleason ≥3+4
Blinding:	• Reporters blinded to other tests • Participants blinded to indication for biopsy



JAMA Oncol. 2021;7(3):395-402. doi:10.1001/jamaoncol.2020.7456

PROSTATE CANCER UK TRANSFORM

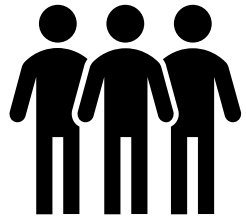
PROSTAGRAM

Design:

- Blinded, paired screen positive design
- Two screening centres

Participants:

- 411 men aged 50-69 years invited for screening
- 7 primary care practices + community recruitment



411 men aged 50-69yrs

Ethnicity of 411 participants

Study	Ethnicity		
	White	Black	Asian
CAP (2016)	98%	<2%	<2%
PCPT (2006)	95.6%	3.2%	NR
PCLO (2016)	85.0%	4.4%	4.0%
PROSTAGRAM (2021)	**39%**	**33%**	**23%**

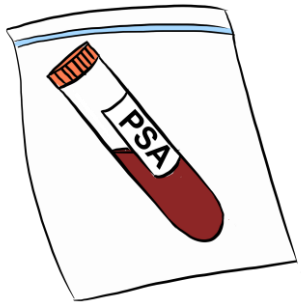
Excludes ERSPC and STHLM3 which did not report ethnicity data.

With thanks to David Eldred-Evans, Prof Hashim Ahmed & Imperial Prostate team

PROSTATE CANCER UK TRANSFORM

PROSTAGRAM

PSA



3.0 ng/ml

Biopsy rate 10%
Sensitivity 41% Specificity 81%

bp-MRI

PIRADS 3

Biopsy rate 18%
Sensitivity 88% Specificity 51%

PIRADS 4

Biopsy rate 10.5%
Sensitivity 65% Specificity 82%

JAMA Oncol. 2021;7(3):395-402. doi:10.1001/jamaoncol.2020.7456

PROSTATE CANCER UK TRANSFORM

relimagine

Design:

- Men invited for screening MRI and blood test
- 1 study centre (UCL) & 2 NHS centres (UCLH & Royal Free)

Participants:

- 6 primary care practices
- 2096 men aged 50-75 years invited for screening
- 303 completed both tests

Screening Tests:

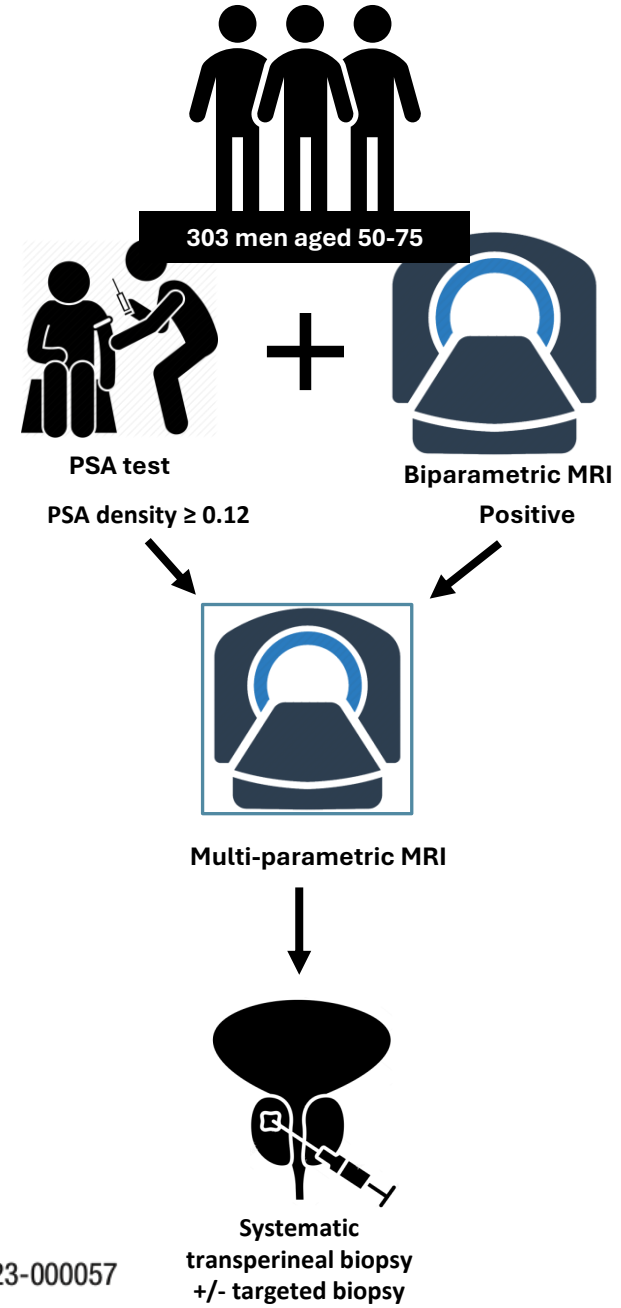
- MRI positive or negative
- PSA density : ≥ 0.12ng/ml^2
- Referred for NHS assessment if screened positive

Reference test:

- Transperineal targeted + systematic cores
- Clinically significant disease: Any Gleason ≥3+4

Blinding:

- Reporters blinded to other tests
- Discussion with clinic nurse about biopsy with results



Moore CM, *et al. BMJ Oncology* 2023;**2**:e000057. doi:10.1136/bmjonc-2023-000057

Response rates

	London population N= 797, 062	ReIMAGINE	
Ethnicit			4[2]
White			
Black			
Asian			
Mixed			
Other	13,572 (2%)	54 (3%)	14 (4%)

Men aged 65-70 most likely to respond

Black men had 20% the response rate of white men

1: Missing ethnicity data 490/2097 (23%) in the ReIMAGINE invited individuals
2: Missing ethnicity data 83/457 (18%) in the ReIMAGINE respondents

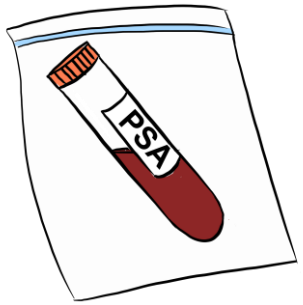
Our invitation profile matched the ethnicity profile of London

Our response rate was significantly lower in black men

PROSTATE CANCER UK TRANSFORM

relimagine

PSA density



0.12 ng/ml

1 in 20 (16/303) had raised PSAD alone
1 in 4 clinically significant prostate cancer

bp-MRI

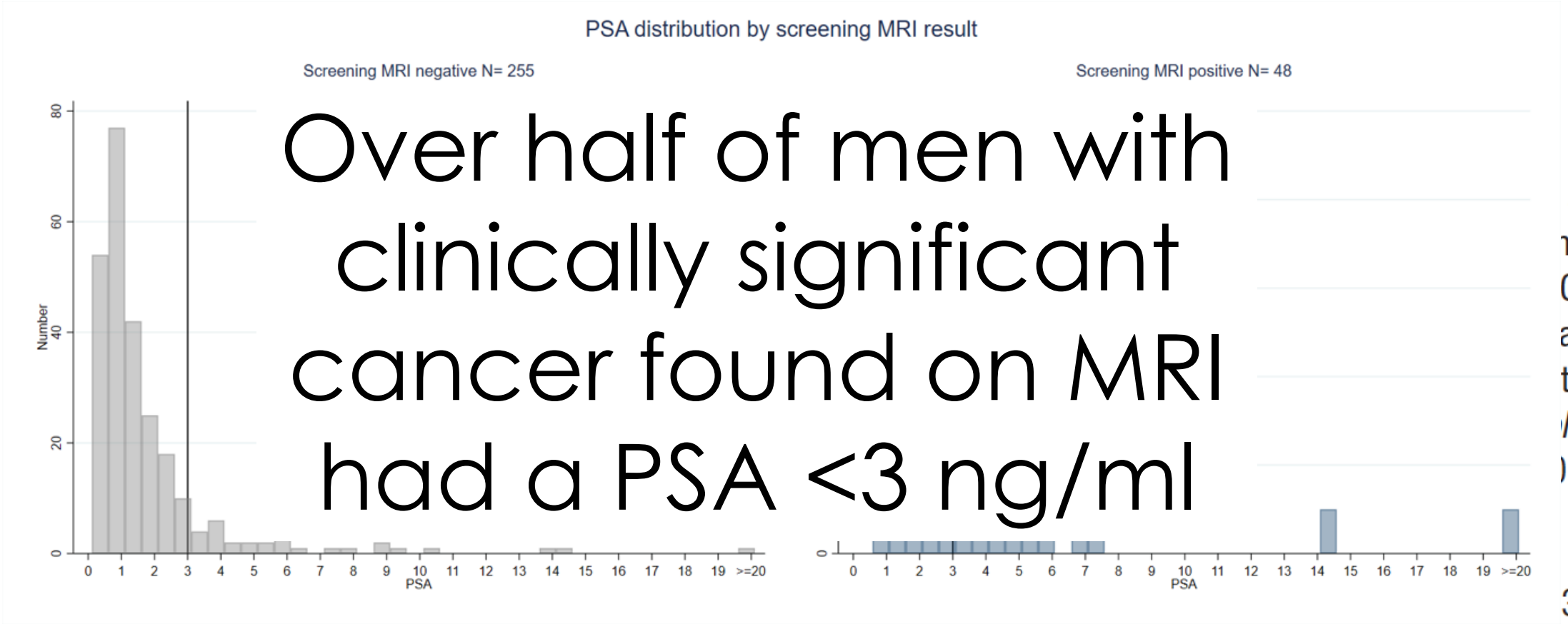
Positive

1 in 6 (48/303 or 16%) positive screen
1 in 2 clinically significant prostate cancer

NHS multiparametric MRI before biopsy decision

BMJ Oncology

Prevalence of MRI lesions in men responding to a GP-led invitation for a



Over half of men with clinically significant cancer found on MRI had a PSA <3 ng/ml

et al.
ns
GP-
ate
tive
logy
).1136/

3

Accepted 04 June 2023

Next steps in screening in the UK

UK National Screening Committee

UK NSC requires robust evaluation to recommend that the UK government invests in national prostate cancer screening programme….. this means:

- **Randomised controlled trial across the UK**
- **Making sure diverse population offered screening**
- **Making sure Black men who are at higher risk are represented**
- **Adequate proportion of those invited taking up the offer of screening**
- **Evaluating which is the best screening test**

PROSTATE CANCER UK

TRANSFORM

TRANSFORM Co-leads

Professor Hashim U. Ahmed

Head of Specialist Surgery
Chair & Professor of Urology
Imperial College London

Professor Rosalind Eeles

Professor of Oncogenetics
Institute of Cancer Research

Professor Mark Emberton

Professor of Interventional Oncology
University College London

Professor Rhian Gabe

Director of Barts CTU
Professor of Biostatistics & Clinical Trials
Queen Mary University of London

Professor Rakesh Heer

Chair & Professor in Urology
Imperial College London

Professor Caroline Moore

Head of Urology
NIHR Research Professor
University College London

TRANSFORM Aims

- Robust UK trial of modern screening approaches
- Assess acceptability, clinical & cost-effectiveness of different strategies
- Assess barriers and facilitators to equitable engagement across the population
- Create a data, imaging, histological and biological repository

PROSTATE CANCER UK
TRANSFORM

TRANSFORM: 3 stage design

Stage 1 (3 years)

- Pilot 4 screening interventions
- Evaluate how to deliver pivotal trial assessing key processes and assumptions
- Short-term outcomes
- Develop bio-digital twin protocols

16,500 men

2

Stage 2 (6 years)

- Main trial of optimal intervention
- Medium-term clinical outcomes
- PROMS: quality of life.
- Costs and resources
- Create bio-digital twin

TRANSFROM Discovery

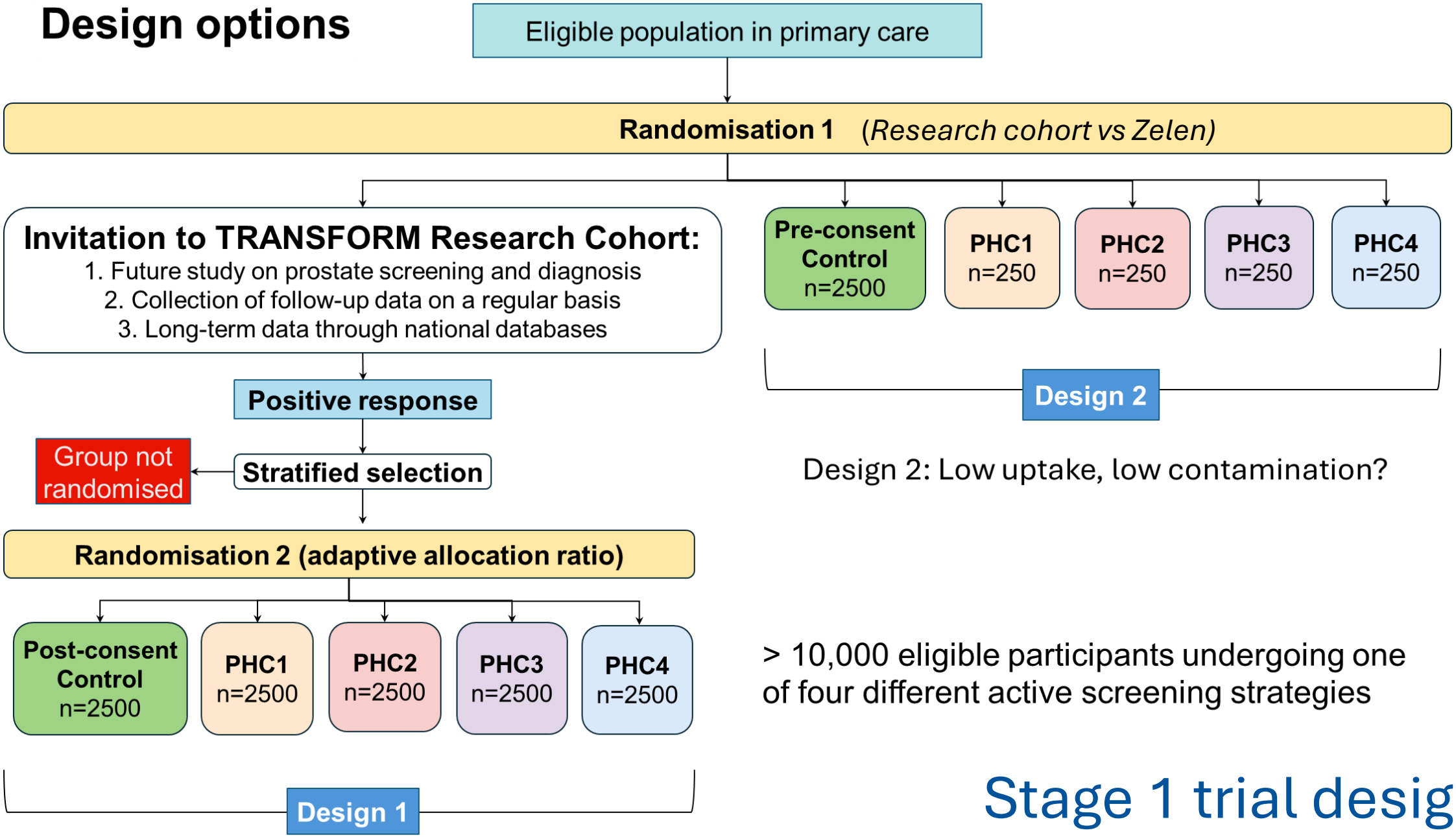
180,000– 500,000 men

3

Stage 3 (10 years)

- Evaluate long-term primary outcomes through linkage to national databases

Design options



Design 2: Low uptake, low contamination?

Design 1: High uptake, high contamination?

> 10,000 eligible participants undergoing one of four different active screening strategies

Stage 1 trial design

Prostate health checks

Arm 1: PSA 3 + MRI

PSA ≥ **3**ng/ml

Prostagram™

Targeted biopsy

Arm 2: PSA 1 + MRI

PSA ≥ **1**ng/ml

Prostagram™

Targeted biopsy

Arm 3: MRI-only

Any PSA level

Prostagram™

Targeted biopsy

Arm 4: PRS

PRS ≥ **3.5%**

Prostagram™

Targeted biopsy

EXPRESSION OF INTEREST
SECONDARY SITES

North East & Cumbria (0)

Scotland (1)
NHS Lothian (Western General Hospital)

Yorkshire & Humber (3)
Airedale NHS Foundation Trust
Bradford Teaching Hospitals NHS Foundation Trust (Bradford Royal Infirmary)

North West (4)
Lancashire Teaching Hospitals NHS Foundation Trust
Mersey and West Lancashire Teaching Hospitals (Whiston Hospital)
Clatterbridge Cancer Centre NHS Foundation Trust
Mid Cheshire Hospitals NHS Foundation Trust

East of England (1)
Norfolk and Norwich University Hospital

London (7)
Frimley Health NHS Foundation Trust (Wexham Park Hospital)
Croydon Health Services NHS Trust
London North West University Healthcare NHS Trust (Northwick Park)
Royal Free London NHS Foundation Trust
Homerton Healthcare NHS Foundation Trust University College London Hospitals NHS Foundation Trust
Imperial College Healthcare NHS Trust

Midlands (4)
The Royal Wolverhampton NHS Trust
University Hospitals Coventry and Warwickshire
Northampton General Hospital NHS Trust
Nottingham University Hospitals NHS Trust

Wales (1)
Wrexham Maelor Hospital

South East (2)
University Hospital Southampton NHS Foundation Trust
University Hospitals Sussex NHS Foundation Trust

South West (1)
University Hospitals Plymouth NHS Trust (Derriford Hospital)

IMPERIAL Queen Mary University of London ICR The Institute of Cancer Research UCL

Stage 1 TRANSFORM

- Feasibility and piloting of 4 interventions
- Identification of the best PHC to take forward (maximum 2)
- Assess:
  - Rate of uptake of invitation across different populations (including black men and those in lowest 20% of index multiple deprivation, vulnerable groups eg learning disability)
  - Rates of PSA testing/MRI scans/Biopsies/Cancer diagnoses in the control group
  - Rates of uptake of the screening intervention across different arms

PROSTATE CANCER UK
TRANSFORM

Active surveillance for prostate cancer

TRADITIONAL ACTIVE SURVEILLANCE

- Single protocol for follow up across a spectrum of risk of progression
- PSA and digital rectal examination done regularly
- Uptake of surveillance varies internationally & locally
  - 95% suitable men in UK
  - 60% suitable men US
- Protocols suggest regular biopsies but they are not always done
  - USA data – 40% biopsy compliance at 2 years, <20% compliance after that
  - PRIAS data – highest compliance 60% at year 4, sometimes <10%
- 1 in 4 men with no clinical change choose radical treatment as they don’t like surveillance
- Men on active surveillance are 10 x as likely to die from heart disease than prostate cancer
- Must consider co-morbidities in men on active surveillance

Best Current Practice and Research Priorities in Active Surveillance for Prostate Cancer—A Report of a Movember Intern

Caroline M. Moore [a,b,], Lauren E. King [c], John Withington [a,b], Mahul B. Amin [d,e], Mark Andrews [f], Erik Briers [g], Ronald C. Chen [h], Francis I. Chinegwundoh [i,j], Matthew R. Cooperberg [k,l,m], Jane Crowe [n], Antonio Finelli [o,p,q], Margaret I. Fitch [r], Mark Frydenberg [s,t], Francesco Giganti [a,u], Masoom A. Haider [v,w], John Freeman [f], Joseph Gallo [x], Stephen Gibbs [f], Anthony Henry [y], Nicholas James [z], Netty Kinsella [aa,ab], Thomas B.L. Lam [ac,ad], Mark Lichty [x], Stacy Loeb [ae,af,ag], Brandon A. Mahal [ah], Ken Mastris [ai], Anita V. Mitra [aj], Samuel W.D. Merriel [ak,bb], Theodorus van der Kwast [al], Mieke Van Hemelrijck [aa], Nynikka R. Palmer [am,an,ao], Catherine C. Paterson [ap,aq], Monique J. Roobol [ar], Phillip Segal [as], James A. Schraidt [at], Camille E. Short [au,av], M. Minhaj Siddiqui [aw], Clare M.C. Tempany [ax,ay], Arnaud Villers [az], Howard Wolinsky [ba,bc], Steven MacLennan [ac]*

Global effort to identify the top priorities in AS

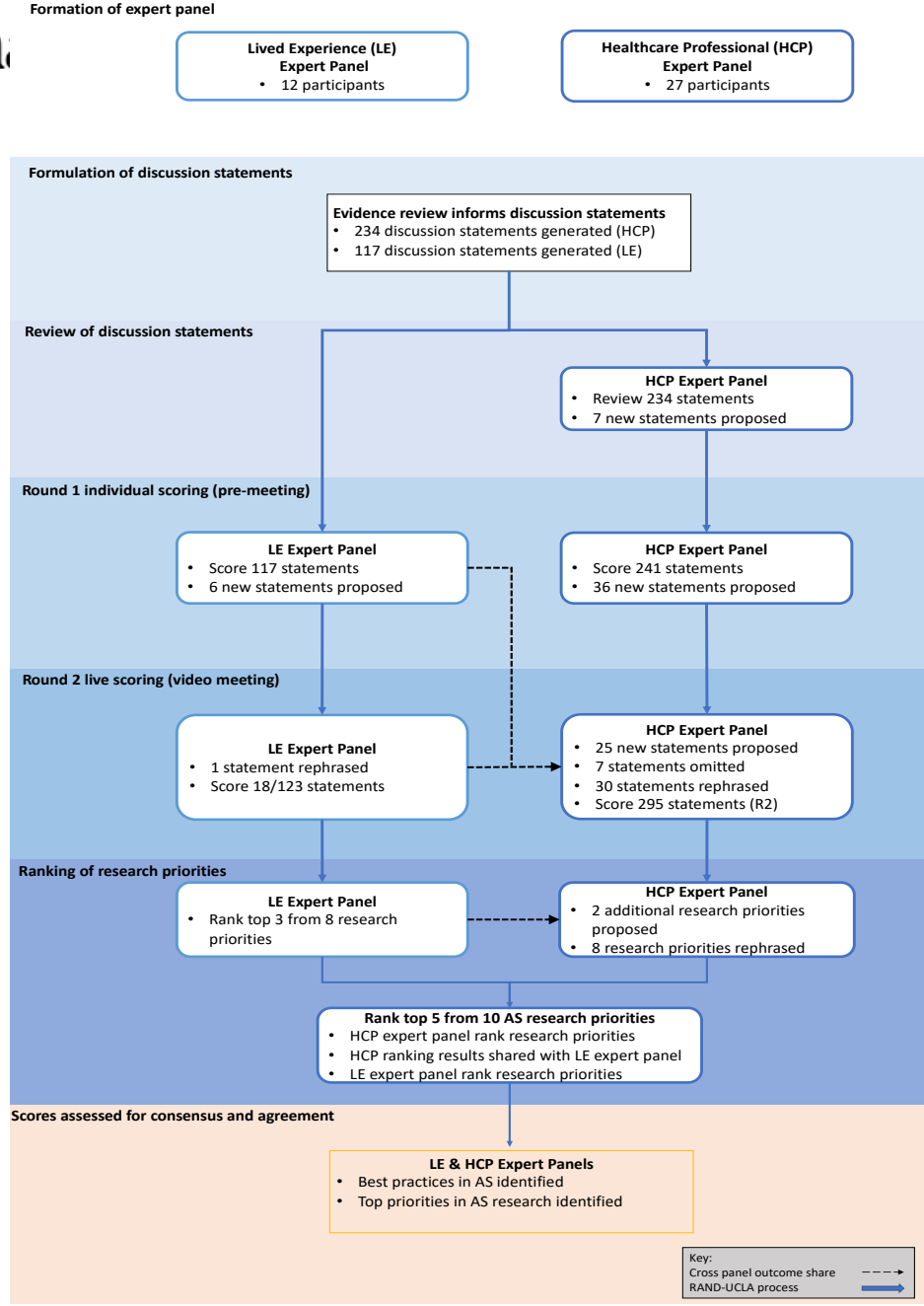
Canada
Cancer nurse (1)
Lived experience (2)
Pathologist (1)
Radiologist (1)
Urologist (1)

