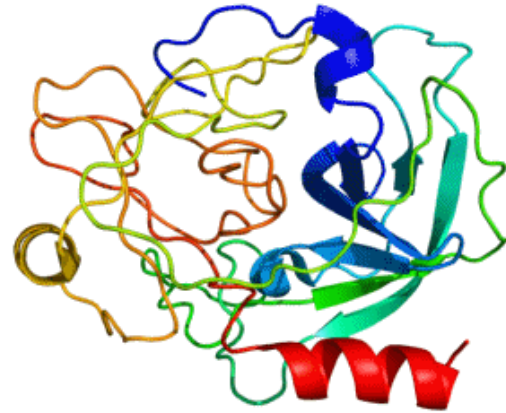


PSA Case Studies



Dr Jonny Coxon

Declarations of interest

I have received honoraria from:

- Prostate Cancer UK
- Besins
- Bayer
- Ferring
- Eli Lilly

2. How do you counsel pre test about the limitation of this test

Case 1 – history

- 66 year-old male presents with increasingly bothersome LUTS:
 - voiding symptoms (slow flow, hesitancy)
 - storage symptoms (frequency & nocturia)
 - gradually worsening for 2-3 years
- Otherwise fit and well

Case 1 – examination

- Abdomen and external genitalia normal
- DRE: large smooth prostate (unable to reach top)
- Urine dip NAD

Case 1 – investigation

- Frequency volume chart:
 - total daily voided volume approx 2L
 - increased daytime frequency
 - nocturia 1-3x per night
- PSA 1.9
- IPSS 25 / 35

Case 1 – question

- What do you make of the PSA in this case?

Case 1 – management

- He has moderate to severe bothersome LUTS with a large prostate (ie >30g) and a **PSA>1.4**
- NICE LUTS guideline would suggest consider combination therapy: α -blocker plus 5-ARI
- Review patient at 4-6 weeks (to check efficacy of alpha blocker), 3-6 months (to check efficacy of 5ARI) then every 6-12 months

Case 1 – learning point

- As well as use in prostate cancer risk, ***PSA also a valuable indicator of the risk of progression***
- A prostate that feels large on examination, or where not possible to reach the upper pole with the examining finger is highly likely to be >30g

Case 2 – History

- A 57 year-old man presents with fairly new erectile dysfunction
- No other symptoms (no LUTS)
- Amongst other tests, would you consider a PSA (and DRE) to assess for prostate cancer?

Case 2 – Discussion

- Rather depends who you ask!
- If you ask NICE...



Suspected cancer: recognition and referral

NICE guideline

Published: 23 June 2015

[nice.org.uk/guidance/ng12](https://www.nice.org.uk/guidance/ng12)



- 1.6.2 Consider a prostate-specific antigen (PSA) test and digital rectal examination to assess for prostate cancer in men with:
- any lower urinary tract symptoms, such as nocturia, urinary frequency, hesitancy, urgency or retention or
 - erectile dysfunction or
 - visible haematuria. [new 2015]
- 1.6.3 Refer men using a suspected cancer pathway referral (for an appointment within 2 weeks) for prostate cancer if their PSA levels are above the age-specific reference range. [new 2015]

Controversial – to say the least!

Case 3 – History

- 54 year-old man with no relevant symptoms at all comes in and asks you for a PSA test
- Do you say he can have it?
- Do you say he should have it?

Guidance

Prostate cancer risk management programme: overview

From: [Public Health England](#)
First published: 1 January 2015
Last updated: 29 March 2016, [see all updates](#)

This document explains the Prostate Cancer Risk Management Programme (PCRMP), PSA testing and evidence against a national screening programme.

The NHS Prostate Cancer Risk Management Programme (PCRMP) provides GPs and primary care professionals with information to counsel asymptomatic men aged 50 and over who ask about prostate specific antigen (PSA) testing for prostate cancer.

The PCRMP, revised and updated in March 2016, includes:

- [full evidence document for GPs](#)
- [summary information sheet for GPs](#)
- [summary information sheet for men aged 50 and over](#)



[NHS Choices](#) also has further information that men may find helpful.

