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Transformation of the South West Prostate Cancer Diagnostic Pathway

14th May 2018

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Project Aims

- To introduce Pre biopsy MPMRI into the prostate pathway in the South West Region.
- To achieve the timelines set out in the NHS England ‘Implementing a timed prostate cancer diagnostic pathway’
- For the pathway to be high quality
- To reduce variability (workforce, equipment, referral criteria, biopsy technique etc.)
- To create collaborative working between providers to ensure equity for patients but also best use of skills and facilities

But also

- To identify patients in the Southwest who can safely be triaged by MPMRI to no non biopsy

Prostate and 62 days

- Prostate pathway – largest contributor to 62 day breaches
- Inter-trust referral guidance
  - 38 days to refer to Specialist MDT
  - 24 days for Specialist MDT to treat
- National timed pathway
- 28 Day Standard

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Project structure

- **Questionnaire** for ‘basic data’
- **Visits** to discuss local issues, resources (workforce equipment), challenges, variability .
- To build networks and collaboration
- To identify key team members to lead locally
- To identify key areas for investment
- To identify innovative working and expertise that can be shared

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Project structure cont…

- Creation of a supported South west database- quality assurance etc.
- Presentation of findings and Recommendations resource requirements to SSGs, Alliances, NHS England, commissioners etc. in September
- Implementation

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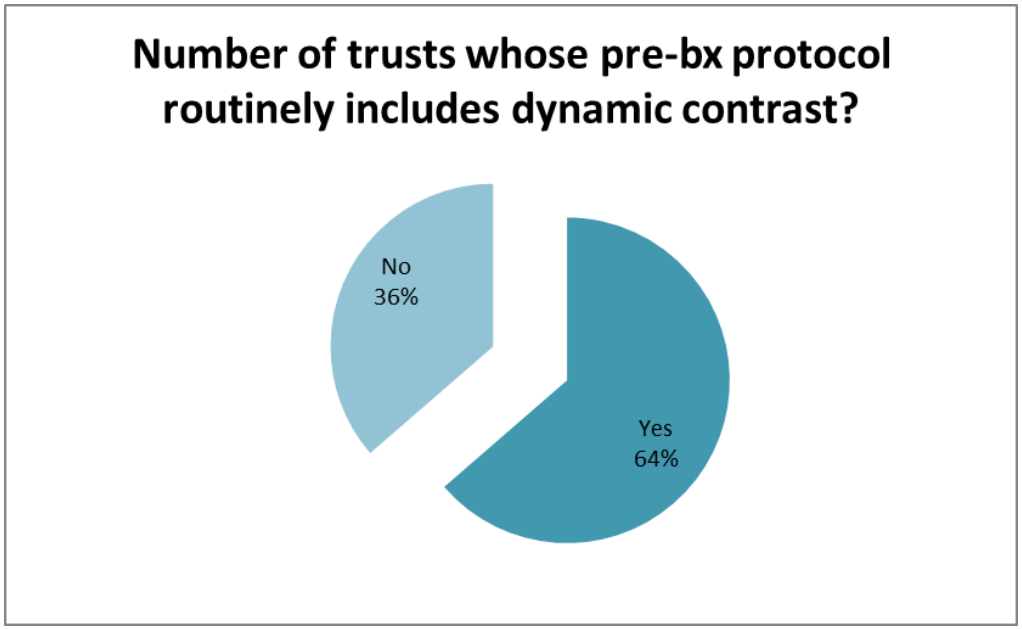
Reflection on regional practice: Findings from Trust Visits