US
Behavioural scientist (1)
Lived experience (4)
Pathologist (1)
Radiation oncologist (2)
Radiologist (1)
Urologist (3)

UK & Europe
Cancer Nurse (1)
Clinical oncologist (1)
Epidemiologist (2)
GP (1)
Lived experience (6)
Radiation oncologist (1)
Radiologist (1)
Urologist (4)

Australia
Behavioural scientist (1)
Cancer nurse (1)
GP (1)
Urologist (1)

https://doi.org/10.1016/j.euo.2023.01.003

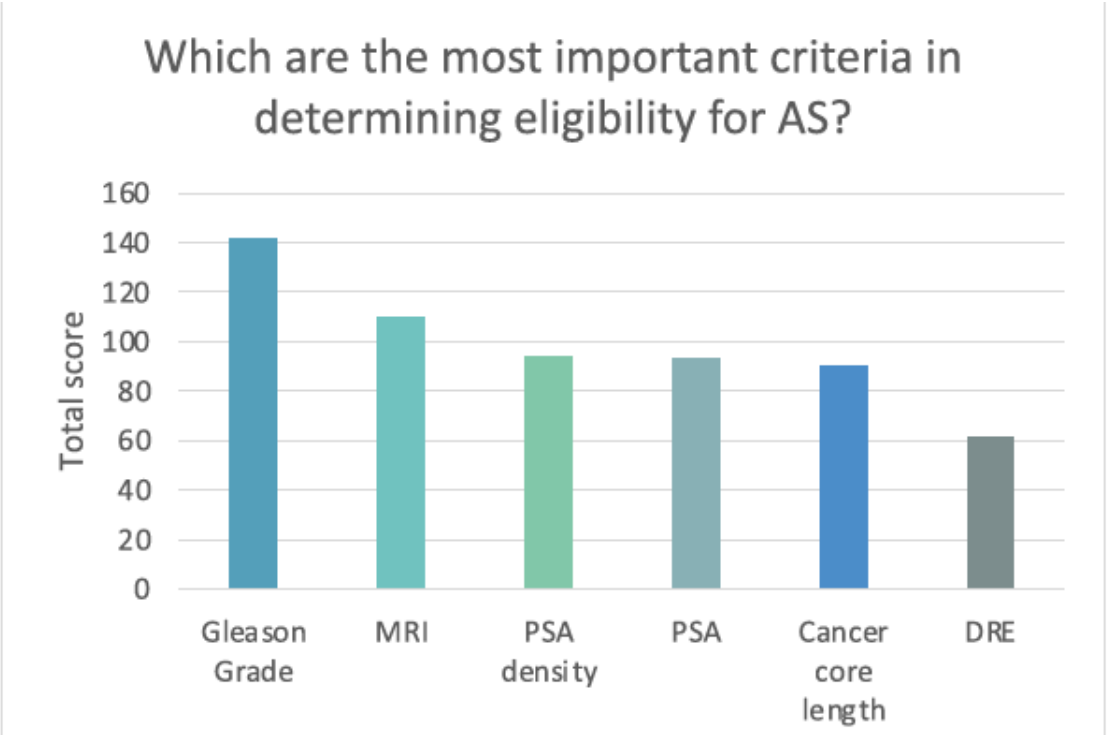


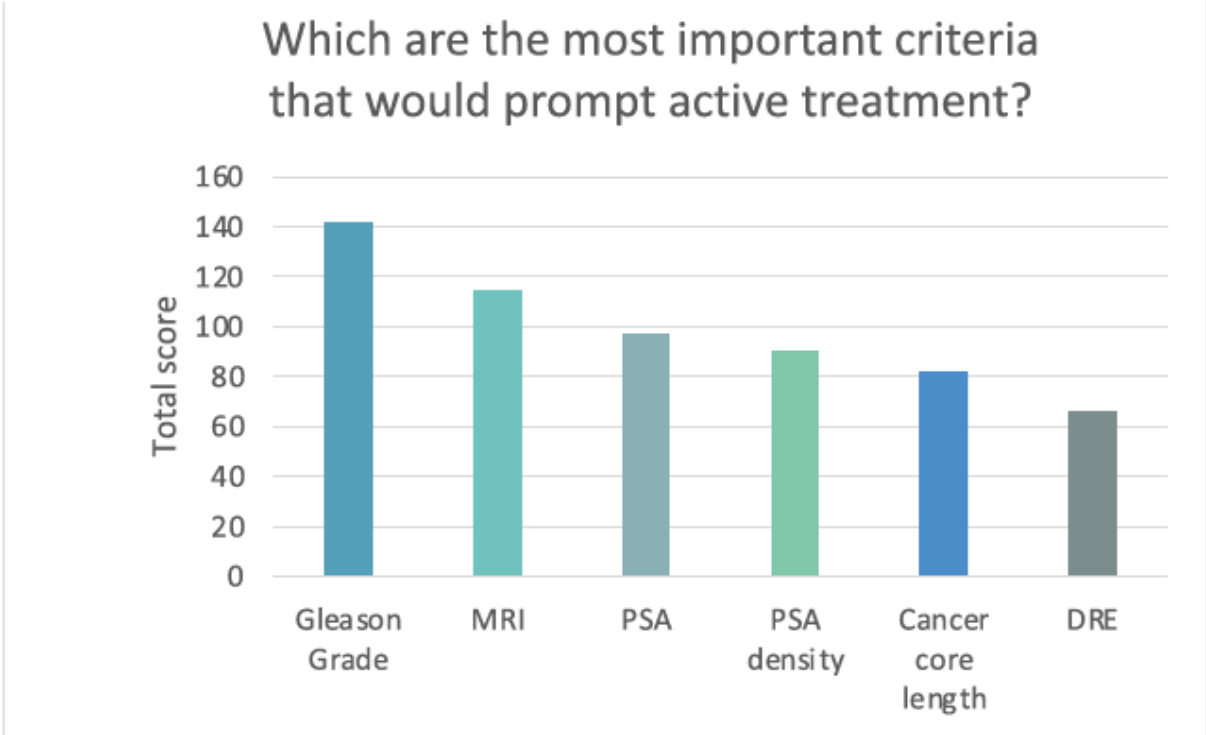
Best practice recommendations

- DRE can be omitted when MRI issued
- Consider omitting routine biopsy when PSA, MRI are stable
- Change in PSA should lead to MRI not biopsy or treatment
- Any change to active treatment should be based on a combination of a change in clinical factors and patient discussion
- Men with clinical parameters suitable for AS but may be at risk of psychological harm should be offered psychological support rather than radical treatment

Best Current Practice and Research Priorities in Active Surveillance for Prostate Cancer—A Report of a Movember International Consensus Meeting

European Association of Urology





https://doi.org/10.1016/j.euo.2023.01.003

UCLH active surveillance

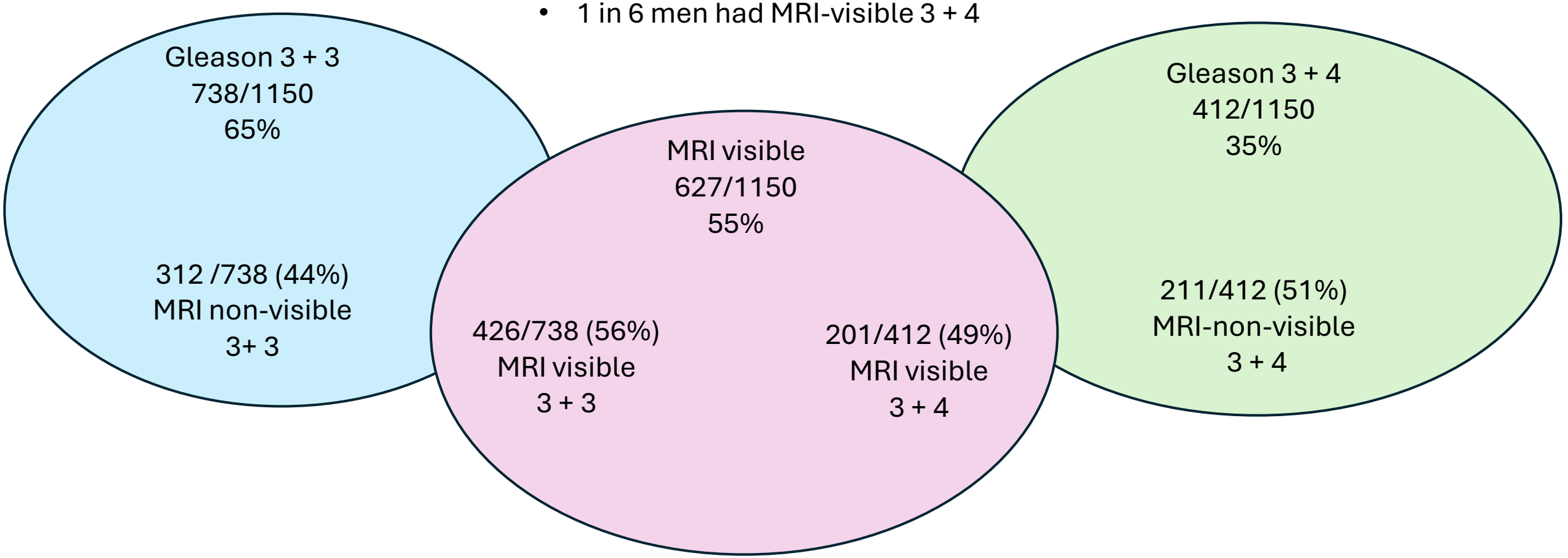
- Determine risk factors before enrolment on AS
  - PSA & PSA density
  - MRI – visible with Likert 4/5
  - Biopsies – Gleason score (including % pattern 4) and maximum cancer core length
- Repeat MRI and /or biopsy if discordant results
- Assess for changes according to baseline risk
- Use PSA and MRI
- Biopsy during surveillance if
  - Change on MRI suggests a change in risk
  - PSA rising and not explained by growth of the whole prostate on MRI

UCLH baseline data

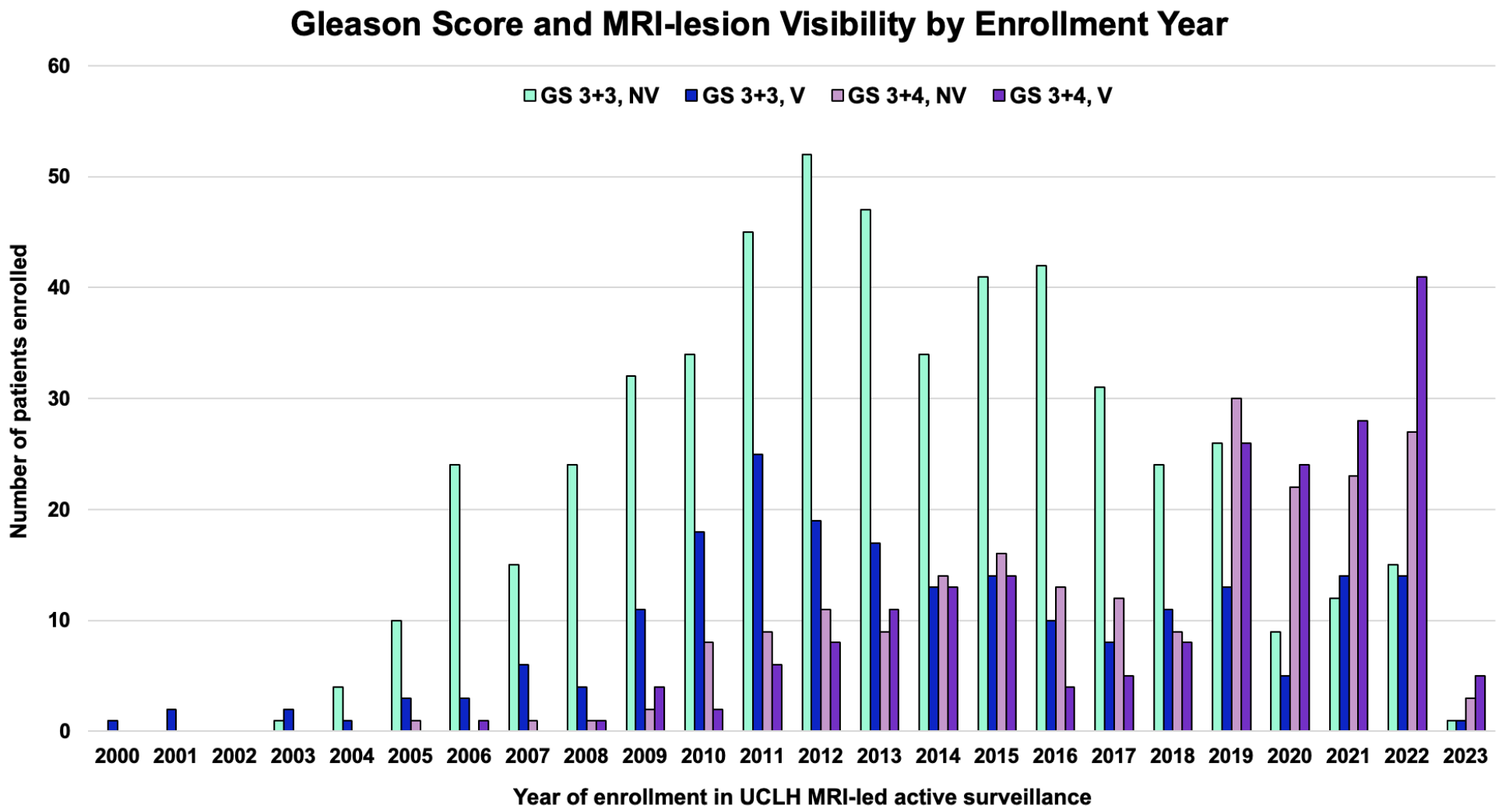
	All patients	Gleason Score and visible lesion on baseline biopsy and MRI*			
		3+3, NV	3+3, V	3+4, NV	3+4, V
n	1,150	523	215	211	201
Age at diagnosis (yr), (SD)	[illegible]	61 (7)	64 (8)	62 (8)	[illegible]
PSA at baseline (ng/ml), (IQR)	6 (4.3-8.1)	5.9 (4.2-7.6)	6.3 (4.6-9.0)	6 (4.2-8.1)	6.1 (4.4-8.5)
Prostate volume at baseline MRI (cc)	[illegible]	49 (35-67)	41.9 (32.3-61.2)	45 (32-63)	[illegible]
PSAD at baseline MRI (ng/ml^2)	0.12 (0.09-0.18)	0.12 (0.08-0.17)	0.14 (0.1-0.2)	0.13 (0.09-0.18)	0.13 (0.1-0.21)
Entry biopsy					
No. of cores	14 (11-23)	12 (10-22.5)	13 (11-18)	16 (12-27)	14 (11-21)
No. of positive cores	2 (1-4)	2 (1-3)	2 (1-3)	3 (2-4.8)	4 (2-6)
MCCL**	2 (1-5)	1.5 (1-3)	2.25 (1-5)	3 (2-4)	4.5 (3-7)
Visible lesion on baseline scan	416 [36.2]	0	215 [100]	0	201 [100]
Highest Likert score on baseline MRI					
2	323 [28.1]	259 [49.5]	0	63 [29.9]	0
3	412 [35.8]	264 [50.5]	0	148 [70.1]	0
4	395 [34.3]	0	210 [97.7]	0	185 [92]
5	21 [1.8]	0	5 [2.3]	0	16 [8]

Gleason score & MRI visibility at Baseline

- 1 in 3 men had Gleason 3 + 4
- Over half of men had an MRI-visible lesion
- 1 in 6 men had MRI-visible 3 + 4



Risk by Gleason score & MRI visibility over time



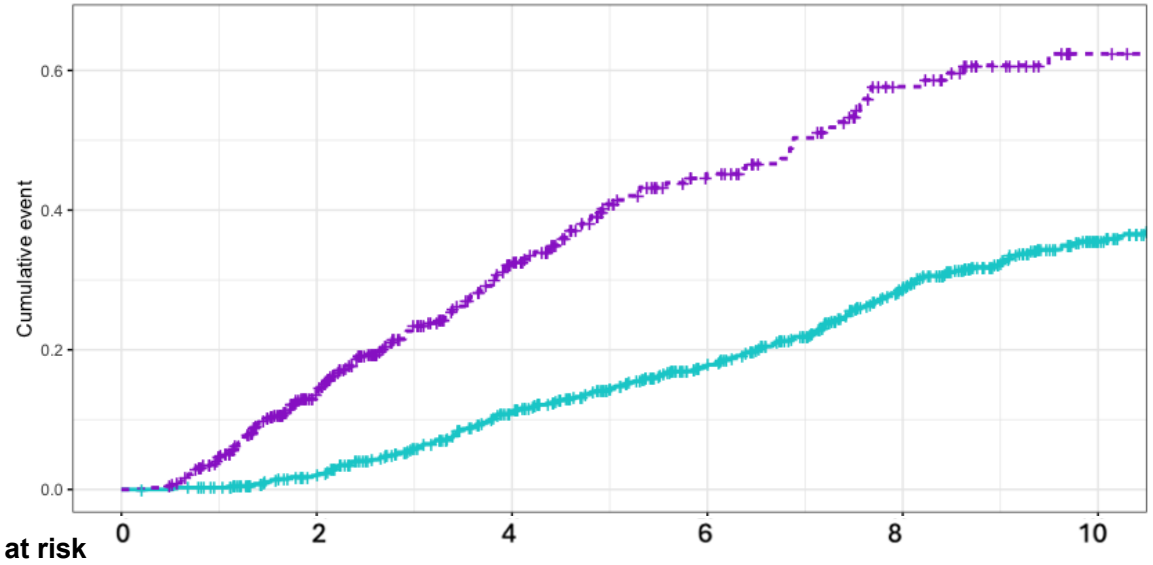
Whole cohort outcomes of MRI-led risk adapted active surveillance

- Event free survival for the cohort
  - 3 years 87%
  - 5 years 76%
  - 10 years 53%
- Biopsy rate – 487/1150 (42%) had a further biopsy on AS
- Histological upgrade to 4 + 3 rare : 67/1150 (6%)
- Only 3% (30 patients) chose treatment despite stable parameters
  - Reduced from 20% in traditional surveillance
- 1 in 3 have had treatment

Can we personalise the outcomes for men considering active surveillance?