The PSA test measures the level of PSA in a man's blood. It is the most common initial test for men who are worried about prostate cancer.

This Prostate Cancer Risk Management Programme (PCRMP) sheet helps GPs give clear and balanced information to asymptomatic men who ask about prostate specific antigen (PSA) testing. The PSA test is available free to any well man aged 50 and over who requests it.

GPs should use their clinical judgement to manage symptomatic men and those aged under 50 who are considered to have higher risk for prostate cancer.

ERSPC study

To **prevent one PCa death**, can look at values:

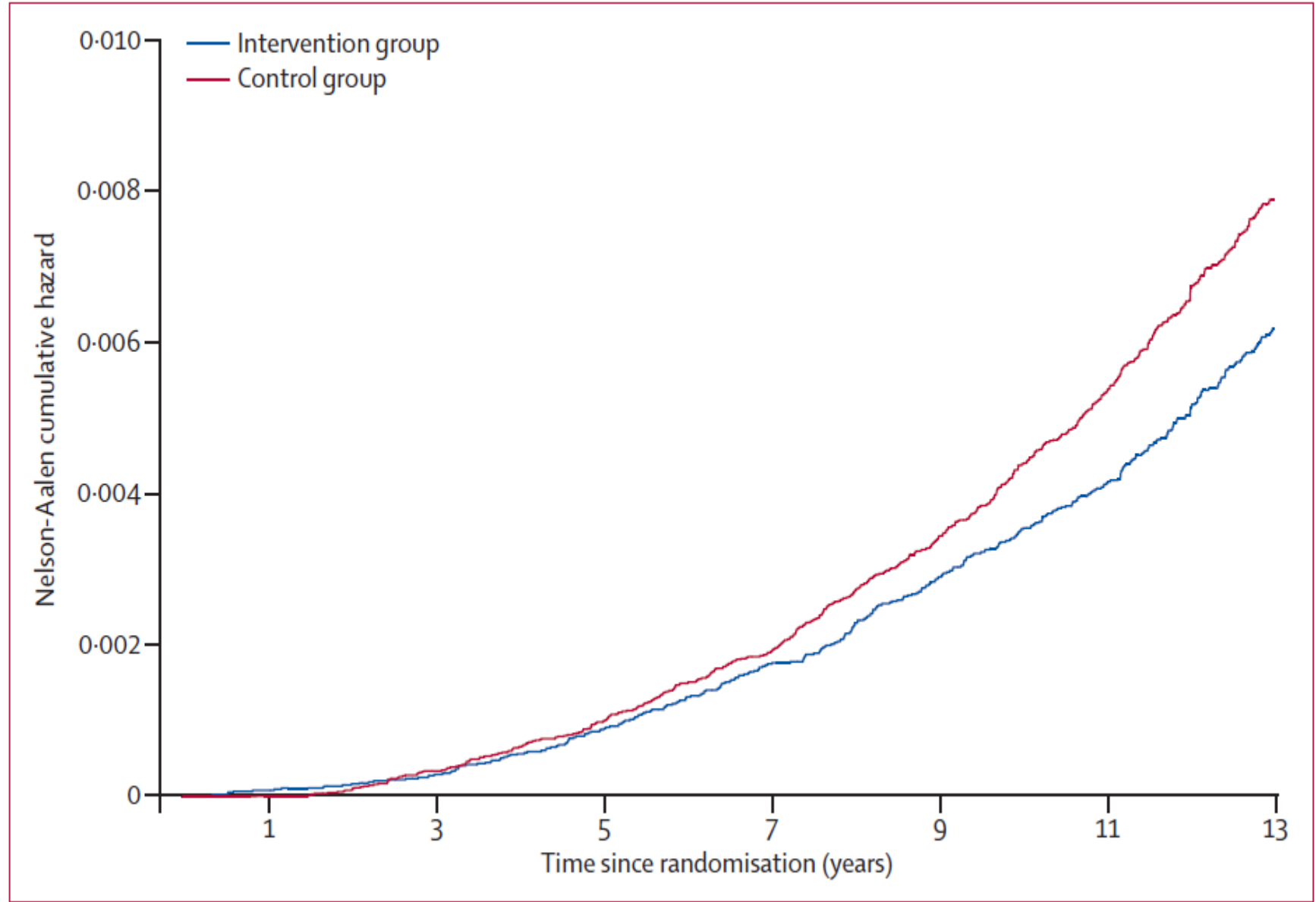
a) NNI: Number Needed to Invite

- 9 yrs: 1410
- 11 yrs: 979
- **13 yrs: 781**

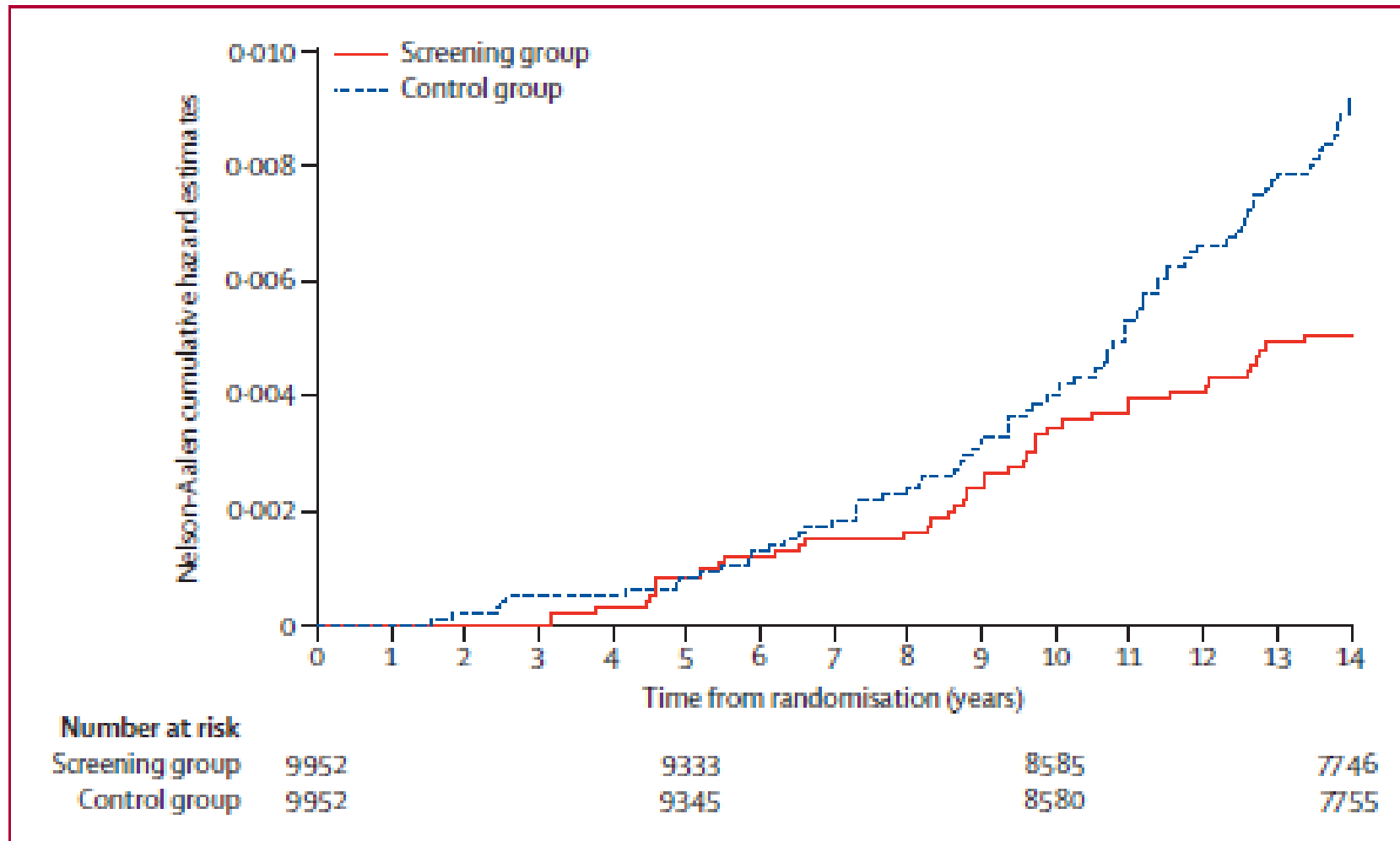
b) NND: Number Needed to Diagnose:

- 9 yrs: 48
- 11 yrs: 35
- **13 yrs: 27**

(Prostate cancer mortality)



Gothenburg Study



Case 4 – History

- A 57 year-old man asked the HCA for a PSA to be added to his NHS health check blood tests
- Done. Result came back as 3.5
- What do you do?

Case 4 – Examination

- DRE: Normal texture, mildly enlarged smooth prostate gland

Case 4 – Management

- PSA of 3.5 – normal or not??

NICE National Institute for
Health and Care Excellence



- 1.6.3 Refer men using a suspected cancer pathway referral (for an appointment within 2 weeks) for prostate cancer if their PSA levels are above the age-specific reference range. [new 2015]

Case 4 – Management

Reference range

< 40 years	< 1.40 µg/L
40 - 49 years	< 2.00 µg/L
50 - 59 years	< 3.89 µg/L
60 - 69 years	< 5.40 µg/L
≥ 70 years	< 6.22 µg/L

Source: Roche Cobas® Total PSA kit insert 04-2015, V12.0

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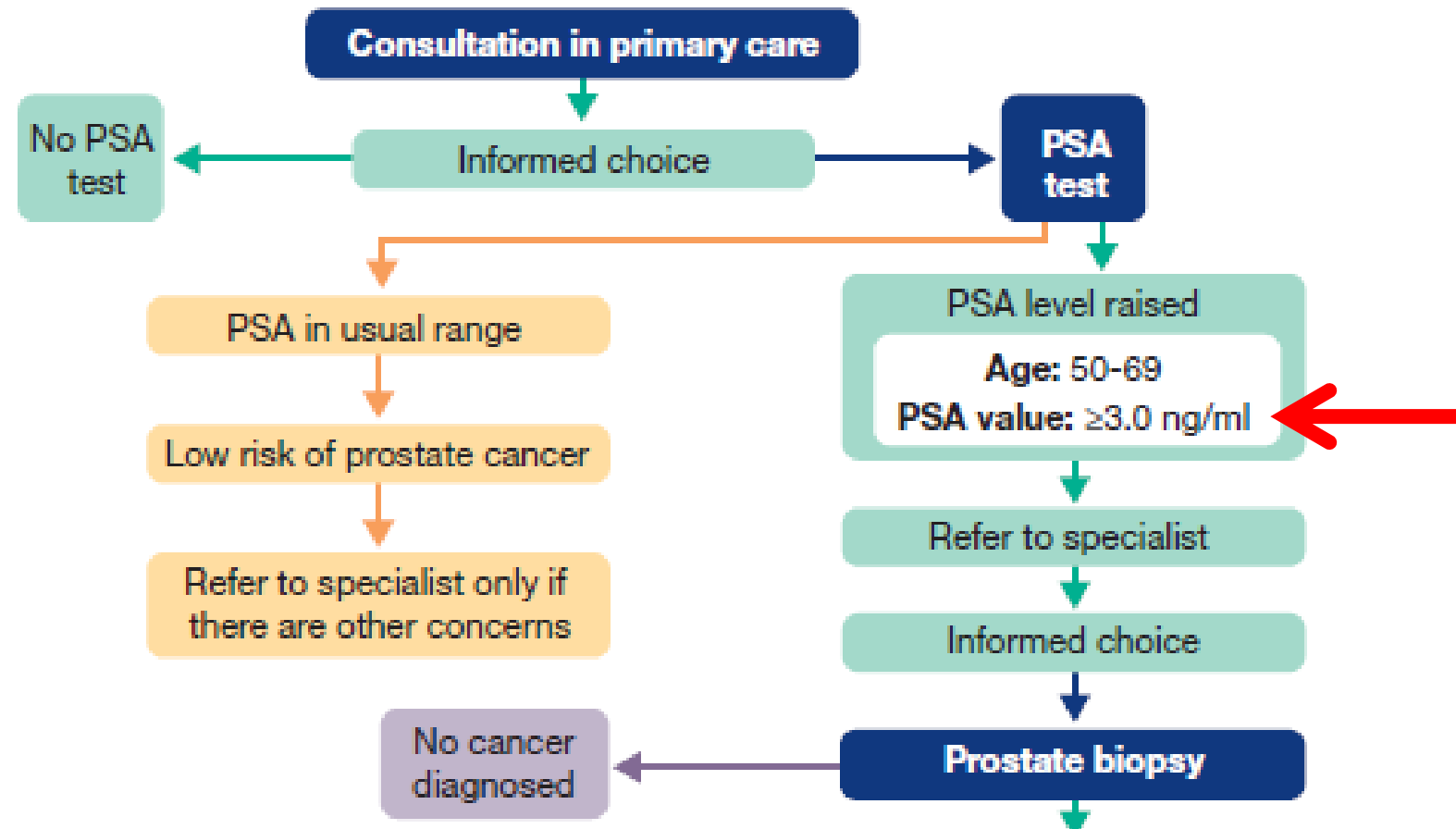
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PSA testing and prostate cancer patient pathway