by Mr Nick Burns Cox &
Prof Raj Persad

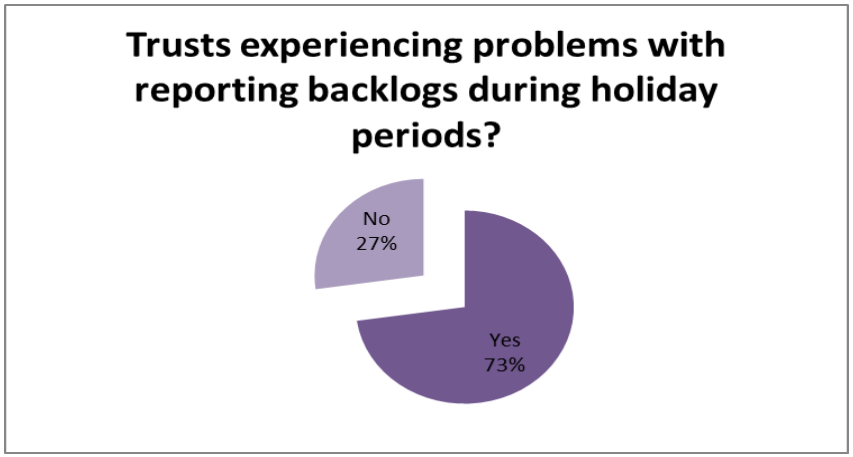
Demand

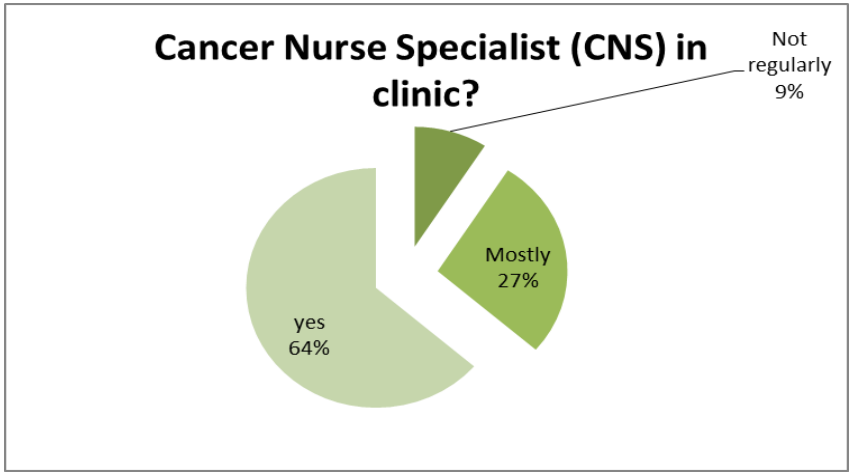
Hospital	Trust Population	2ww referrals per 1000 patients *Shaded:Trusts provided data for all Urology 2ww
1	387,543	2.4
2	385,202	3.3
3	464,918	1.6
4	287,185	6.2
5	119,243	2.0
6	136,462	6.5
7	1,028,451	0.8
8	320,967	4.7
9	398,396	3.1
10	231,949	0.8
11	236,105	4.9



Workforce

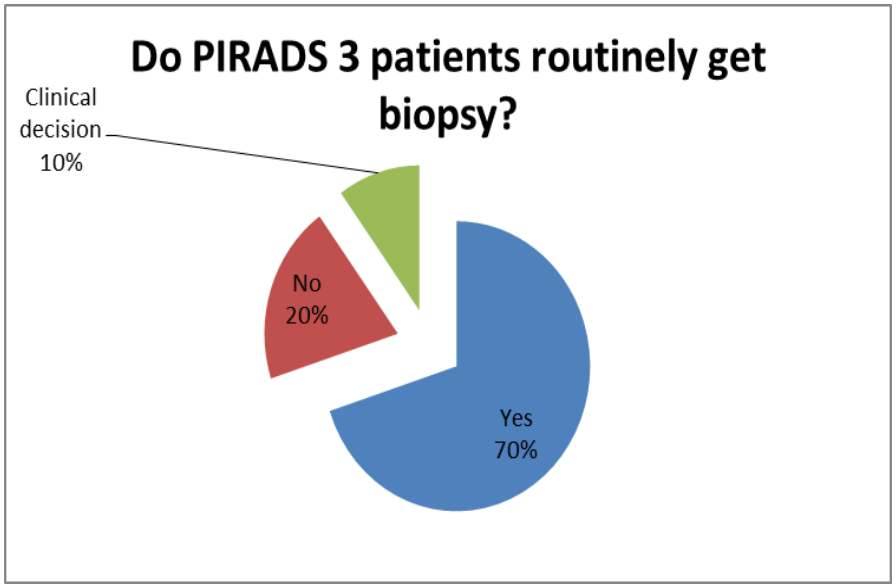
Hospital	Trust Population	No. of specialist Uro-Pathologist per 1,000,000 population	Radiologists reporting prostate MRI per 100,000	Number or mri radiologists per scan reported
1	387543	2.6	1.3	160
2	385202	2.6	0.8	185
3	464918	2.2	0.9	No answer
4	287185	3.5	0.7	No answer
5	119243	8.4	3.4	45
6	136462	0.0	0.7	318
7	1028451	2.9	0.4	338
8	320967	6.2	1.6	102
9	398396	7.5	1.3	200
10	231949	4.3	0.9	No answer
11	236105	4.2	0.8	252