Using Gleason score to risk stratify

Active treatment



Number at risk

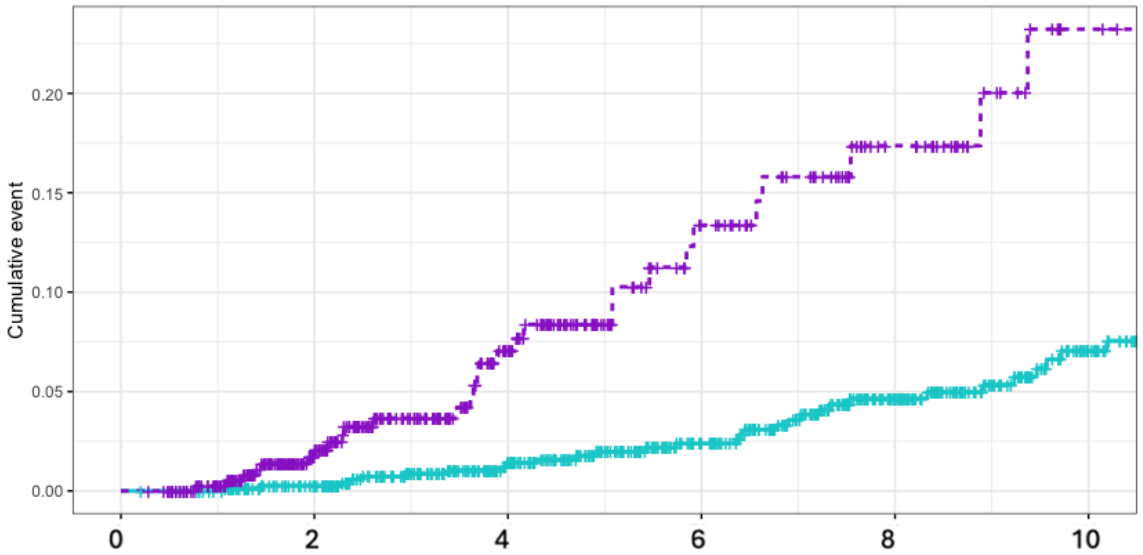
GS 3+3	738	683	563	441	314	197
GS 3+4	412	282	151	82	45	18

GS 3+3 GS 3+4

	5 year treatment rate (%)
Overall cohort	22
3 + 3	14.3
3 + 4	41.9

With particular thanks to Dr Cameron Englman

Histological progression to Gleason ≥ 4 + 3



Number at risk

GS 3+3	738	683	561	440	312	196
GS 3+4	412	280	148	80	45	18

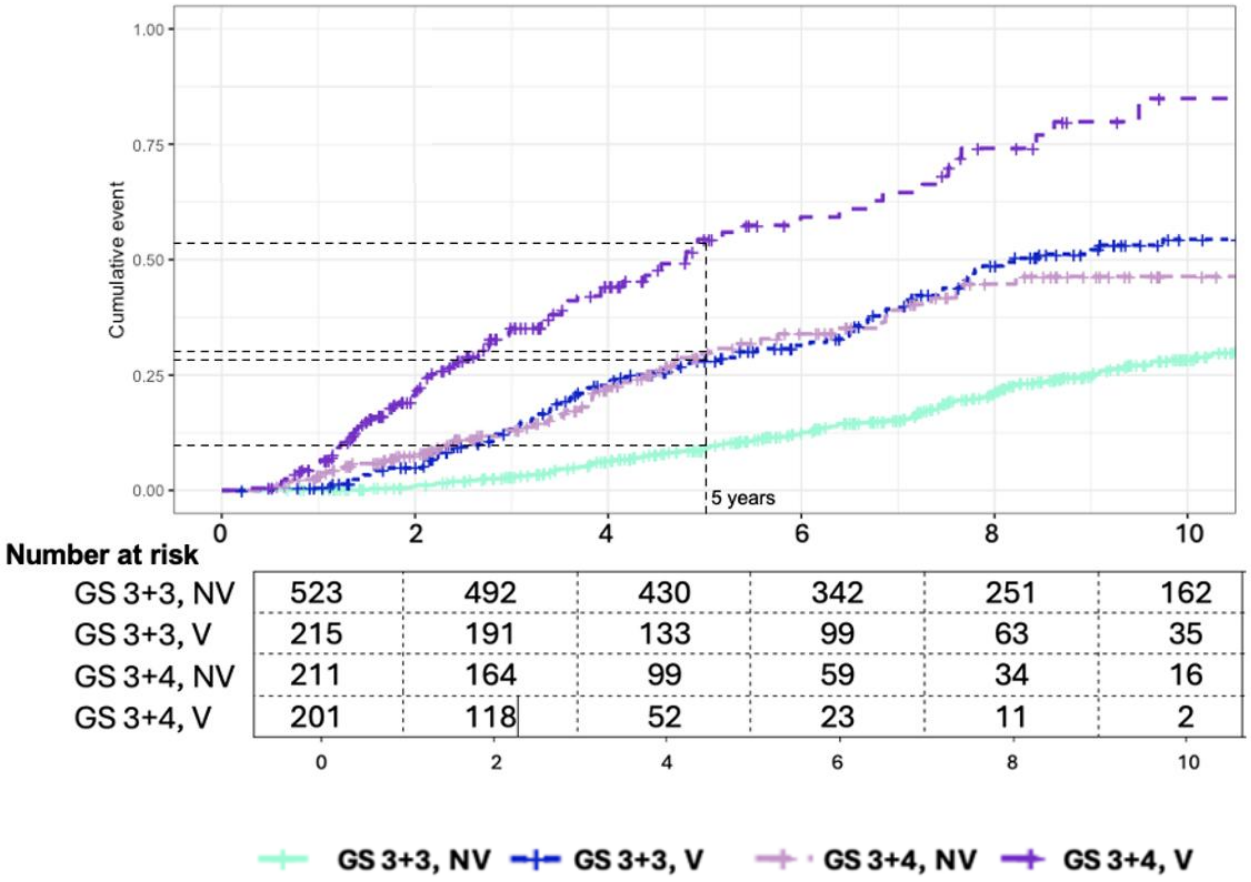
GS 3+3 GS 3+4

	5 year detection of Gleason ≥ 4 + 3 (%)
Overall cohort	3.7
3 + 3	2.0
3 + 4	8.4

With particular thanks to Dr Cameron Englman

Adding MRI-visibility to Gleason score to risk stratify

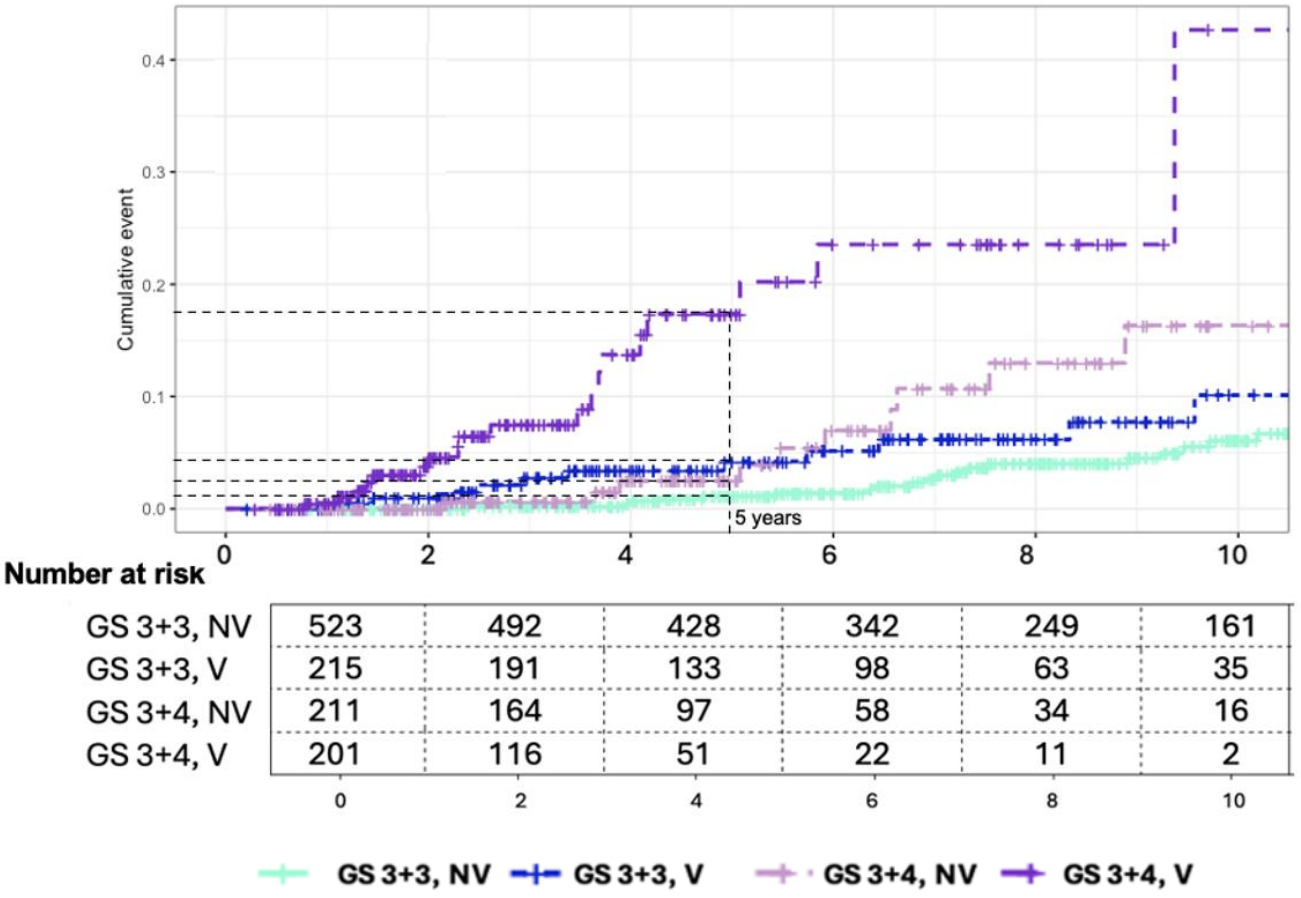
Active treatment



	5 year active treatment(%)
Overall cohort	22
Non-visible 3 + 3	9
MRI-visible 3 + 3	28
Non-visible 3 + 4	30
MRI-visible 3 + 4	55

With particular thanks to Dr Cameron Englman

Histological progression to Gleason ≥ 4 + 3

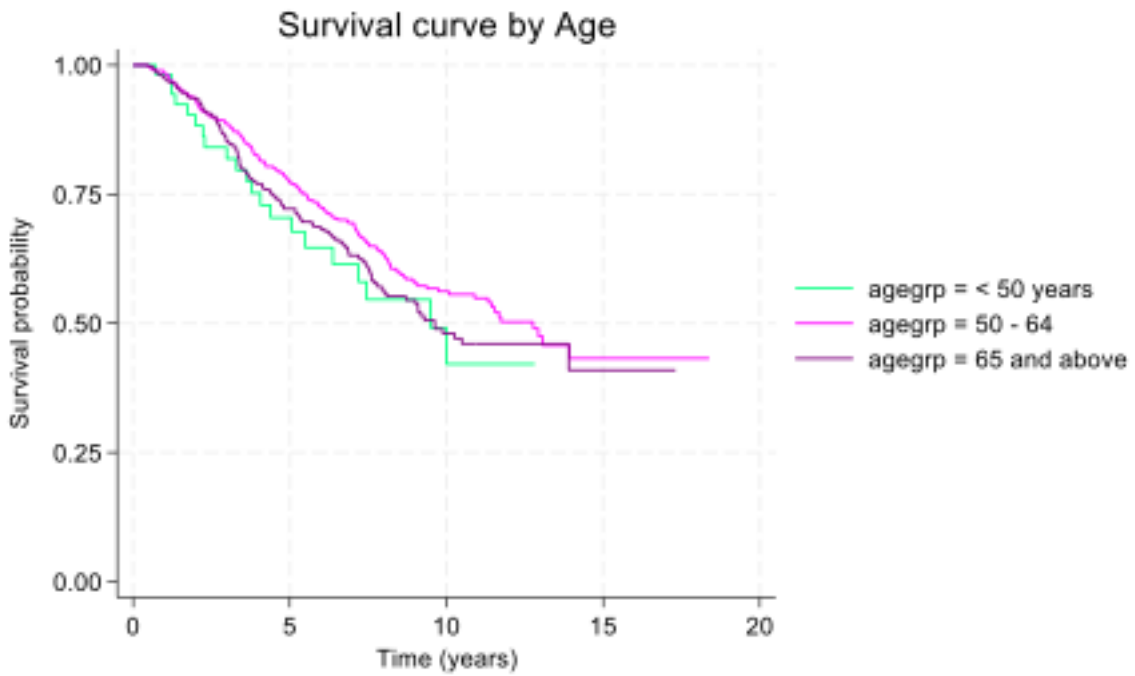


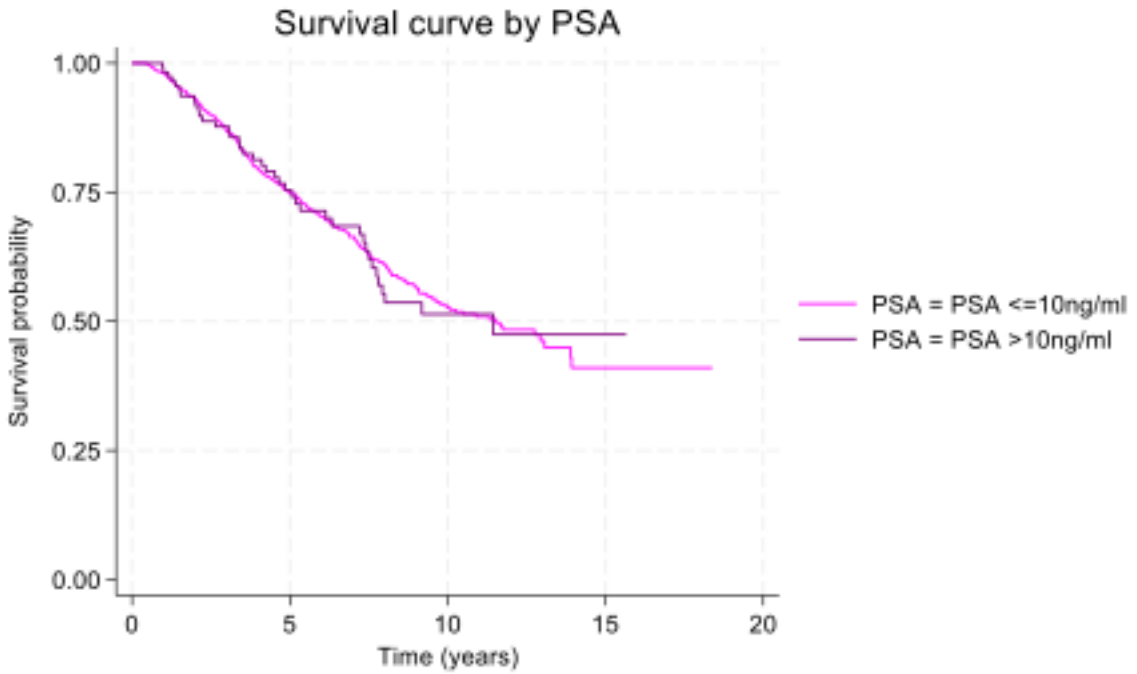
	5 year histological progression to Gleason ≥ 4 + 3 (%)
Overall cohort	3.7
Non-visible 3 + 3	1.2
MRI-visible 3 + 3	4.3
Non-visible 3 + 4	2.5
MRI-visible 3 + 4	17.4

With particular thanks to Dr Cameron Englman

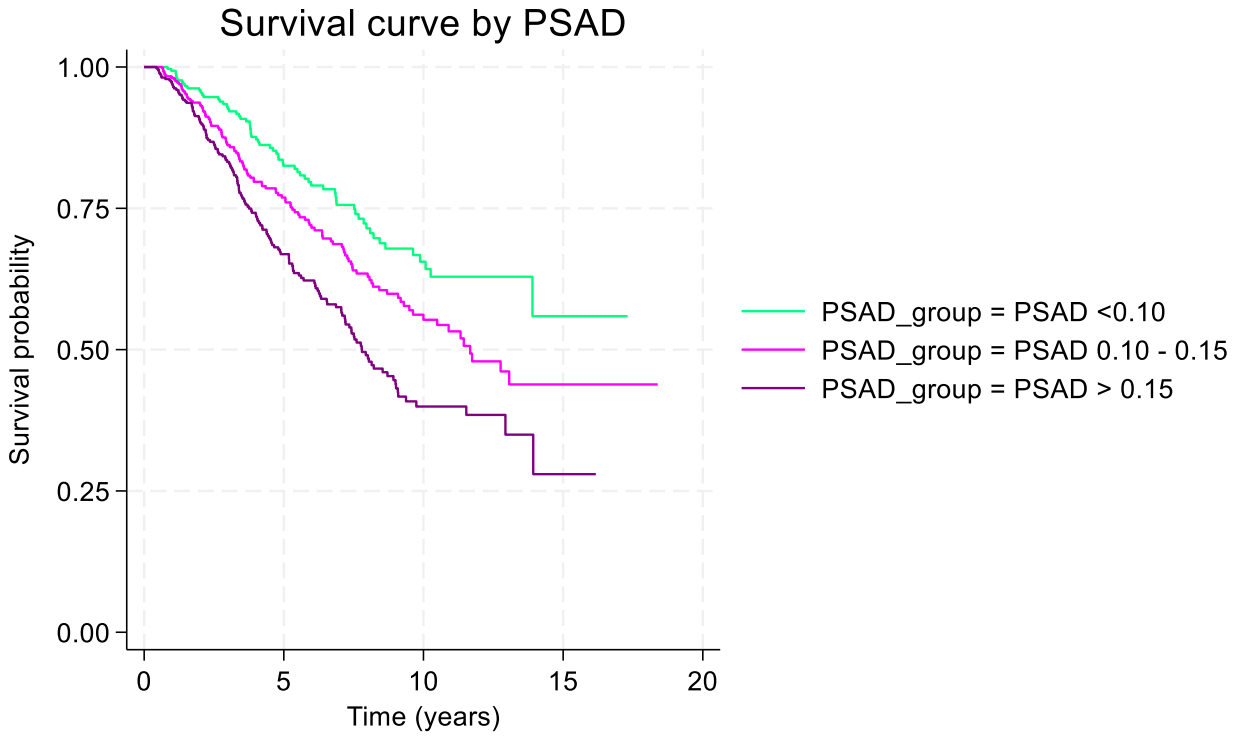
Could we personalize active surveillance by further risk stratification?

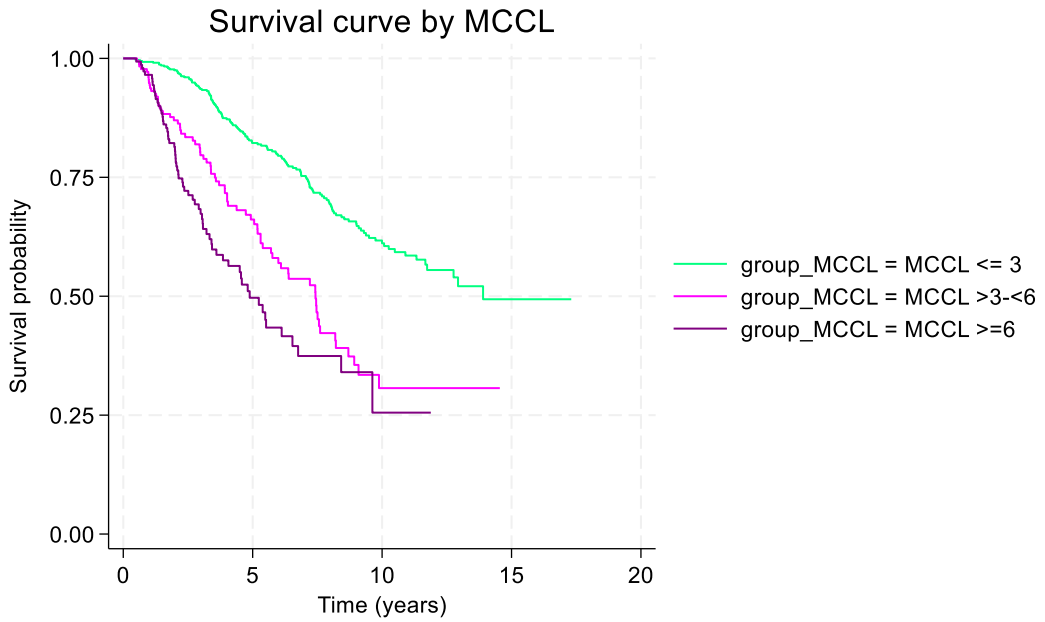
Do age or PSA predict the likelihood of treatment in an MRI-led cohort?





Adding in PSA density and maximum cancer core length





With particular thanks to Dr Busola Adebusoye

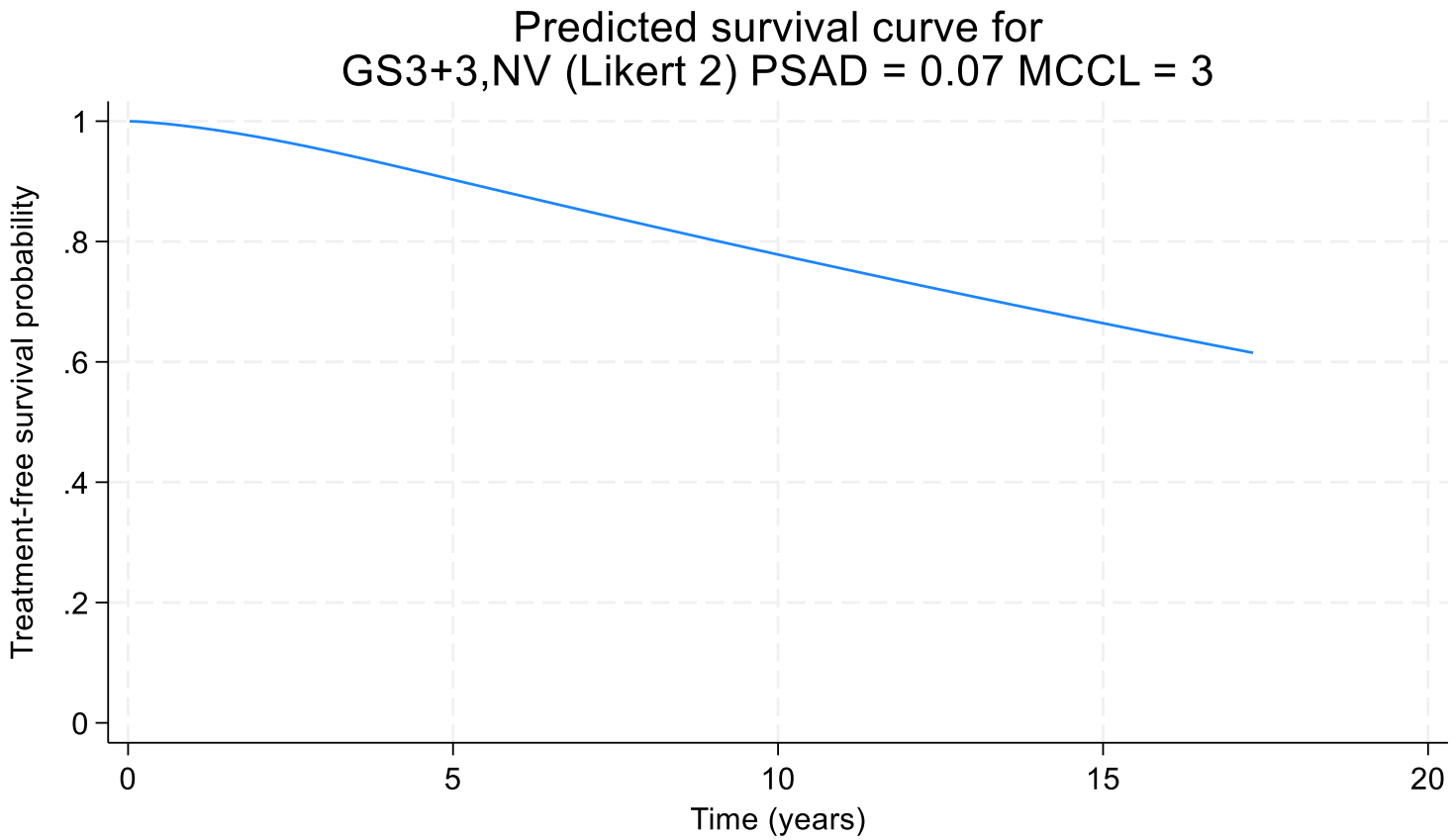
Multi-variable analysis of risk factors in active surveillance

Risk factor	Cox model
	Hazard ratio (confidence interval)
Gleason grade & MRI visibility	
GS 3+3 NV	Ref
GS 3+3 V	2.30(1.65 -3.20)
GS 3+4 NV	2.17(1.53 – 3.09)
GS 3+4 V	4.04(2.84-5.74)
PSA density	
PSAD (<0.10)	Ref
PSAD (0.10-0.15)	1.35(0.97 -1.89)
PSAD (PSAD >0.15)	1.76(1.27-2.43)
Maximum cancer core length	
MCCL < 4	Ref
MCCL 4-<7	1.61(1.22-2.14)
MCCL 7 -<10	1.97(1.29-3.00)
MCCL > 10	2.73(1.50-4.94)