Case 4 – Management

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≥ 70 years	< 6.22 µg/L

Source: Roche Cobas® Total PSA kit insert 04-2015, V12.0

The recommended referral value in men aged 50-69 is ≥ 3.0 ng/mL (≥ 3.0 µg/L).

Source:

NICE CKS Prostate Cancer [NICE, August 2018]

Public Health England (PHE) guidance: Prostate cancer risk management programme (PCRMP): benefits and risks of PSA testing [PHE, 2016]

Case 4 – Management

- So refer him then?

Case 4 – Management

NOT Formal guidance, but often advised:

- If borderline raised, consider repeating
 - e.g. after 6 weeks
 - Ensure all “rules” followed for a PSA test
- Although 2-week referral, very rarely that urgent

Guidance

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Advising well men aged 50 and over about the PSA test for prostate cancer: information for GPs

This Prostate Cancer Risk Management Programme (PCRMP) sheet helps GPs give clear and balanced information to asymptomatic men who ask about prostate specific antigen (PSA) testing. The PSA test is available free to any well man aged 50 and over who requests it.

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Prostate cancer

Each year in the UK about 47,000 men are diagnosed with prostate cancer and about 11,000 die from the disease. The most common age of diagnosis is 65 to 69.

Men are at higher risk if they:

- have a family history of prostate cancer
- are of black ethnic origin – lifetime risk 1 in 4 compared to 1 in 8 for white men
- are overweight or obese (specifically for advanced prostate cancers)

Slow-growing tumours are common and may not cause any symptoms or shorten life. Some tested men may therefore face unnecessary anxiety, medical tests and treatments with side-effects.

PSA test

The test aims to detect localised prostate cancer when treatment can be offered that may cure cancer or extend life. It is not usually recommended for asymptomatic men with less than 10 years' life expectancy.

Evidence suggests PSA screening could reduce prostate-cancer related mortality by 21%.

About 3 in 4 men with a raised PSA level ($\geq 3\text{ng/ml}$) will not have cancer. The PSA test can also miss about 15% of cancers.

Before a PSA test men should not have:

- an active urinary infection
- ejaculated in previous 48 hours
- exercised vigorously in previous 48 hours
- had a prostate biopsy in previous 6 weeks

When taking blood:

- ensure specimen will reach laboratory in time for serum to be separated within 16 hours
- send samples to laboratories taking part in UK National External Quality Assessment Service

Digital rectal examination (DRE)

DRE allows assessment of the prostate for signs of prostate cancer (a hard gland, sometimes with palpable nodules) or benign enlargement (smooth, firm, enlarged gland). A gland that feels normal does not exclude a tumour.