Biopsy

Hospital	Trust Population	No. of Trus and biopsy under LA performed in the year for all indications per 100,000	No. of Template prostate biopsies under GA for all indications per 100,000
1	387,543	114.1	27.6
2	385,202	No answer	0.0
3	464,918	90.1	9.7
4	287,185	116.3	6.3
5	119,243	135.9	0.0
6	136,462	412.6	0.0
7	1,028,451	46.9	19.2
8	320,967	No answer	No answer
9	398,396	53.2	103.4
10	231,949	97.0	32.8
11	236,105	No answer	No answer



Equipment

Hospital	Trust Population	Type of scanners used for prostate MRI	Age of scanners	Plans to renew scanners
1	387,543	2 x Philips 1.5T	1 year and 14 years (for non MP)	None
2	385,202	2	4 and 10 (upgraded)	None
3	464,918	Philips 1.5T Achieva dStream plus mobile	Installed 2003, rebuild March 2014	Plans approved for new 3T magnet(s)
4	287,185	Siemens Aera 1.5 T	6 years	Third scanner (Aera)
5	119,243	1.5 Tesla Siemens Magnatom	14 years with TIM upgrade in 2014	MES to upgrade MRI and buy 2nd scanner
6	136,462	Siemens Avanto 1.5T	13 years	None at present.
7	1,028,451	Philips and GE, 1.5 and 3T	About 6 years old	Yes – new scanner being installed this year
8	320,967	2 Siemens Avanto 1.5 T MRI scanners	2006 and 2008	New scanner May 2018 – Siemens Skyra 3 T
9	398,396	2 x siemens avant o FIT 1.5 T	Both less than a year	Planning to install a siemns 3T at end of 2018
10	231,949	1.5 T machine	Don't know	2nd MRI awaiting funding
11	236,105	2 scanners 1.5 siemans	No answer	No answer

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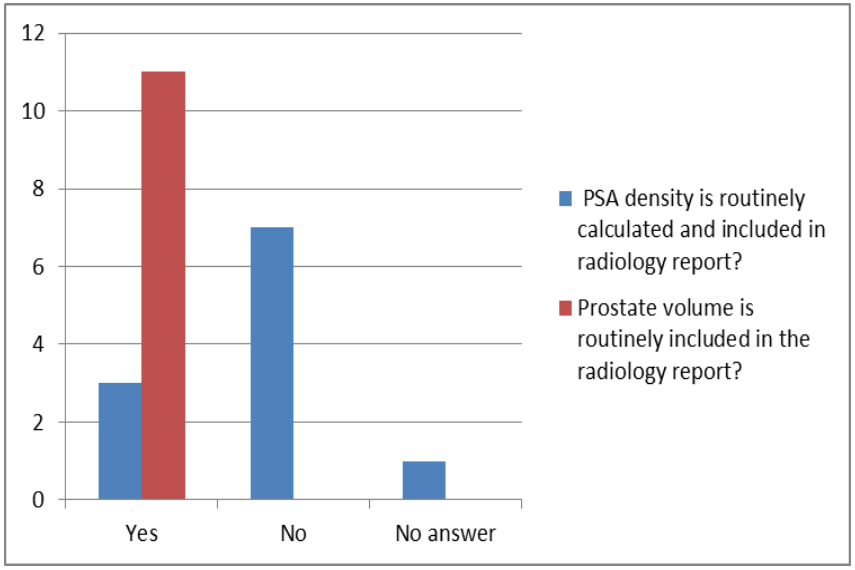
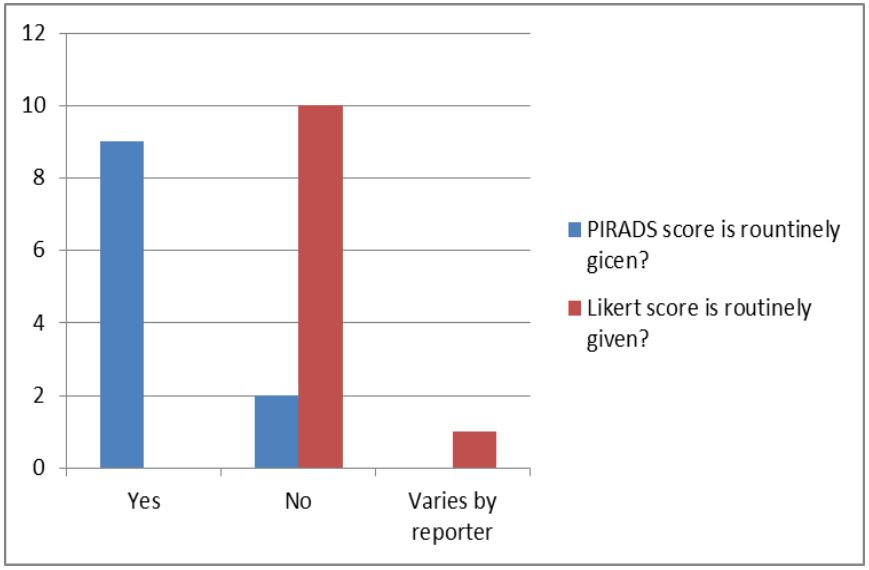
Radiology