Development of a model to predict treatment free survival

With particular thanks to Dr Busola Adebusoye

Mr Lenny Low Risk
3mm Gleason 3 + 3
Not MR visible (Likert 2)
PSA 4, 60 ml prostate PSA density 0.07

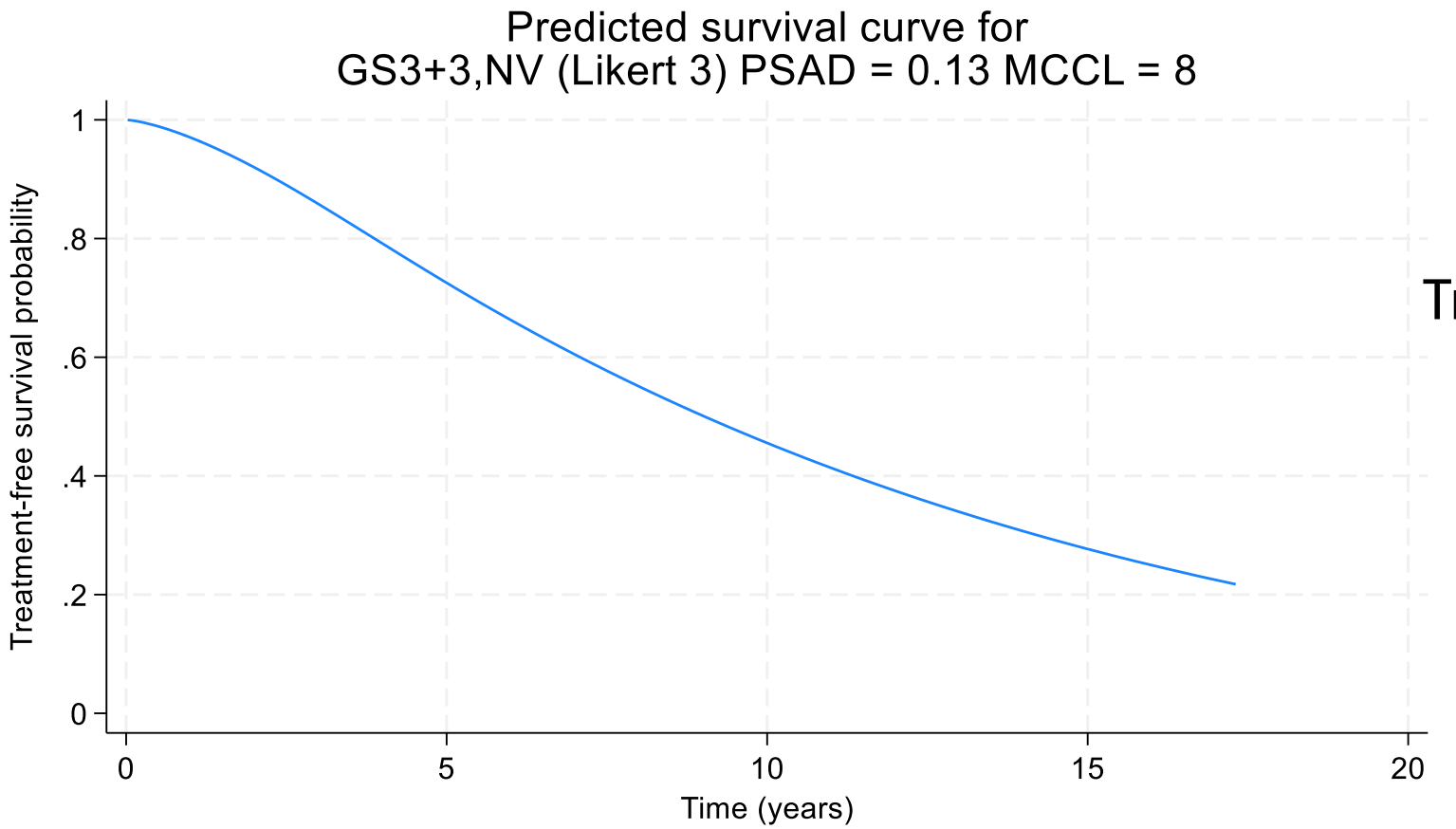


Treatment free survival

- 3 years 95%
- **5 years 90%**
- 10 years 80%

With particular thanks to Dr Busola Adebusoye

Mr Alan also Low risk
8mm 3 + 3
Not MRI visible (Likert 3)
PSA 10.4, 80 ml prostate PSAD 0.13

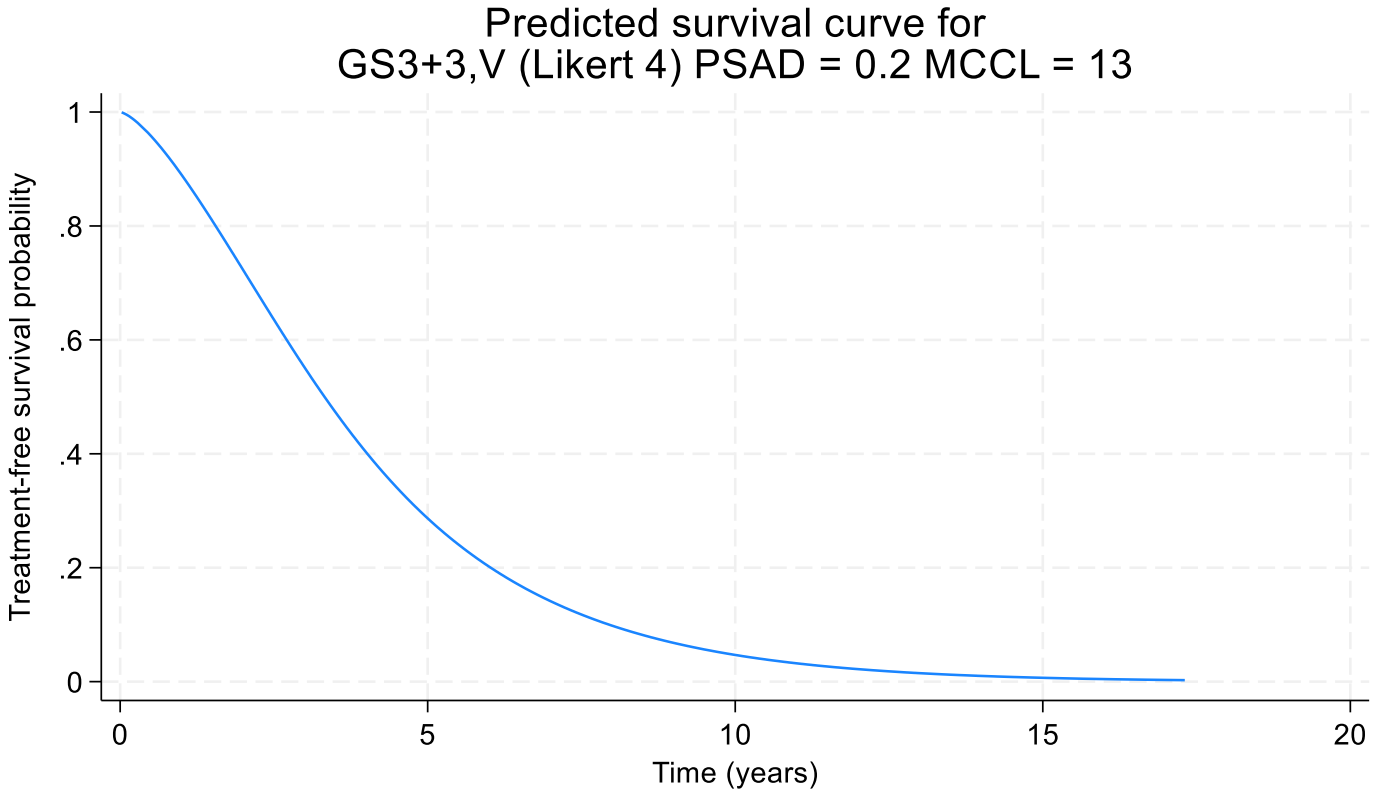


Treatment free survival

- 3 years 90%
- **5 years 75%**
- 10 years 50%

With particular thanks to Dr Busola Adebusoye

Mr Victor Intermediate risk
13mm Gleason 3 + 3
MRI visible (Likert 4)
PSA 12, 60 ml prostate PSAD 0.2

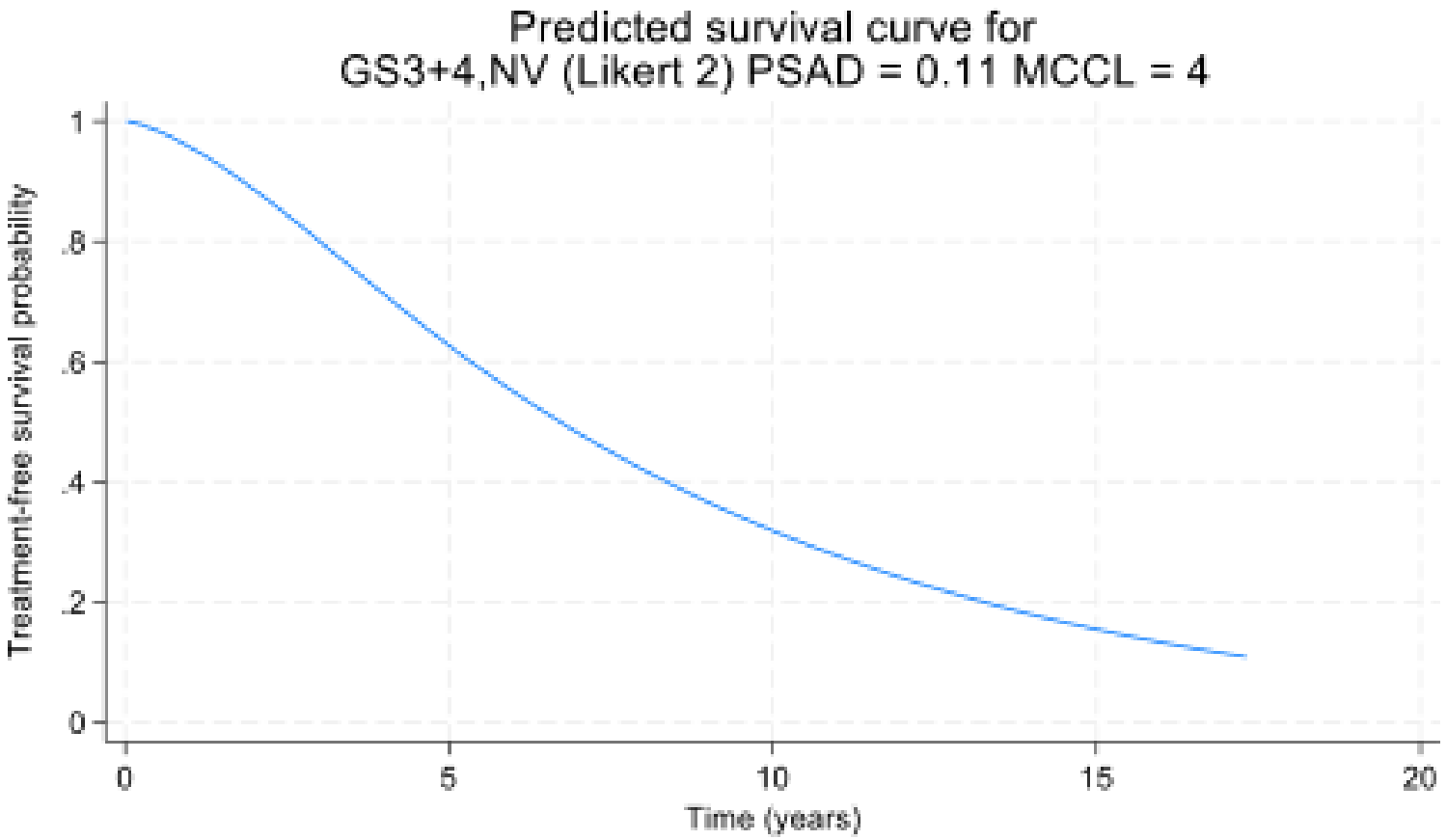


Treatment free survival

- 3 years 60%
- **5 years 25%**
- 10 years <10%

With particular thanks to Dr Busola Adebusoye

Mr Norman Another Intermediate risk
4mm Gleason 3 + 4
Not MRI visible (Likert 2)
PSA 5, prostate volume 45 mls, PSA density 0.11

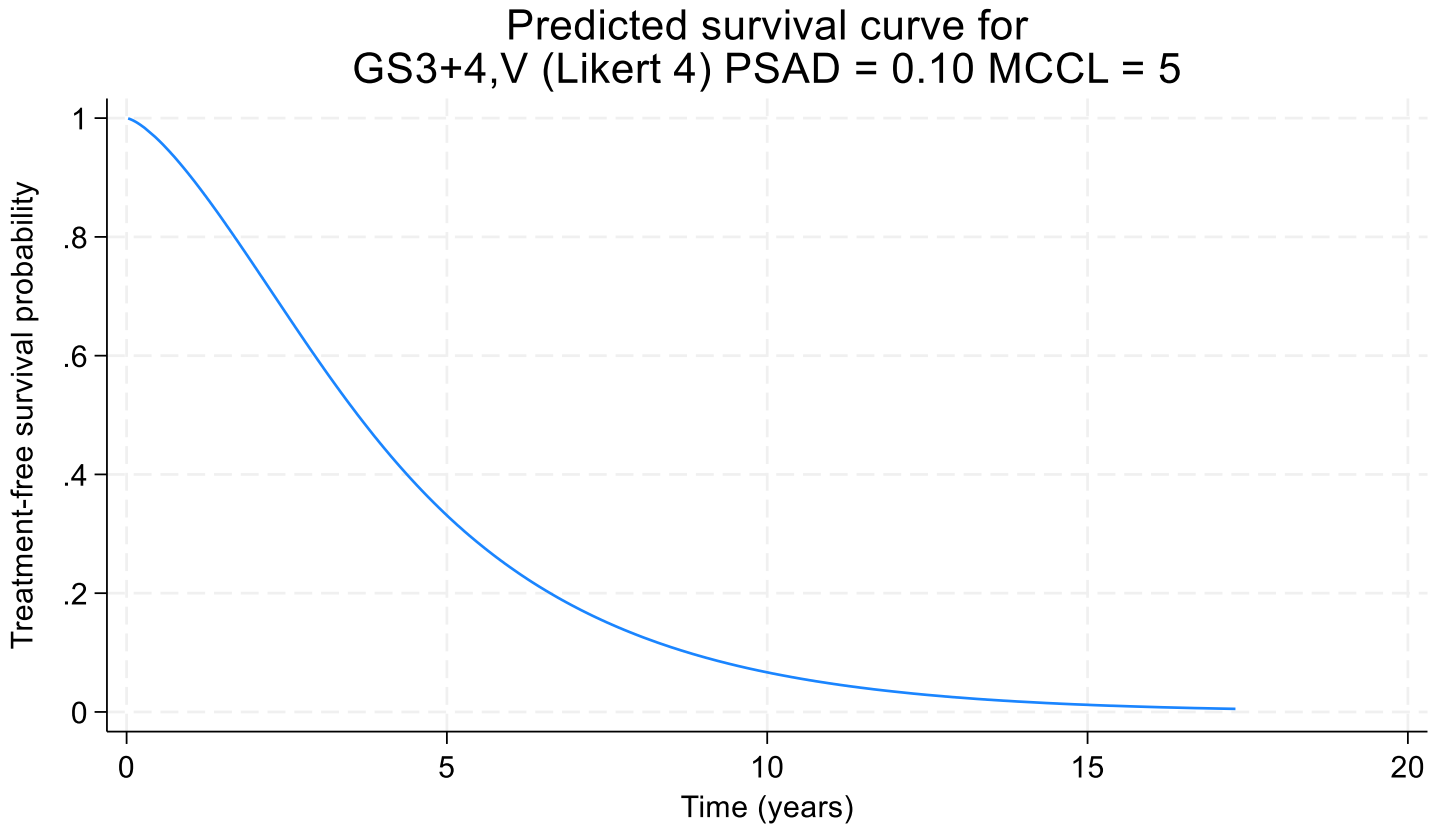


Treatment free survival

- 3 years 80%
- **5 years 60%**
- 10 years 33%

With particular thanks to Dr Busola Adebusoye

Mr Vince Increasing risk
5mm 3 + 4
MRI Visible (Likert 4)
PSA 5, 50 ml prostate PSAD 0.10



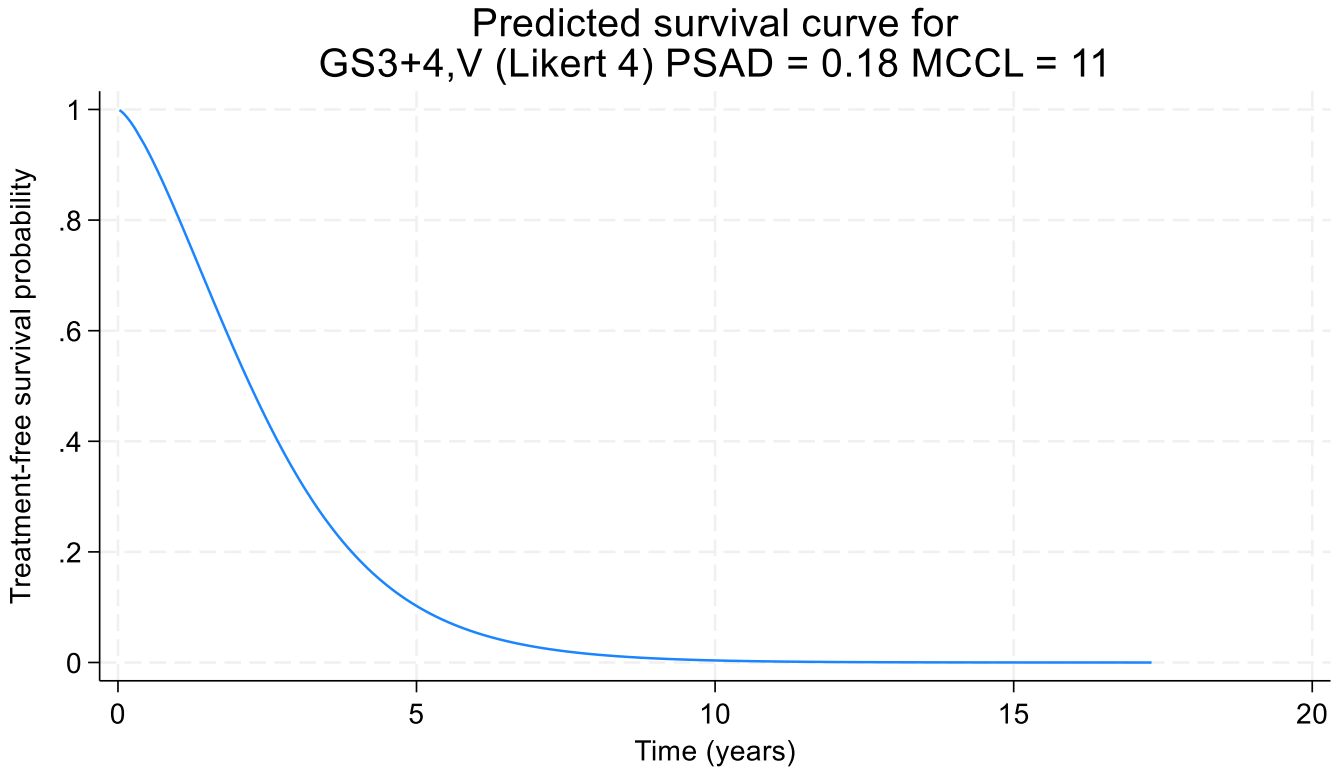
UCLH treatment free survival

- 3 years 60%
- **5 years 30%**
- 10 years 10%

With particular thanks to Dr Busola Adebusoye

Mr Harry Higher risk

11mm Gleason 3 + 4
MRI visible (Likert 4)
50 m l prostate PSA 9 PSAD 0.18



UCLH Treatment free survival

- 50% at 3 years
- **10% at 5 years**
- Negligible at 10

** Not recommended for AS

With particular thanks to Dr Busola Adebusoye

		Not visible on MRI (Likert 1-3)					Visible on MRI (Likert 4/5)				
		PSA density (ng/ml/ml)									
		<0.1	0.1-0.12	0.12-0.15	0.15 – 0.2	>0.2	<0.1	0.1-0.12	0.12-0.15	0.15 – 0.2	>0.2
Histology	MCCL (mm)										
Gleason 3 + 3	≤ 3	Lenny 90%									
	> 3 to <6										
	≥ 6 to < 10			Alan 75%							
	> 10									Victor 25%	
Gleason 3 + 4	≤ 3										
	> 3 to <6		Norman 60%					Vince 30%			
	≥ 6 to <10										
	> 10									Harry 10%	

4 factor risk stratification for 5 year TFS

		Not visible on MRI (Likert 1-3)					Visible on MRI (Likert 4/5)				
		PSA density (ng/ml/ml)									
Histology	Maximum cancer core length (mm)	<0.1	0.1-0.12	0.12-0.15	0.15 – 0.2	>0.2	<0.1	0.1-0.12	0.12-0.15	0.15 – 0.2	>0.2
Gleason 3 + 3	≤ 3	0.91	0.90	0.87	0.87	0.84	0.81	0.79	0.73	0.72	0.66
	> 3 and <6	0.87	0.86	0.82	0.81	0.77	0.73	0.70	0.62	0.61	0.54
	≥ 6 and < 10	0.83	0.81	0.75	0.74	0.69	0.64	0.60	0.51	0.49	0.42
	> 10	0.77	0.75	0.68	0.67	0.61	0.55	0.51	0.4	0.39	0.31
Gleason 3 + 4	≤ 3	0.82	0.80	0.74	0.73	0.68	0.70	0.67	0.59	0.57	0.51
	> 3 and <6	0.74	0.71	0.64	0.62	0.56	0.59	0.55	0.45	0.44	0.36
	≥ 6 and < 10	0.65	*0.63*	0.53	0.51	0.44	0.47	0.43	0.33	0.31	0.24
	> 10	*0.57*	*0.53*	0.42	0.41	0.34	0.36	0.32	0.22	0.2	0.14

Summary

- Risk-adapted active surveillance makes sense
- When using an MRI-led pathway for diagnosis it makes sense to use an MRI-led, risk adapted pathway for monitoring
- Consider the risk factors to be:
  - Gleason score
  - MRI-visibility
  - Maximum cancer core length
  - PSA density (not PSA < or > 10 ng/ml)
- Always remember to assess the whole person not just the MRI!