Biopsy

A biopsy can diagnose prostate cancer at an early stage when a cure may be possible.

About 2 out of 5 men describe biopsy as painful. The most common complications (9 out of 10 men) are bleeding and infections. Most men experience blood in urine and sperm after biopsy.

Some prostate cancers will be missed at biopsy (up to 1 in 5 men). If the biopsy is negative, follow-up and additional biopsies may be needed.

Management and treatment

Some men may benefit from treatment for localised prostate cancer. There is no clear evidence as to the best treatment option for localised prostate cancer.

The main treatment options are:

- active surveillance
- watchful waiting
- radical prostatectomy (open, laparoscopic or robotically assisted laparoscopic)
- external beam radiotherapy (EBRT)
- brachytherapy (low and high dose rate)

There are important quality of life differences between each option. The options available depend on the stage of disease, the man's age and general health.

Active surveillance involves repeat PSA testing and biopsies. Surgery and radiotherapy may offer the possibility of a cure but can have significant side-effects.

See patient information sheet for summary of the potential benefits and harms of PSA testing.



Case 5 – history

- 66 year-old on ‘combination therapy’ (tamsulosin and finasteride) for 3 years, LUTS well controlled
- PSA prior to treatment was 2.1, dropped to 1.0 after 6 months on treatment
- Over the last 9 months, mild worsening of symptoms
- PSA increased a little from 0.9 to 2.2

Case 5 – question

- What do you tell him about his PSA?
- What would you do now?

Case 5 – examination

- You examine his prostate: nothing worrying

Case 5 – management

- Worrying features:
 - Rate of rise of PSA
 - Doubling PSA on finasteride gives a raised result
 - Any rise on finasteride should be treated with more suspicion than normal
- Given the ***rate of rise*** in his PSA you refer for a specialist opinion

Case 5 – management

- The urologist notes a slightly firm left lobe
- MRI suspicious, has biopsy of the prostate
- A Gleason 8 (moderately aggressive) prostate cancer is diagnosed
- Treated with radical radiotherapy

Case 5 – learning points

- Prostate cancer can be present with a “normal” PSA
- PSA results for men on 5-ARIs (treated for >6 months) need to be ~doubled to compare with age-specific ranges
- PSA will slowly rise in men with BPH, but generally at a **velocity** of < 0.5-0.75 ng/ml per year
- Here, rise of 1.3 in 9 months: very suspicious

PCUK Consensus Statements

10. PSA history and a rising PSA (whilst still under the referral threshold) should be taken into consideration when deciding whether to refer to secondary care.

Case 6 – history

- A 46 year-old African-Caribbean man asks to be tested for prostate cancer
- He has no 1st-degree positive family history
- No troublesome LUTS

- What do you discuss with him?

Case 6 – Mx and learning

- Should enable him to make a shared decision
- 2-3x risk from ethnicity
- Some guidelines do support testing in 40s

PCUK Consensus Statements

9. Asymptomatic men at higher than average risk of prostate cancer who have a PSA test between the ages of **45 and 49** should be referred for further investigations if their PSA level is higher than **2.5ng/ml**.

Case 6 – Next..

- PSA comes back at 1.1
- What do you advise next?

Case 6 – Next..

- His result is in upper range for this age
- Should repeat in 2-4 years
- (If it was <1 , repeat in approx 10 yrs, mid-50s)

Case 6

- How would you approach this if he was only 42 years old?

PCUK Consensus Statements

12. Asymptomatic men **over 40** should consider a single “**baseline**” **PSA test** to help predict their future prostate cancer risk.
- If the PSA level is above the *age-specific median value*, they should be considered at higher than average risk of prostate cancer and should be encouraged to be re-tested in the future.
 - *(The age-specific MEDIAN value for men aged 40-49 years is **0.7ng/ml**)*