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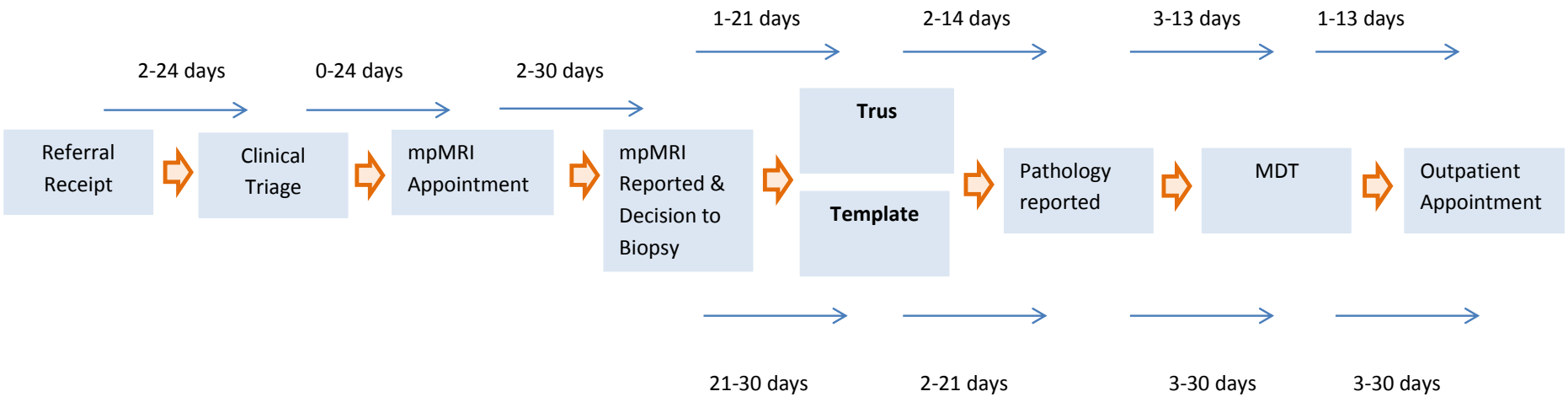
Timed Pathways: Variation across the South West and 'pinch points'



Average Trus Pathway Variation: 13-139

AverageTemplate Pathway Variation :33-189

Summary of variation in practice

- Telephone triage and straight to test; 2 out of 14 centres
- Rapid access clinics or general clinics
- Size of Urology Unit – efficient but annual leave problems
- Selection criteria
  Age adjusted PSA (upper limit 15, 20, 25? Upper limit of Age?)
  Suitability criteria, No pre-biopsy MRI for palpable disease?
- MRI Capacity/delays – contrast? restricting surveillance scans, staging scans,
  MRI – same day, same week?
  Reporting timelines (time to decision re biopsy)

Variation in practice (cont)

- Who acts on MRI – MDT/CNS/Urologist/Radiologist (variation in delays)
- Time from decision to biopsy to biopsy
- Delays to biopsy – Transperineal delay universally
- Delay from biopsy to reporting – most ready for mdt in just a few days but some units have to outsource their pathology
- Delay to MDT – time to treatment. Some patients seen in clinic before MDT.
- New rules 38 day breach rules for tertiary referrals