Let’s move onto treatment…

Focal therapy for prostate cancer

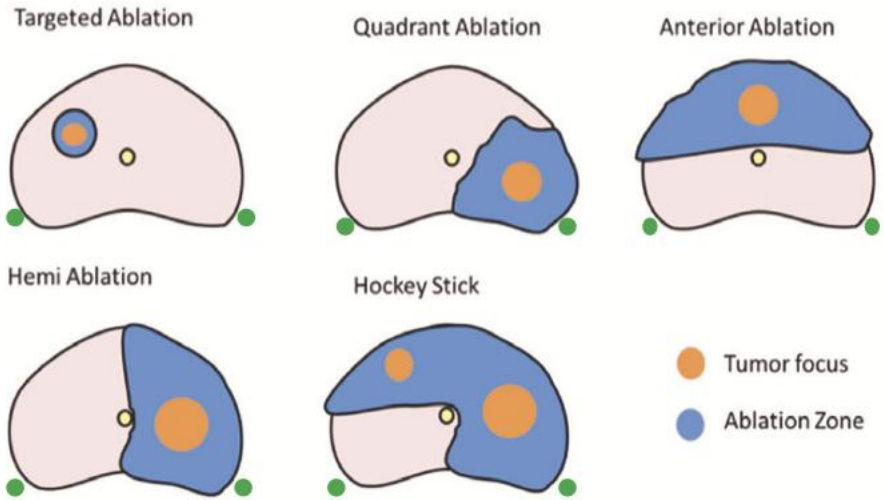
A small treatment for a small cancer

Risk of cancer progression

Risks of radical treatment

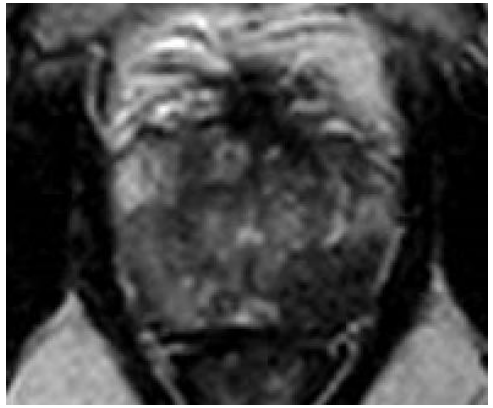
What do we mean by focal therapy?

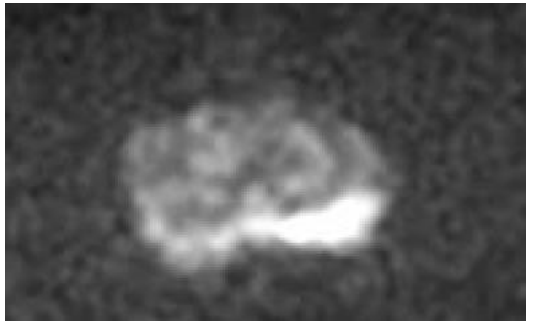
- Targeted to the index lesion
  - Gleason 3 + 4 or 4 + 3
  - Visible on MRI
  - With an adequate margin
- Using any modality
  - Heat
  - Ice
  - Electrical disruption
  - Others (laser, photodynamic therapy)

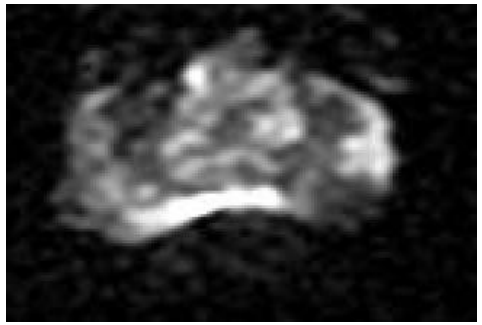


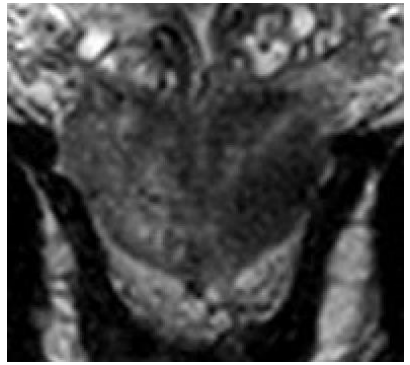
Typical case

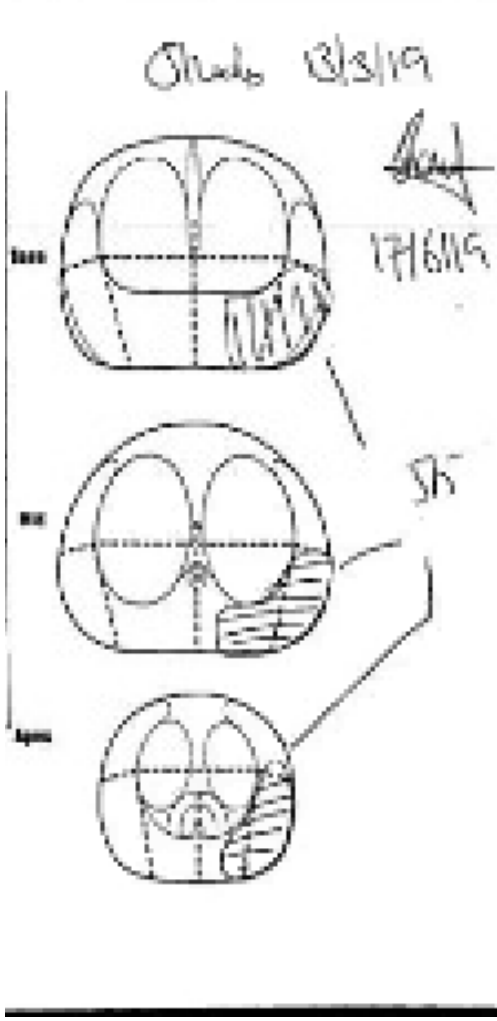
- MRI March 2019
- 12mm 3 + 4 on biopsy
- Left focal HIFU July 2019
- 4cm, 3cm, 3cm
- Excellent Uchida changes
- Day surgery procedure
- Catheter for 5 days

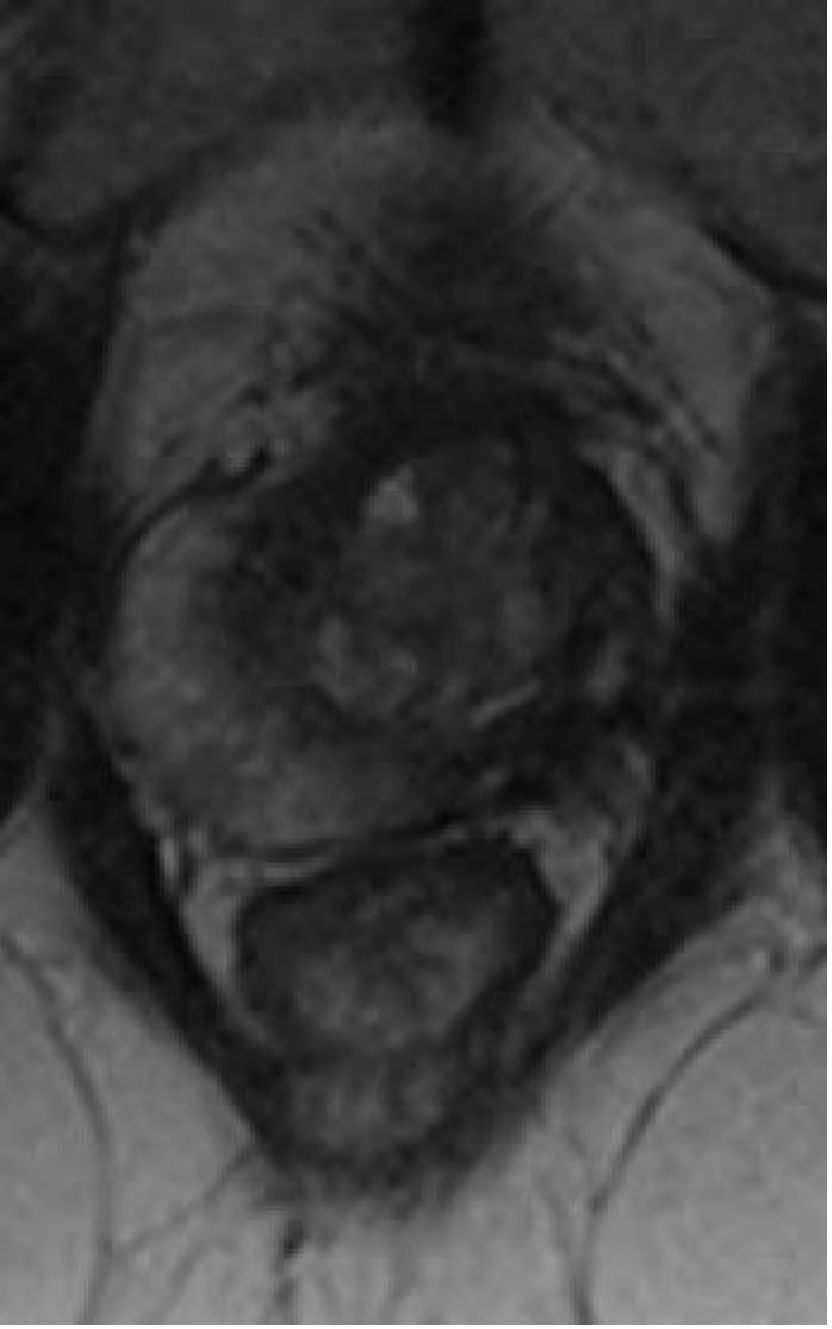






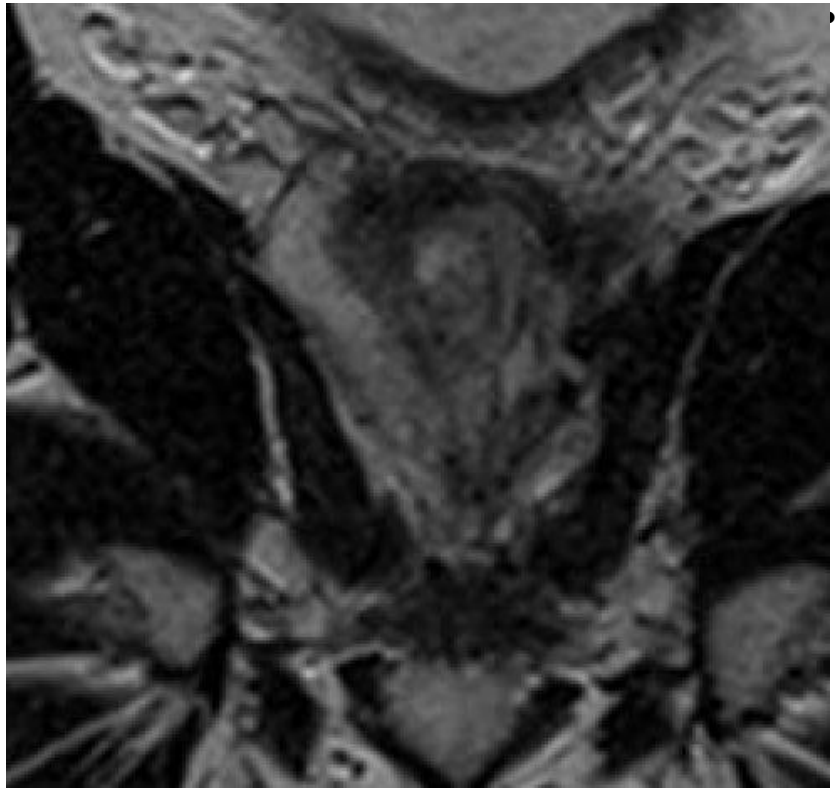


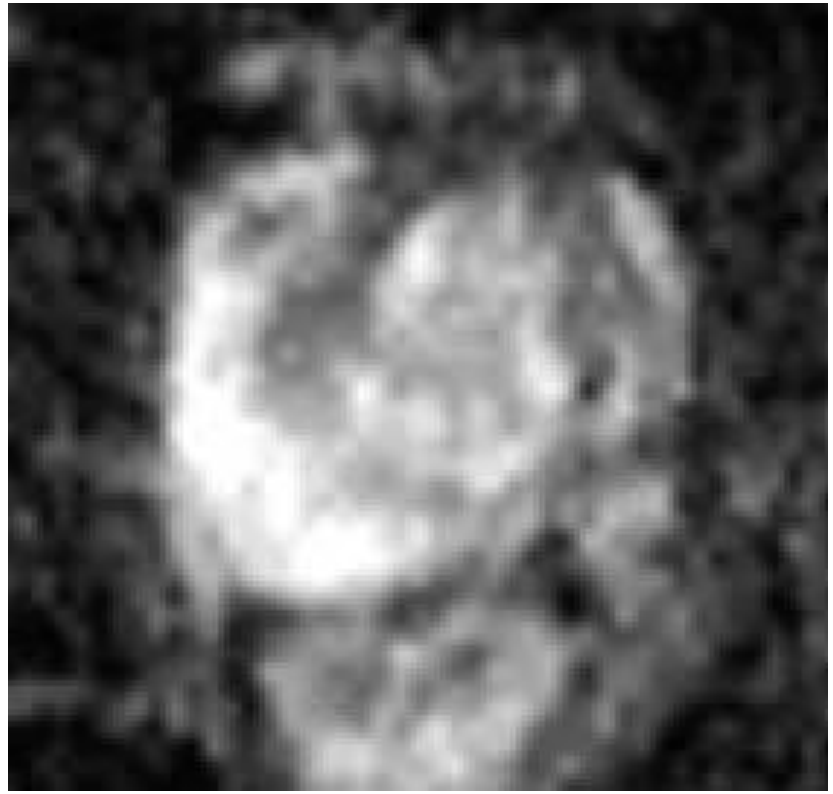




12 Month follow up

- PSA reduced from 6.9 to 1.9
- Good erections with no tablets
- No urinary symptoms
- Non-suspicious MRI





5 year follow up

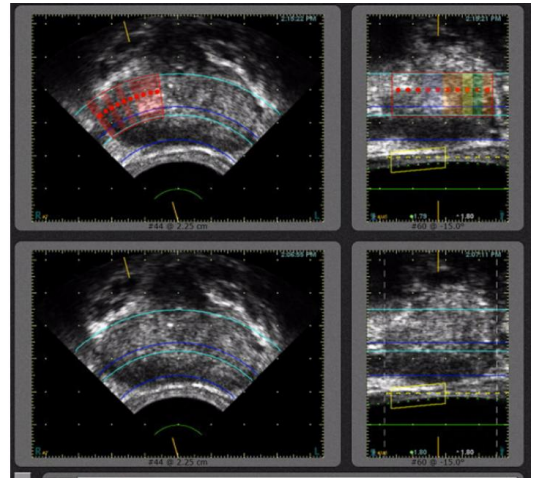
- PSA risen to 2.4
- Non-suspicious MRI

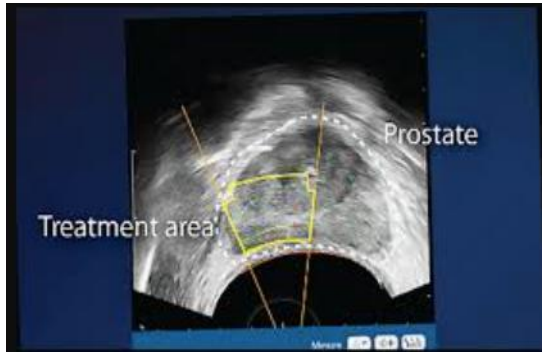
NCITA National Cancer Imaging Translational Accelerator

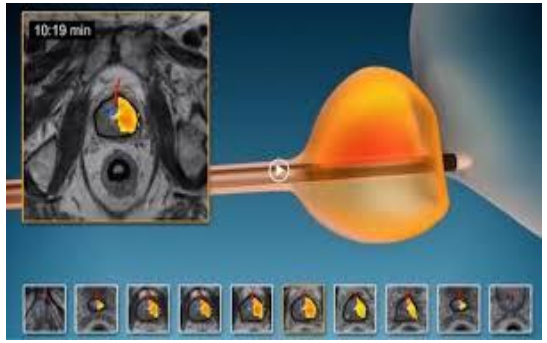
High Intensity focussed ultrasound (HIFU)

- **Most widely used energy source for focal therapy of localized prostate cancer.**
- **Ideal application:** treatment of posterolaterally located lesions, due to favorable accessibility and energy delivery profile.
- **Limitations:** less effective and technically challenging for apical lesions, where treatment precision is constrained by anatomical proximity to the sphincter and urethra.

- **Transrectal Systems:**
  - Sonablate® (SonaCare Medical, USA)
  - Focal One® (EDAP TMS, France)
- **Transurethral Systems:**
  - TULSA-PRO® (Profound Medical, Canada)
- **Emerging:**
  - MRI-guided transrectal HIFU (Insightec ExAblate®)





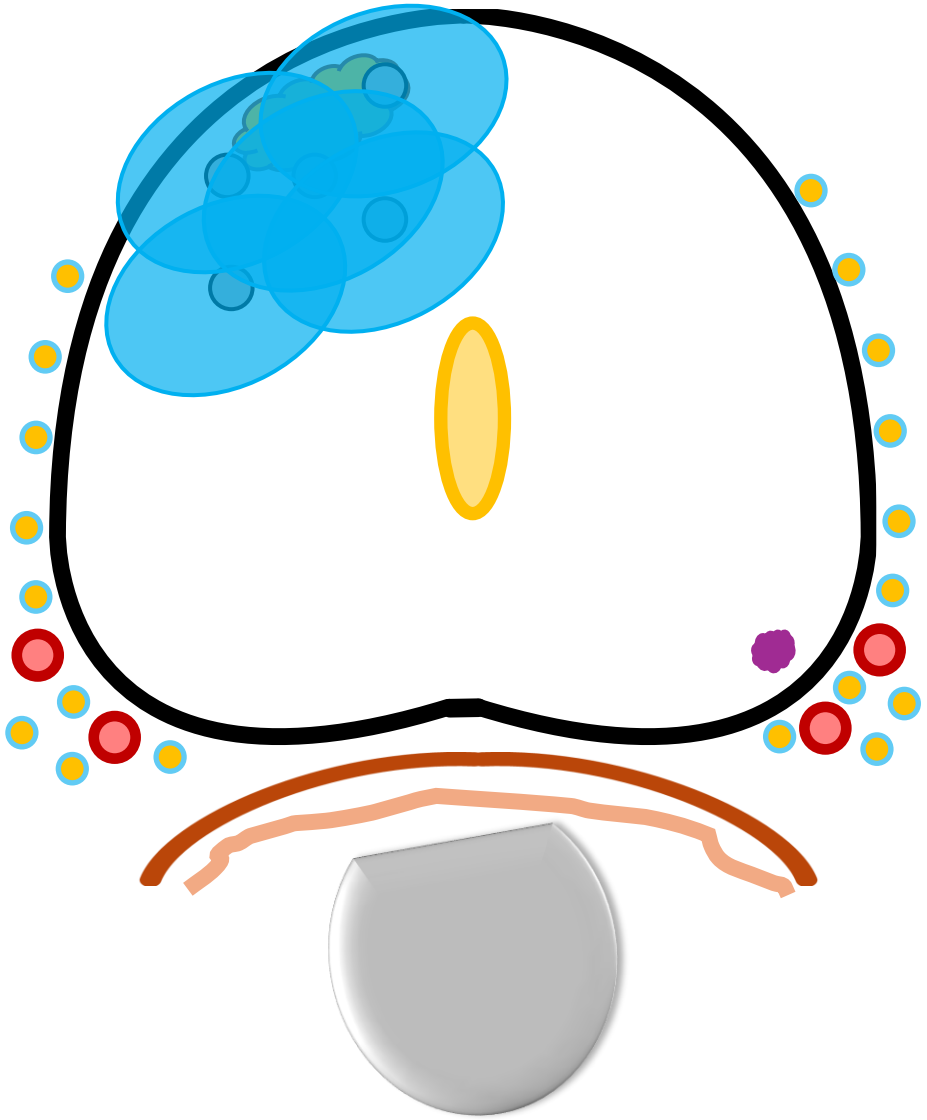


With thanks to Professor Rafael Sanchez-Salas

Cryotherapy

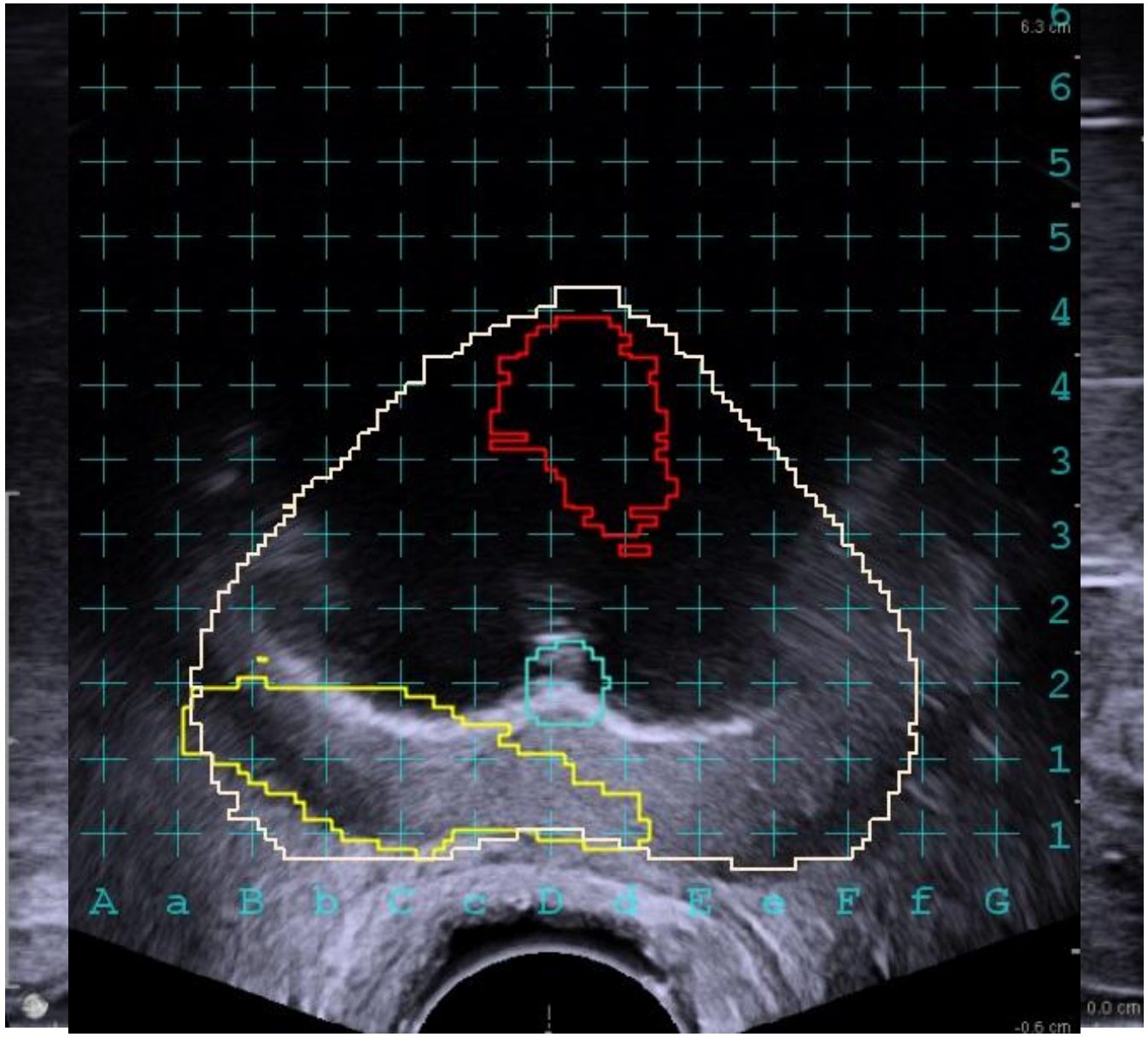
Medium and some high risk prostate cancers

- Cryotherapy
- Ultrasound probe in rectum to guide treatment
- Needles inserted through skin behind scrotum (perineal)
- Each needle grows an iceball down to temperatures of at least -40℃
- Can be repeated



With thanks to Professor Hashim Ahmed, Imperial College London

Cryotherapy



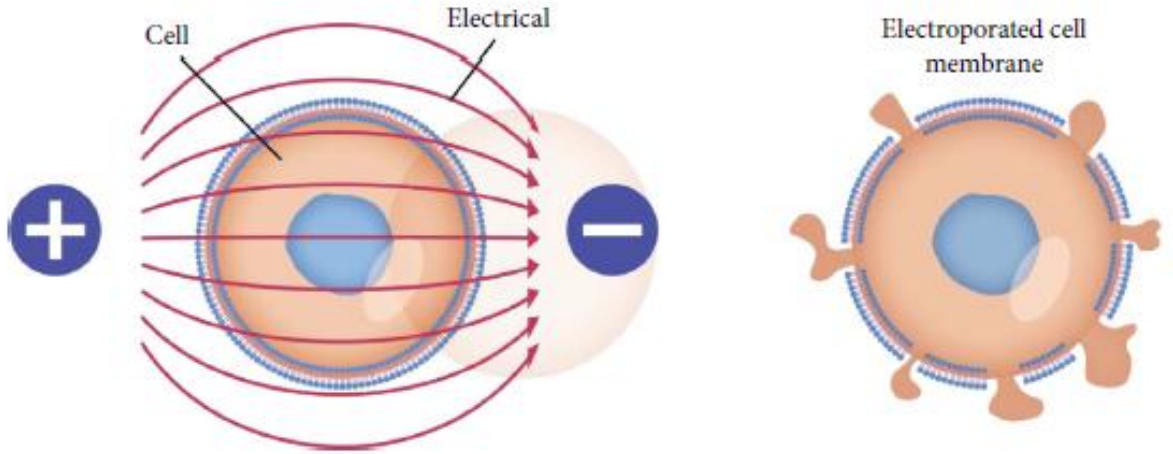
With thanks to Professor Hashim Ahmed, Imperial College London

Irreversible electroporation (IRE)

IRE is an ablative treatment for prostate cancer

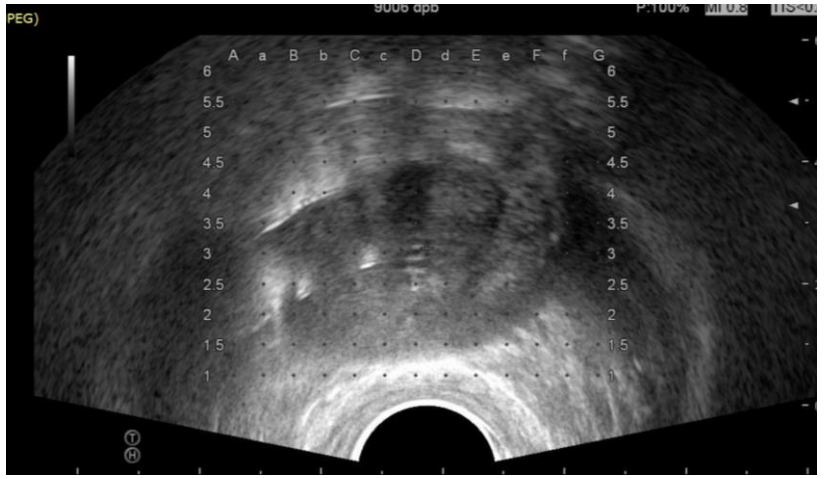
- Direct current is applied to the target area – electrodes (needles) via brachy grid
- Cell membranes are depolarised
- Excessive permeability leads to cell death by apoptosis
- HIFU and Cryo rely instead upon thermal injury and necrosis

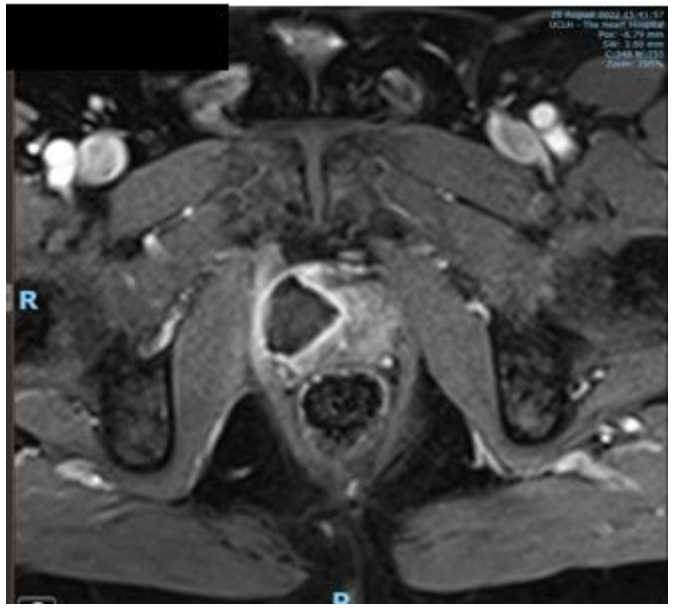
Fig. 2 IRE is based on the principle of electroporation.



IRE

- Functional and oncological outcomes similar to HIFU/Cryo
- Short procedures (<60 mins)
- Short learning curve
  - Fusion if required
  - Energy delivery less dependent on USS skill
  - Non thermal ablation may offer advantage
- Harder at extreme apex, pacemakers
- ARC registry for prospective data collection





Medium-term oncological outcomes in a large cohort of men treated with either focal or hemi-ablation using high-intensity focused ultrasonography for primary localized prostate cancer

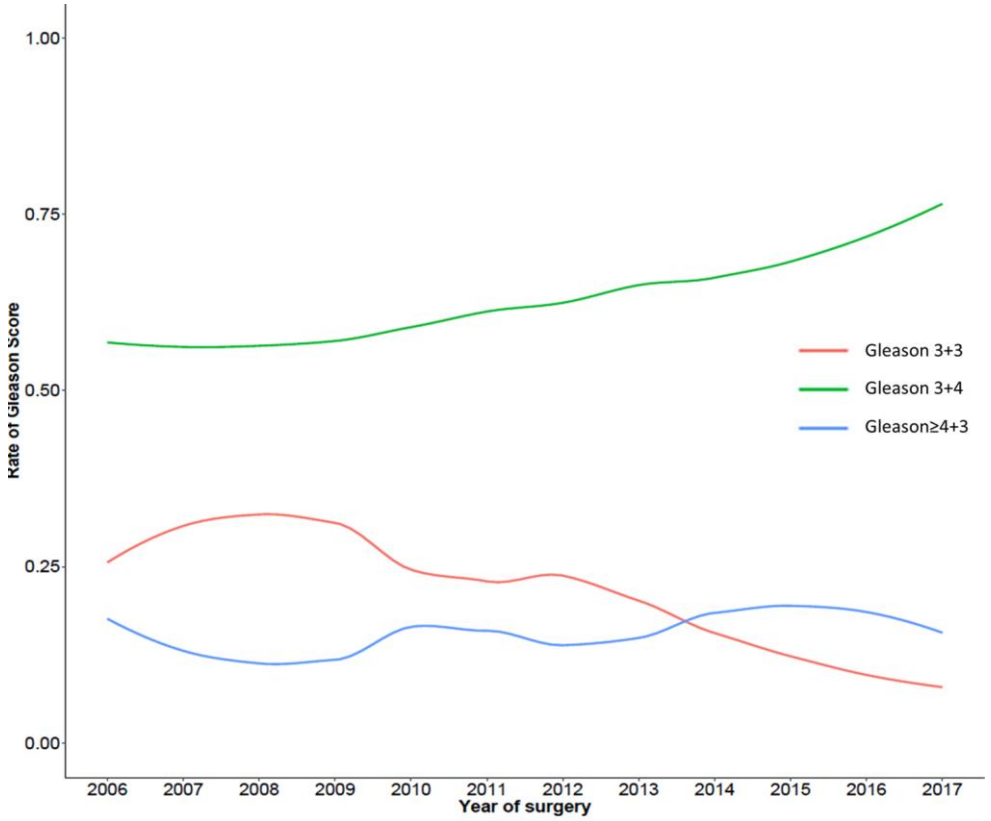
BJUI
BJU International

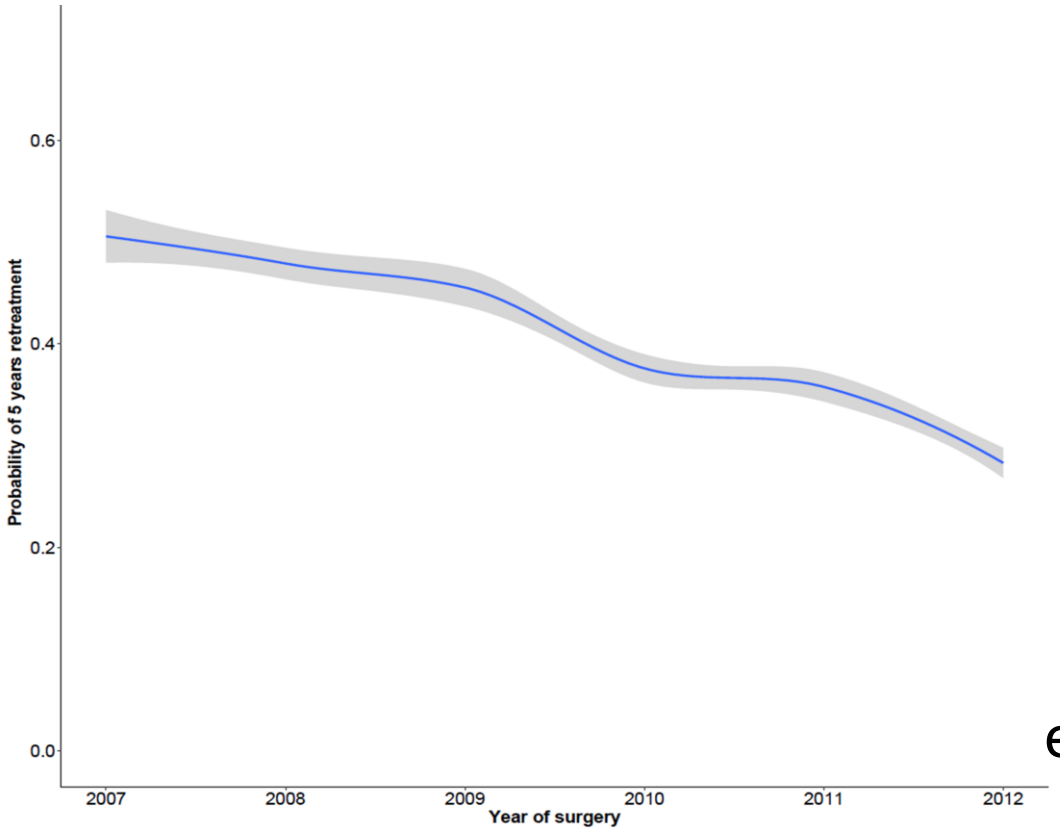
Armando Stabile*†‡, Clement Orczyk*‡, Feargus Hosking-Jervis‡, Francesco Giganti‡§, Manit Arya*‡, Richard G. Hindley*, Louise Dickinson§, Clare Allen§, Shonit Punwani§, Charles Jameson¶, Alex Freeman¶, Neil McCartan‡, Francesco Montorsi†, Alberto Briganti†, Hashim U. Ahmed*†, Mark Emberton*‡ and Caroline M. Moore*‡

- 1032 consecutive men treated by UCL team at UCLH (NHS) and London Urology Associates (PP)
- 2005-2017
- Follow up of men who are deemed stable with GP
- Follow up of higher risk men in clinic
- 80% 3 + 4
- 3.8% of men in cohort went on to radical treatment

BJU International © 2019 BJU International | doi:10.1111/bju.14710

Who gets focal HIFU?





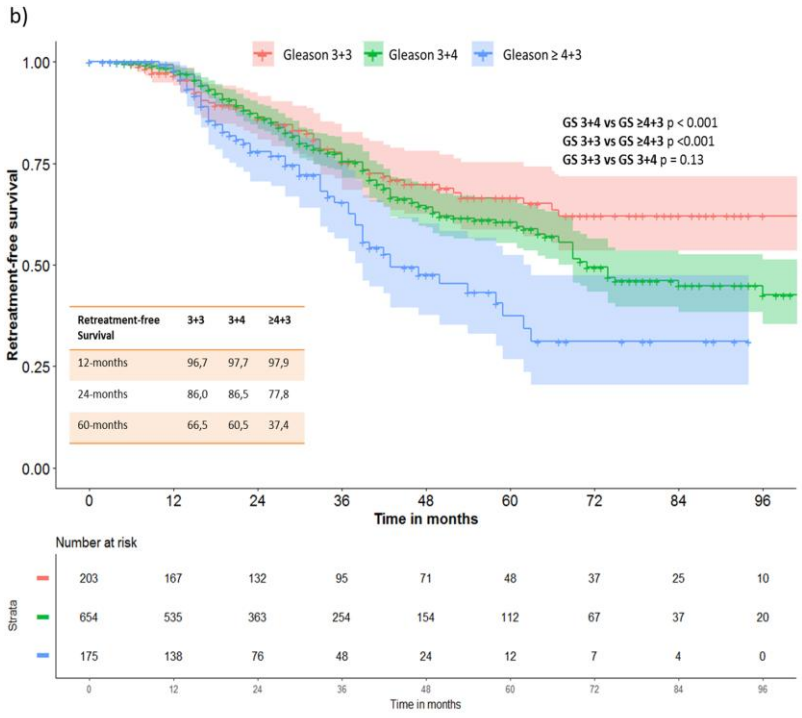
Learning curve

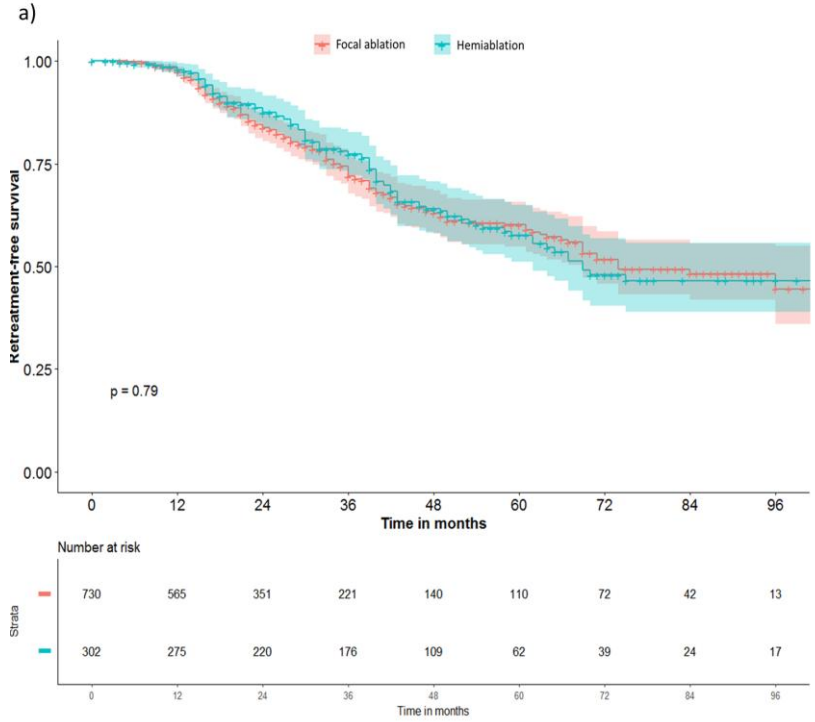
Patient selection

Operator experience

5 year retreatment rates reduced over time

What predicts the need for additional treatment?





Effect of Gleason grade

Focal vs hemi-ablation

Cancer Control Outcomes Following Focal Therapy Using High-intensity Focused Ultrasound in 1379 Men with Nonmetastatic Prostate Cancer: A Multi-institute 15-year Experience

Deepika Reddy[a,b,*], *Max Peters*[c], *Taimur T. Shah*[a,b], *Marieke van Son*[c], *Mariana Bertoncelli Tanaka*[b], *Philipp M. Huber*[d], *Derek Lomas*[e], *Arnas Rakauskas*[f], *Saiful Miah*[g], *David Eldred-Evans*[a], *Stephanie Guillaumier*[h,i], *Feargus Hosking-Jervis*[a], *Ryan Engle*[a], *Tim Dudderidge*[j], *Richard G. Hindley*[k,l], *Amr Emara*[k,x], *Raj Nigam*[m,n], *Neil McCartan*[h,i], *Massimo Valerio*[f], *Naveed Afzal*[o], *Henry Lewi*[p], *Clement Orczyk*[h,i], *Chris Ogden*[q], *Iqbal Shergill*[r], *Raj Persad*[s], *Jaspal Virdi*[t], *Caroline M. Moore*[h,i,u,v], *Manit Arya*[b,h,i], *Mathias Winkler*[a,b], *Mark Emberton*[h,i,u,v,†], *Hashim U. Ahmed*[a,b,v,w,†]

- HIFU Evaluation and Assessment of Treatment (HEAT) registry
- 1379 primary focal patients across 13 UK centres 2005 -2020
- Median follow up 32 m overall
  - For >5 years, median follow up 82 m
- 2nd focal treatment 1 in 5
- Radical treatment 1 in 15
- PSA 3 m for year 1, then 6m
- MRI 1 year and periodically after, biopsy as needed

https://doi.org/10.1016/j.eururo.2022.01.005

Cancer Control Outcomes Following Focal Therapy Using High-intensity Focused Ultrasound in 1379 Men with Nonmetastatic Prostate Cancer: A Multi-institute 15-year Experience

Deepika Reddy [a,b,*], *Max Peters* [c], *Taimur T. Shah* [a,b], *Marieke van Son* [c], *Mariana Bertoncelli Tanaka* [b], *Philipp M. Huber* [d], *Derek Lomas* [e], *Arnas Rakauskas* [f], *Saiful Miah* [g], *David Eldred-Evans* [a], *Stephanie Guillaumier* [h,i], *Feargus Hosking-Jervis* [a], *Ryan Engle* [a], *Tim Dudderidge* [j], *Richard G. Hindley* [k,l], *Amr Emara* [k,x], *Raj Nigam* [m,n], *Neil McCartan* [h,i], *Massimo Valerio* [f], *Naveed Afzal* [o], *Henry Lewi* [p], *Clement Orczyk* [h,i], *Chris Ogden* [q], *Iqbal Shergill* [r], *Raj Persad* [s], *Jaspal Virdi* [t], *Caroline M. Moore* [h,i,u,v], *Manit Arya* [b,h,i], *Mathias Winkler* [a,b], *Mark Emberton* [h,i,u,v,†], *Hashim U. Ahmed* [a,b,v,w,†]

Radical treatment free survival 73% at 7 years

Overall failure free survival 69% at 7 years

Failure defined as

- evidence of cancer requiring whole-gland salvage treatment/ 3rd focal therapy
- systemic treatment
- prostate cancer metastases
- prostate cancer–specific death

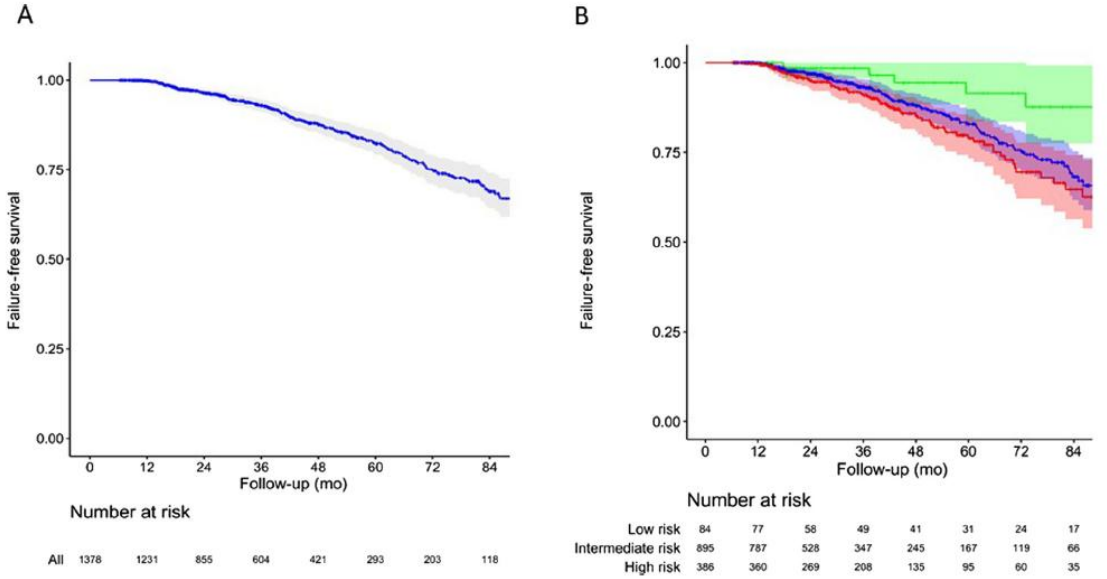


Fig. 1 – Kaplan-Meier curves of failure-free survival (FFS) with 95% confidence intervals. FFS is defined as transition to whole-gland salvage treatment or third focal therapy treatment, systematic treatment, and/or development of prostate cancer metastases and/or prostate cancer–specific death for (A) all patients with at least 6 mo of follow-up and (B) 1365 patients stratified per D'Amico low-risk (green line), intermediate-risk (blue line), and high-risk (red line) group (log-rank analysis of D'Amico intermediate- vs high-risk disease $p = 0.3$).

https://doi.org/10.1016/j.eururo.2022.01.005

Focal therapy compared to radical prostatectomy for non-metastatic prostate cancer: a propensity score-matched study

Taimur T. Shah[1,2] · Deepika Reddy[1,2] · Max Peters[3] · Daniel Ball[2] · Na Hyun Kim[2] · Enrique Gomez Gomez[4] · Saiful Miah[5] · David Eldred Evans[1,2] · Stephanie Guillaumier[6] · Peter S. N. van Rossum[3] · Marieke J. Van Son[3] · Feargus Hosking-Jervis[1] · Tim Dudderidge[7] · Richard Hindley[8] · Amr Emara[8] · Stuart McCracken[9,10] · Damian Greene[11] · Raj Nigam[12] · Neil McCartan[6] · Massimo Valerio[13] · Suks Minhas[2] · Naveed Afzal[14] · Henry Lewi[15] · Chris Ogden[16] · Raj Persad[17] · Jaspal Virdi[18] · Caroline M. Moore[6] · Manit Arya[2,6] · Mark Emberton[6] · Hashim U. Ahmed[1,2] · Mathias Winkler[1,2]

Received: 26 August 2020 / Revised: 29 November 2020 / Accepted: 11 December 2020

Propensity matched analysis based on tumour volume and Gleason grade

Comparison between radical prostatectomy and focal therapy (HIFU or cryotherapy)

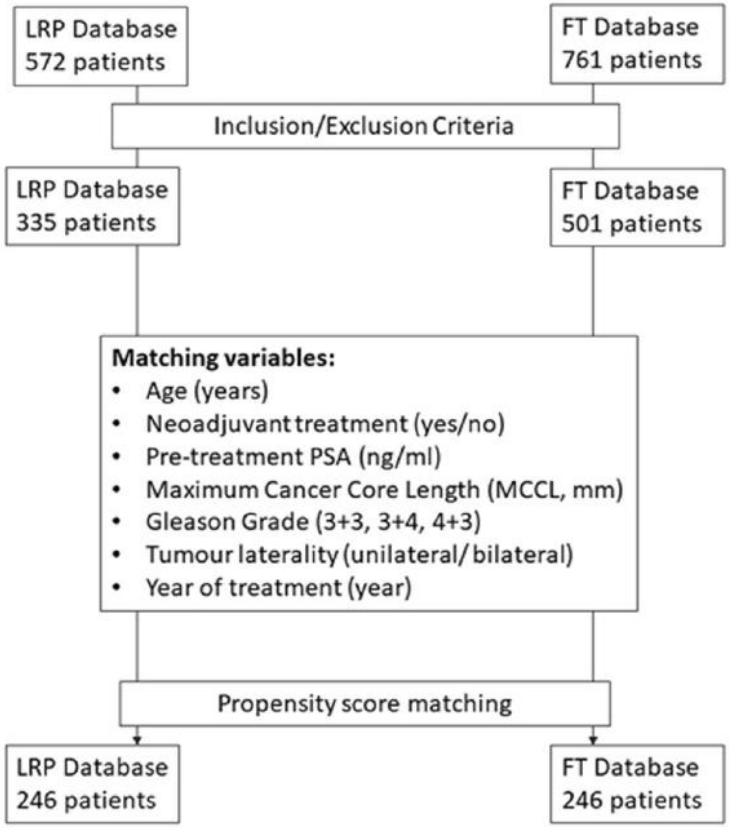


Fig. 1 Flow diagram and matching variables used for cohort development for the primary outcome. After applying the inclusion and exclusion criteria and 1–1 matching, 246 patients remained in each cohort (Radical Prostatectomy (LRP) and Focal Therapy (FT)).

Prostate Cancer and Prostatic Diseases
https://doi.org/10.1038/s41391-020-00315-y

Focal therapy compared to radical prostatectomy for non-metastatic prostate cancer: a propensity score-matched study

Taimur T. Shah[1,2] · Deepika Reddy[1,2] · Max Peters[3] · Daniel Ball[2] · Na Hyun Kim[2] · Enrique Gomez Gomez[4] · Saiful Miah[5] · David Eldred Evans[1,2] · Stephanie Guillaumier[6] · Peter S. N. van Rossum[3] · Marieke J. Van Son[3] · Feargus Hosking-Jervis[1] · Tim Dudderidge[7] · Richard Hindley[8] · Amr Emara[8] · Stuart McCracken[9,10] · Damian Greene[11] · Raj Nigam[12] · Neil McCartan[6] · Massimo Valerio[13] · Suks Minhas[2] · Naveed Afzal[14] · Henry Lewi[15] · Chris Ogden[16] · Raj Persad[17] · Jaspal Virdi[18] · Caroline M. Moore[6] · Manit Arya[2,6] · Mark Emberton[6] · Hashim U. Ahmed[1,2] · Mathias Winkler[1,2]

Received: 26 August 2020 / Revised: 29 November 2020 / Accepted: 11 December 2020

- Failure defined as need for local salvage treatment (RP or RT) or systemic treatment or development of metastatic disease
  - Biochemical recurrence after RP was not included (24.3% after matching, with 15.9% having salvage RT)
  - Prescence of positive biopsy after FT not included (23.9% after matching
    - 6.5% had radical after focal
    - 17.1% had 2nd focal (And <3% then had radical treatment)
    - 1.6% had 3 focal treatments)
- One additional focal treatment was allowed

Prostate Cancer and Prostatic Diseases
https://doi.org/10.1038/s41391-020-00315-y

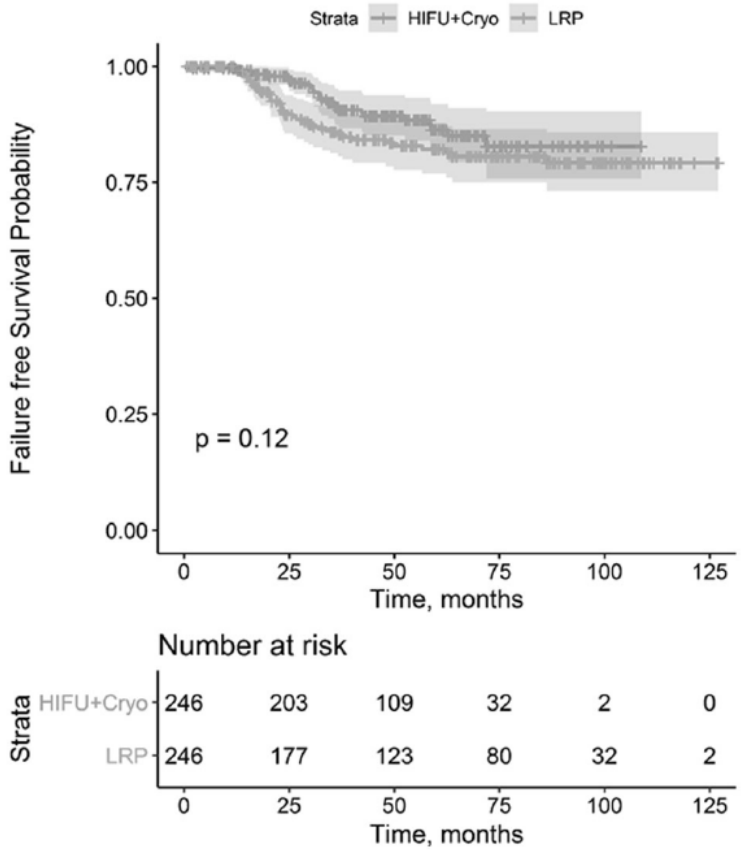


Fig. 2 Primary outcome (definition 1): Kaplan–Meier curve reporting failure free survival against time for laparoscopic radical prostatectomy and focal therapy, after 1–1 matching and single imputation. Failure-free survival (95% CI) in the radical prostatectomy (LRP) compared to focal therapy (HIFU + Cryo) groups was 86% (81–91%) vs. 91% (87–95%) at 3 years, 82% (77–88%) vs. 86% (81–92%) at 5 years and 79% (73–86%) vs 83% (76–90%) at 5 years, respectively (adjusted log rank *p* value 0.12).

3 year failure free survival

- 86% RP
- 91% FT

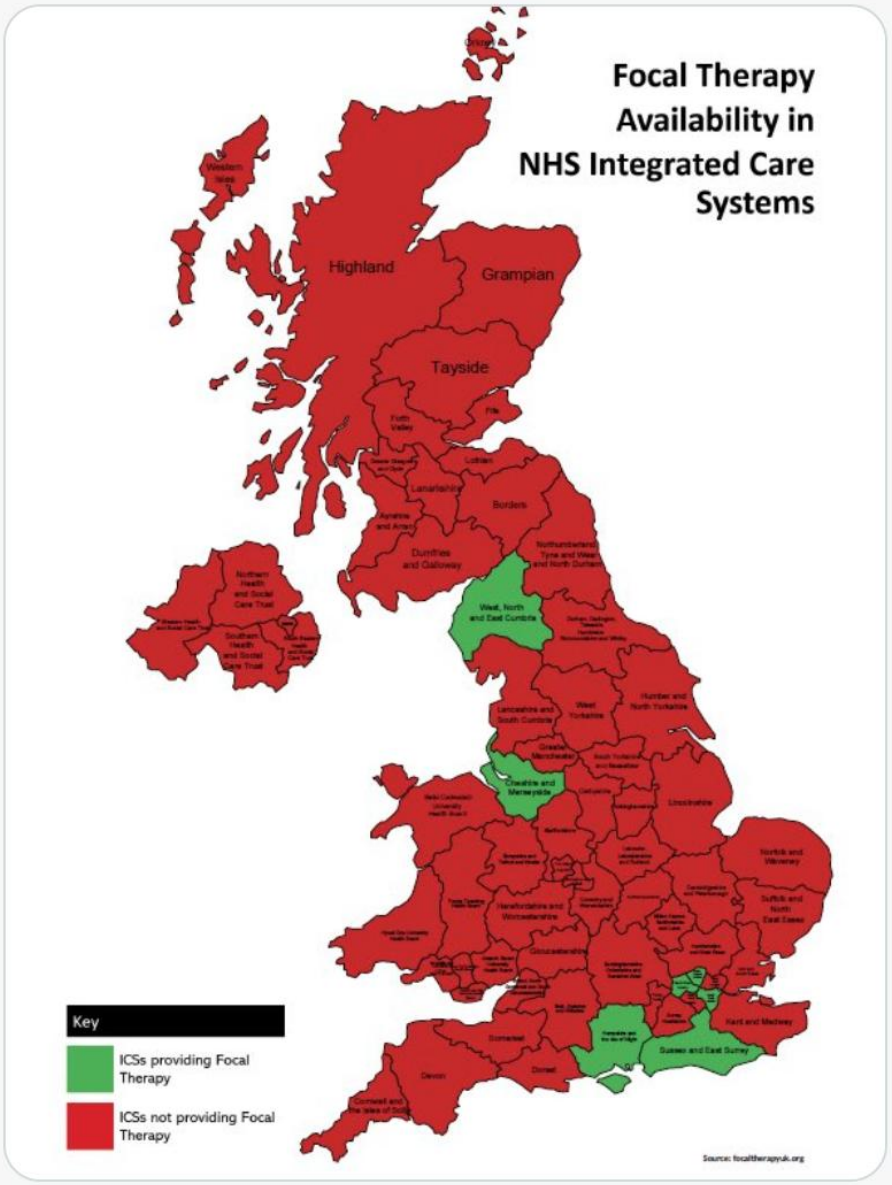
5 year failure free survival

- 82% RP
- 86% FT

8 year failure free survival

- 79% RP
- 83% FT

Prostate Cancer and Prostatic Diseases
https://doi.org/10.1038/s41391-020-00315-y



The next challenge is to make it available more widely

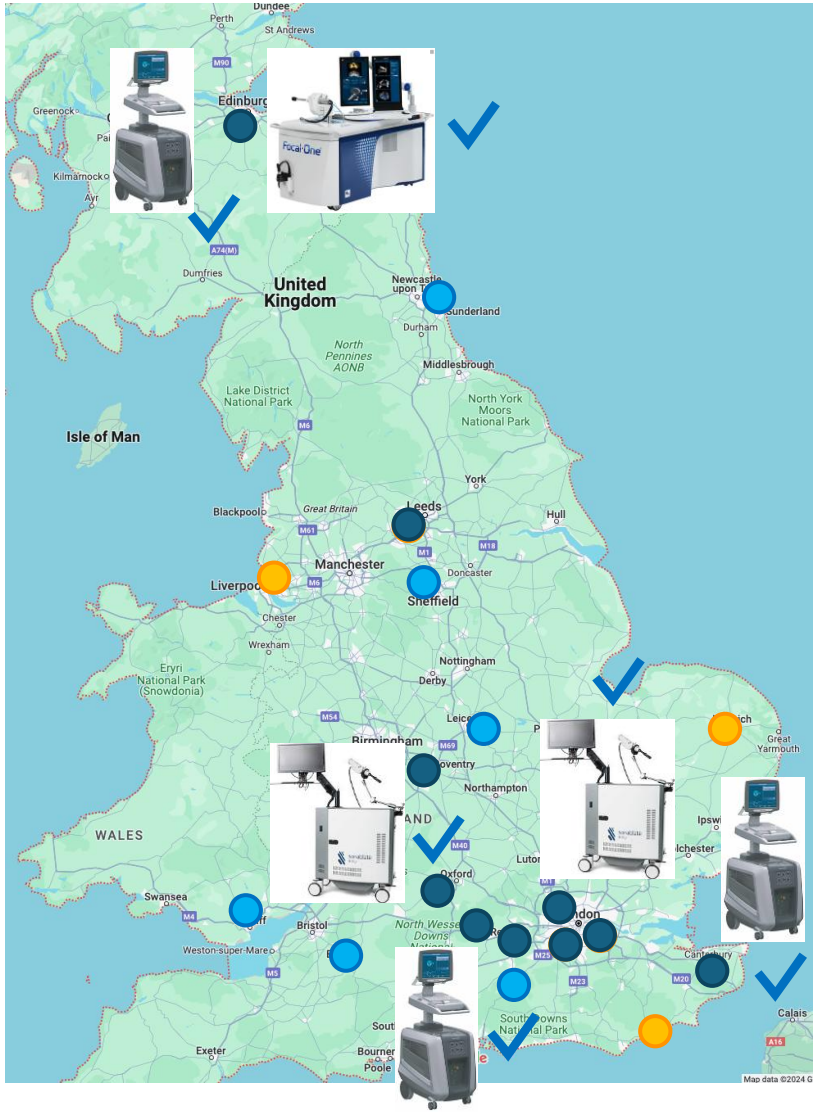
High-Intensity Focused Ultrasound (HIFU) is now available at the Royal United Hospital in Bath (Image: Prost8)

NEWS | POLITICS | FOOTBALL | CELEBS | TV | CHOICE | ROYALS

A breakthrough prostate cancer treatment is being rolled out nationwide on the NHS

High-Intensity Focused Ultrasound (HIFU) has so far only been available at specialist treatment centres in London - but will soon be a treatment option around the country

PART Trial progress since 2023:



March 2024:

RT:

PA:

Awaiting treatment: ✓

Treated: ✓

Nov 2024:

RT:

PA:

March 2025:

RT:

PA:

October 2025:

RT:

PA:

Slides courtesy of R Bryant 05/11/25

FOCAL THERAPY SITES
ESTABLISHED + INTERESTED

Scotland (4)
Western General Hospital, Edinburgh *(research)*
Aberdeen NHS Hospital
Glasgow NHS Trust
NHS Fife

North West (5)
Wirral University Teaching Hospital NHSFT (Arrowe Park Hospital)
Royal Liverpool University Hospital
Aintree Hospital, Liverpool
Stepping Hill, Manchester
St Helens NHS Trust

Midlands (6)
Queen Elizabeth Hospital, Birmingham
Northampton General Hospital NHS Trust
Worcestershire Acute Hospital NHS Trust
Royal Wolverhampton NHS Trust
Russells Hall Hospital, Dudley
University Hospitals Coventry and Warwickshire

Wales (1)
Wrexham Maelor Hospital

South West (4)
Royal Bath Teaching Hospitals NHS Trust
University Hospitals Plymouth NHS Trust (Derriford Hospital)
Portsmouth University Hospitals
University Hospitals Of Dorset NHS Foundation Trust

North East & Cumbria (3)
South Tyneside and Sunderland NHS Foundation Trust (Sunderland Royal Hospital)
Newcastle upon Tyne Hospitals NHS Foundation Trust
North Lincolnshire & Goole NHS Trust

Yorkshire & Humber (3)
Airedale NHS Foundation Trust
St James Hospital, Leeds *(research)*
Sheffield Teaching Hospitals NHS Foundation Trust *(research)*

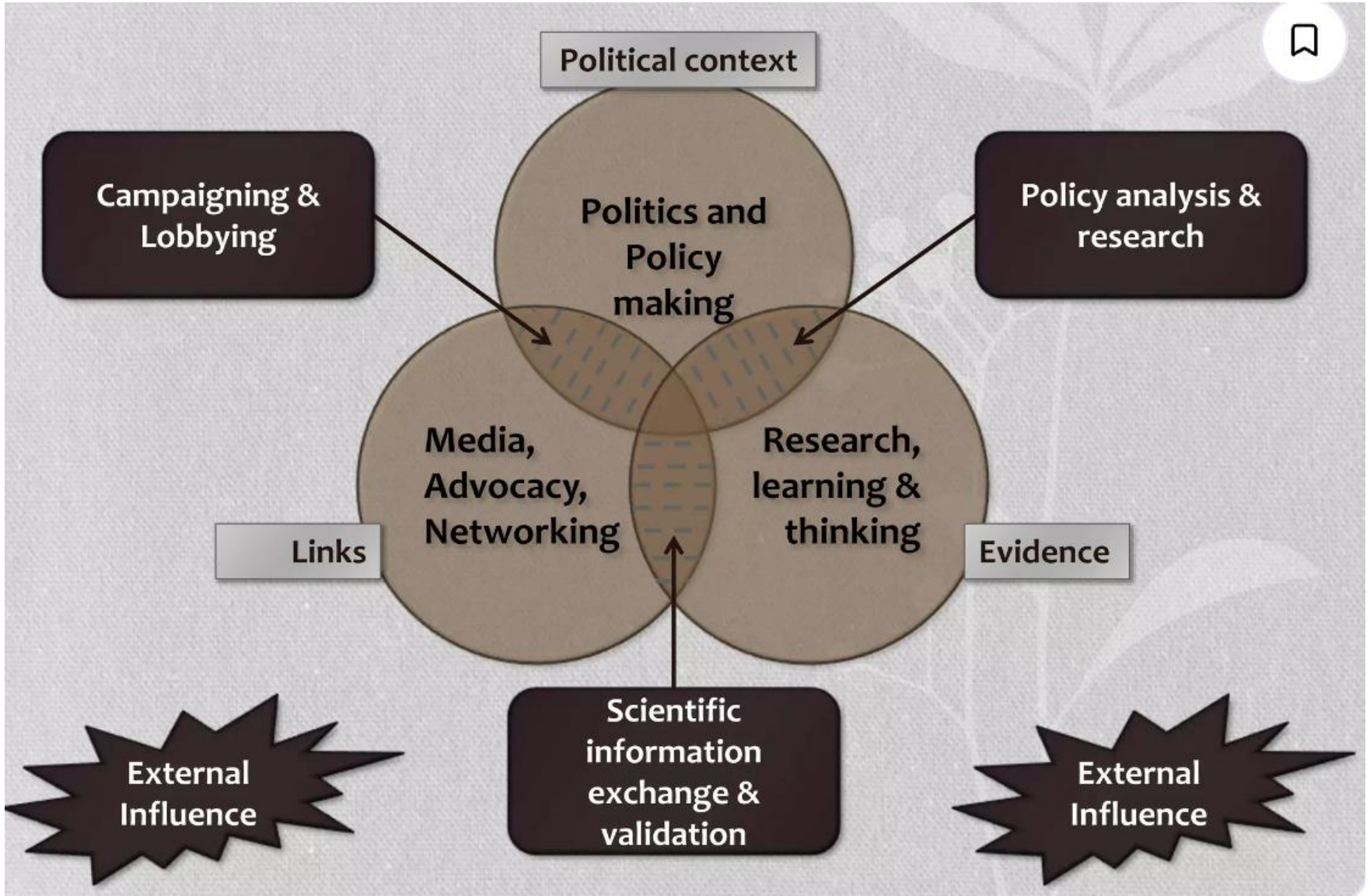
East of England (3)
Norfolk and Norwich University Hospital
Kings Lynn
Colchester & Ipswich Hospital

London (9)
Imperial College Healthcare NHS Trust
University College London Hospitals NHS Foundation Trust
Princess Royal University Hospital (Kings College Hospital NHST)
Milton Keynes University Hospital
King George Hospital, Ilford
Frimley Health Foundation Trust
Royal Berkshire NHS Foundation Trust
Watford General Hospital (West Hertfordshire Teaching Hospitals NHST)
Royal Surrey County Hospital

South East (5)
University Hospital Southampton NHS Foundation Trust
Oxford University Hospitals *(research)*
Hampshire Hospitals NHS Foundation Trust (Basingstoke Hospital)
Canterbury Hospital
St Mary Hospital, Isle of Wight

IMPERIAL Queen Mary University of London ICR The Institute of Cancer Research UCL

Change is not just about data and evidence



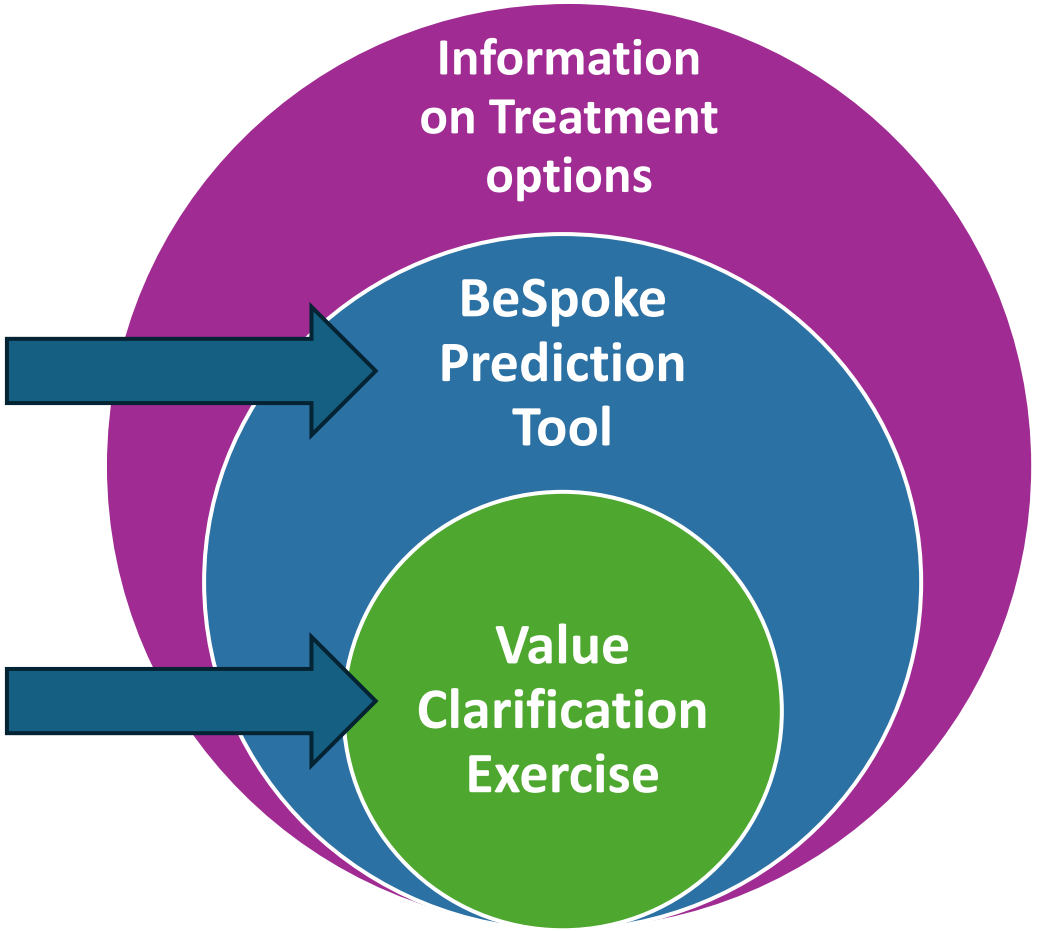
Focal therapy – has it reached prime time?

- The functional outcomes of focal therapy are well described and understood 
- The medium term (5-10 year outcomes) of focal therapy are well described and understood 
- Patients with unilateral clinically significant disease are offered focal therapy 
- Every eligible patient can choose focal therapy 
- Decisions re active treatment and treatment type are made based on cancer risk and personal choice 

NCITA
National Cancer Imaging Translational Accelerator

How does a patient with localized prostate cancer decide between very different choices?

BeSpoke Decision Support Tool



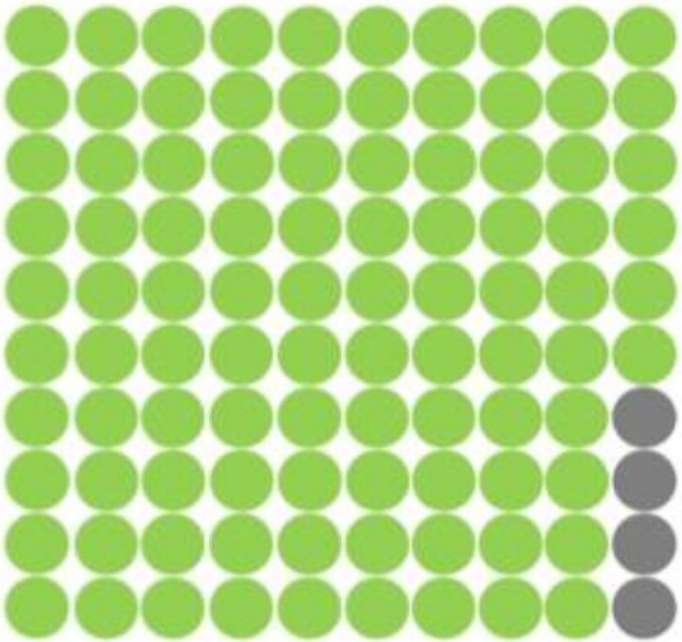
Personalised decision support based on UK data

- National Prostate Cancer audit for survival and retreatment
- TrueNTH UK Post surgery for functional outcomes
- UCLH active surveillance for MRI-led active surveillance outcomes

How likely am I to die from prostate cancer in the next 5 years?

Your clinical parameters:

- Age: 65 years
- PSA: 8 ng/mL
- Gleason Score: 3+4
- T Stage: T2



Legend:

- **Alive**
- **Death (from prostate cancer)**
- **Death (from other causes)**

Based on the information you have entered, **96 out of 100 men are alive** at 5 years after diagnosis.

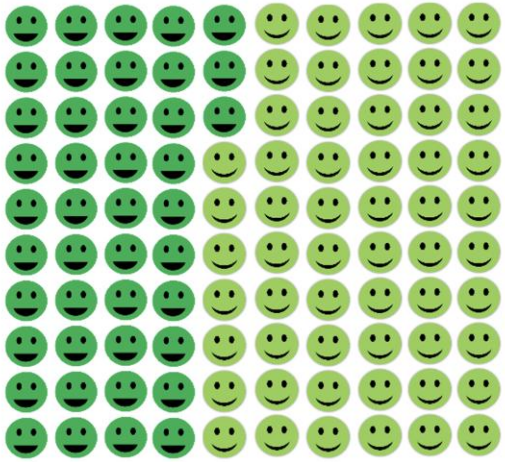
Of the men who would not survive, **four would die due to causes not related to prostate cancer.**

10 times more likely to die of other causes than prostate cancer in 15 years

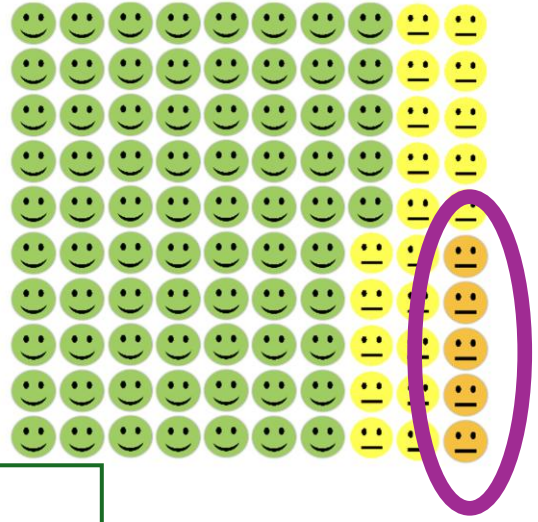
Will I need further treatment in the next 5 years?

1 in 20 men having focal treatment need radical treatment
1 in 14 men having surgery or radiotherapy need salvage treatment

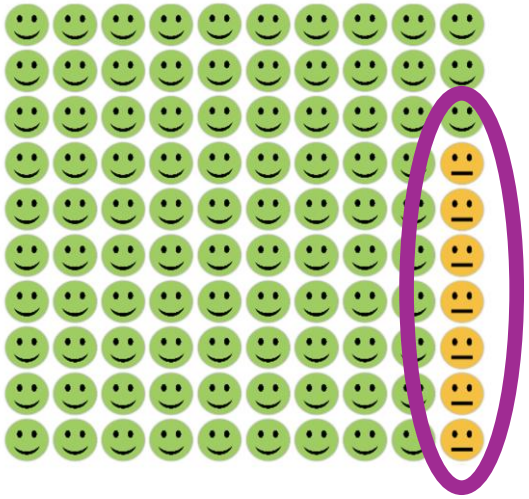
Active Surveillance



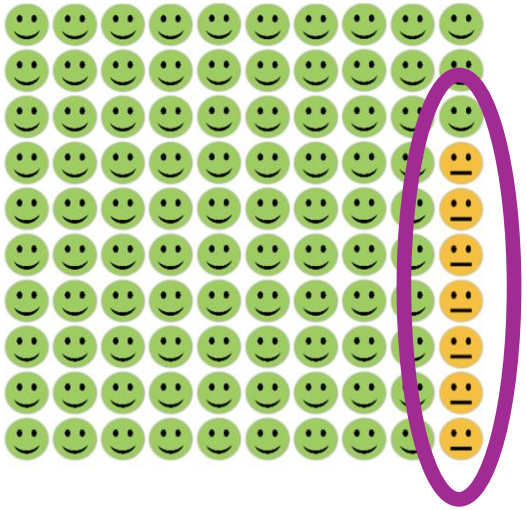
Focal Therapy



Prostatectomy



Radiotherapy



Your clinical parameters:

- Age: 65 years
- PSA: 8 ng/mL
- Prostate volume: 60 mL
- Gleason Score: 3+4
- T Stage: T2
- MRI visibility: Visible (Score 4-5)
- Maximal Cancer Core Length: 8mm

Legend:

- **No treatment (i.e. Active surveillance only)**
- **First treatment only (i.e. focal therapy, Prostatectomy, Radiotherapy)**
- **Second Focal treatment**
- **Progressed to different treatment (i.e. Radiotherapy or surgery after focal therapy; Salvage radiotherapy after surgery; Hormone treatment after radiotherapy)**

How likely am I to leak urine at 1 year after treatment?

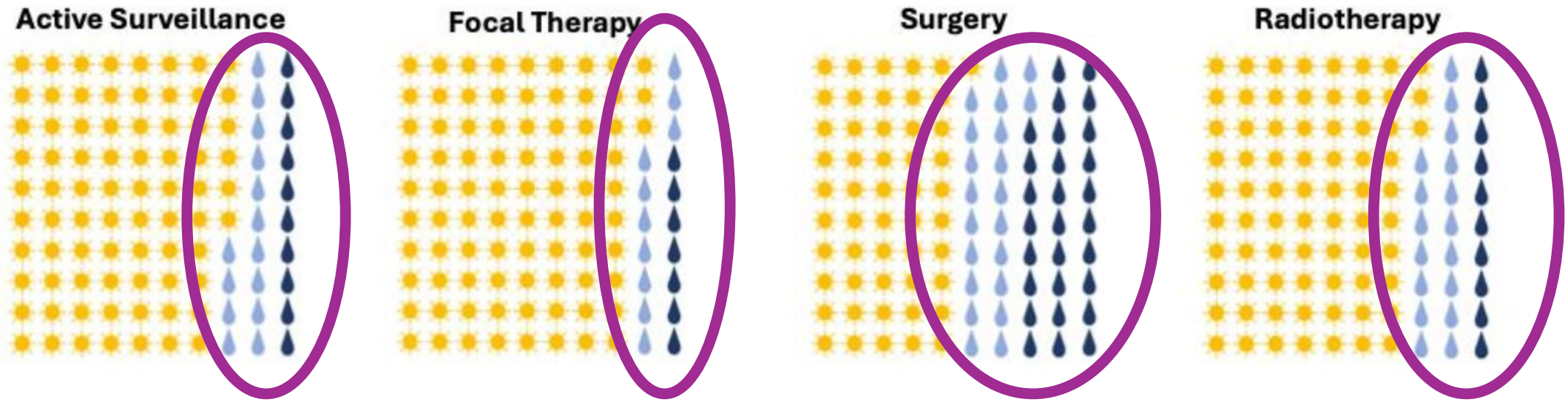
Leaking urine is a common side effect after most prostate cancer treatments. Each treatment carries a different risk. For 100 men with similar urinary function as you (see box), the following icon chart represents the risk of leaking urine at 1 year from receiving each of the following treatments.

Your current degree of urine leakage:

Rarely or never leaking

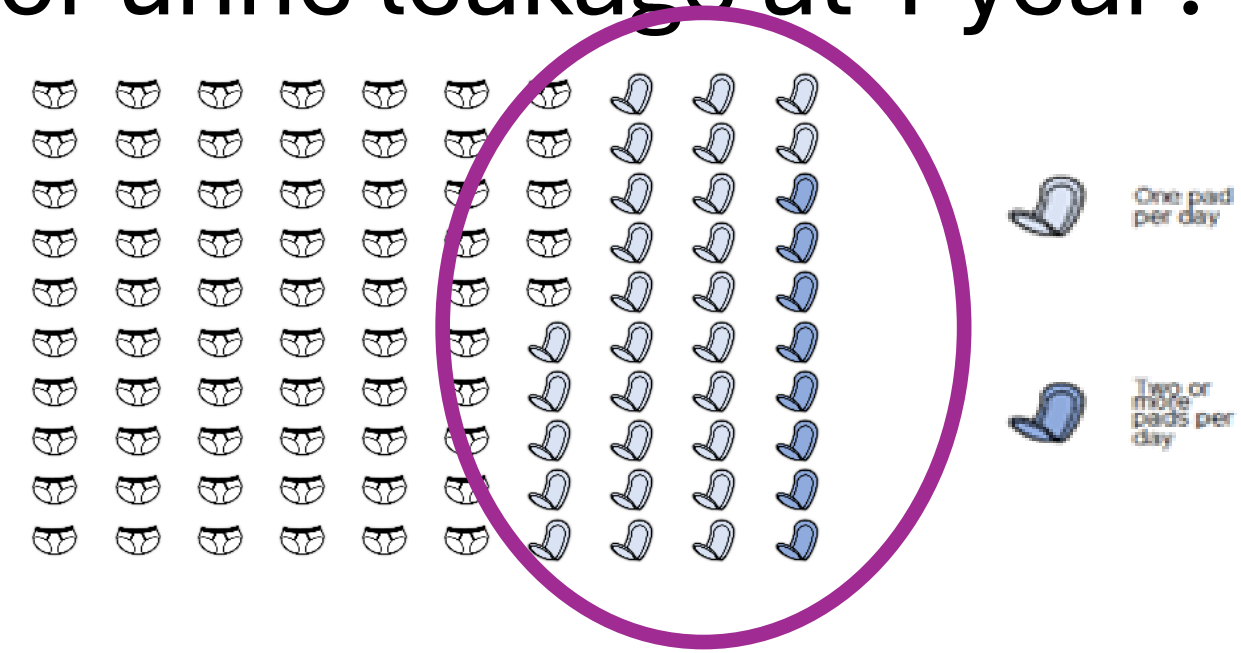
Urinary Leakage - Legend

- **Rarely or never leaking**
- **Leaking once a week or more**
- **Leaking once a day or more**



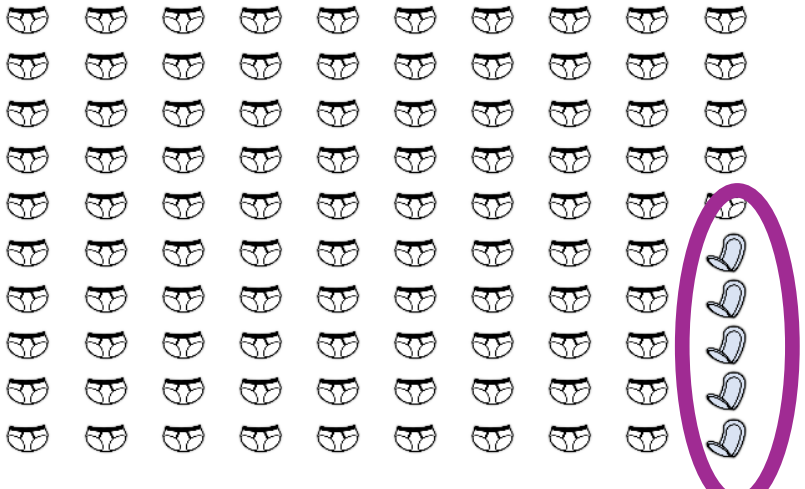
Will I need pads for urine leakage at 1 year?

Active Surveillance

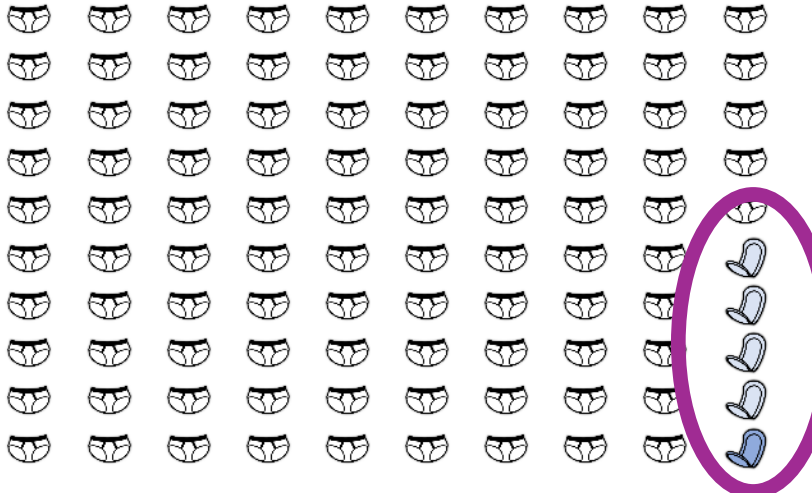


Surgery

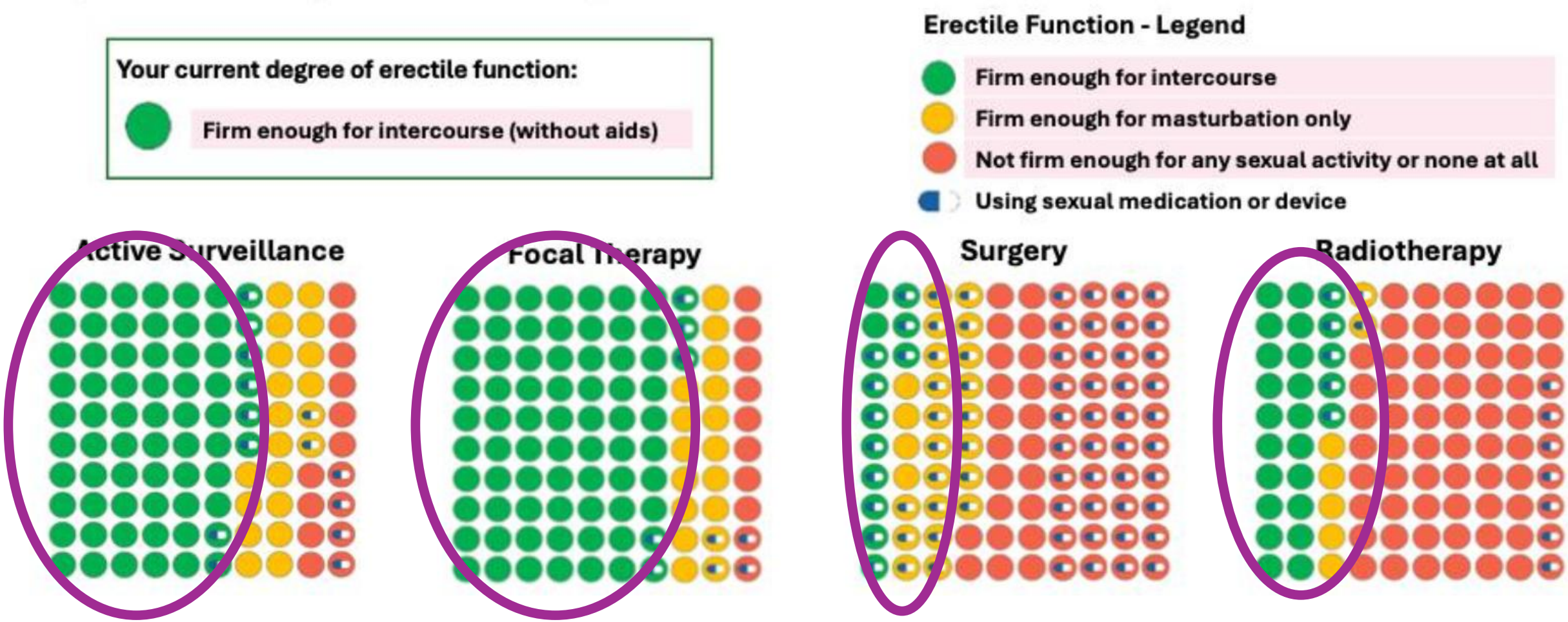
Focal treatment



Radiotherapy



How will my erections be at 12 months after treatment?

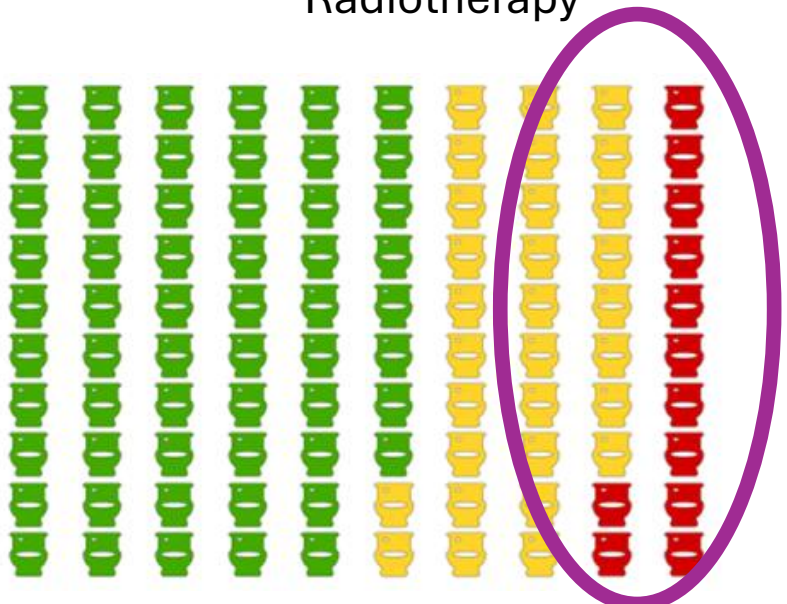


How will my bowel function be at 12 months after treatment?

Active Surveillance

Surgery

Radiotherapy



Focal treatment

PSA after radical treatment for prostate cancer

- NPCA data
  - Around 1 in 3 men with a new diagnosis have radiotherapy
  - Around 1 in 6 men with a new diagnosis have surgery to remove the prostate
- PSA is an excellent tool for follow up when the whole prostate has been treated
  - Simple
  - Any detectable PSA needs monitoring

PSA in practice summary

- The first available test for prostate cancer
- PSA based screening leads to a reduction in prostate cancer death
- TRANSFORM will look at new ways to screen
  - MRI
  - Polygenic risk score
- In MRI-led active surveillance PSA density is more helpful than PSA
- PSA is useful in follow up, particularly after radical treatment

Any questions?

caroline.moore@ucl.ac.uk

@mrsprostate