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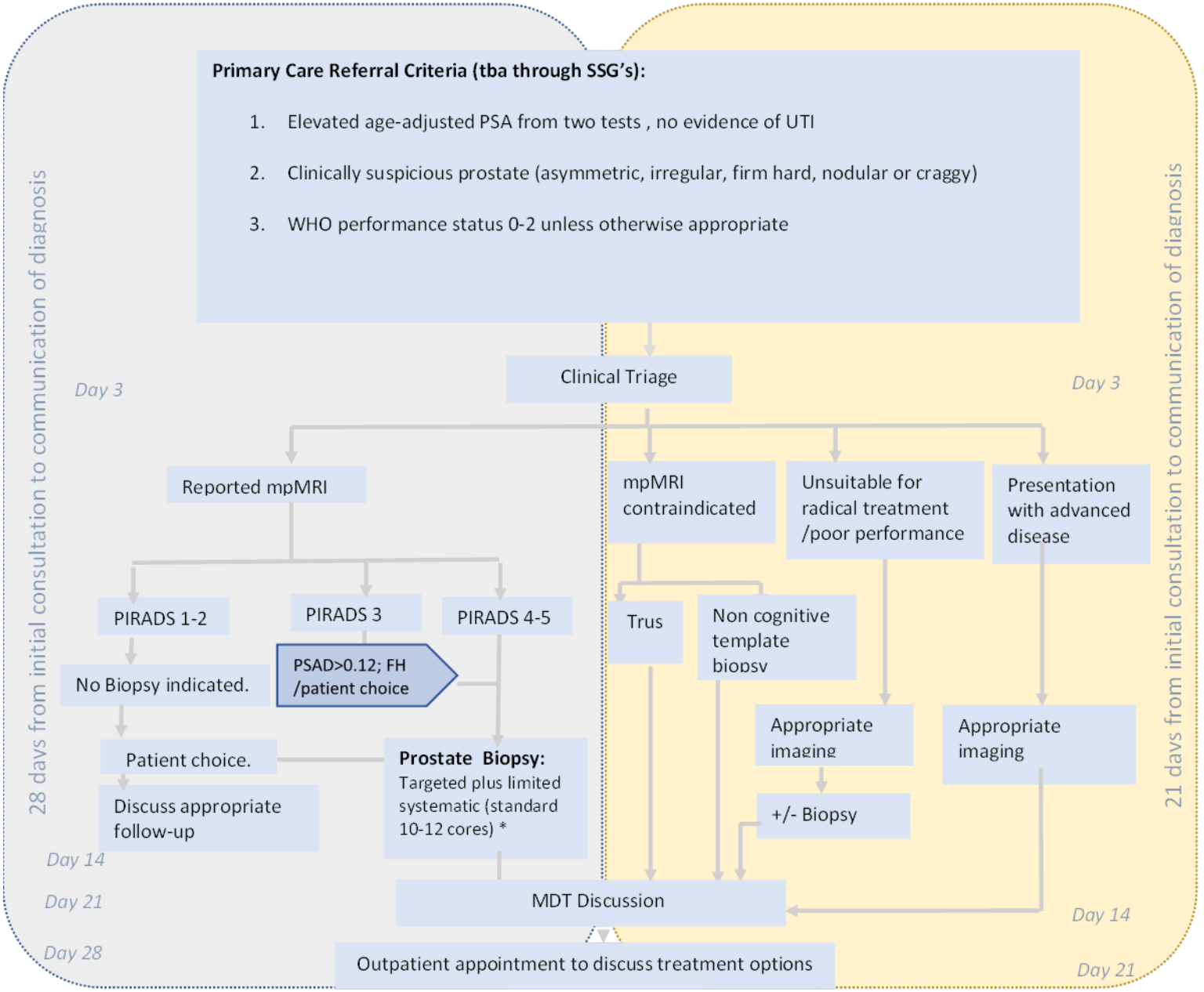
Description of the Proposed South West Prostate Cancer Diagnostic Pathway

Including Nationally Prescribed Timelines

by Prof Raj Persad

Draft: Proposed SW Prostate Cancer Diagnostic Pathway



* No significant cancer: Gleason <=3+3 TCCL <=5mm and Significant cancer: Gleason >=3+4 TCCL >=6mm

Radiology Standards

1. Image Acquisition

2. Report

3. Radiologist

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Data Collection: Evidencing the case for change

Dr Adrian Andreou

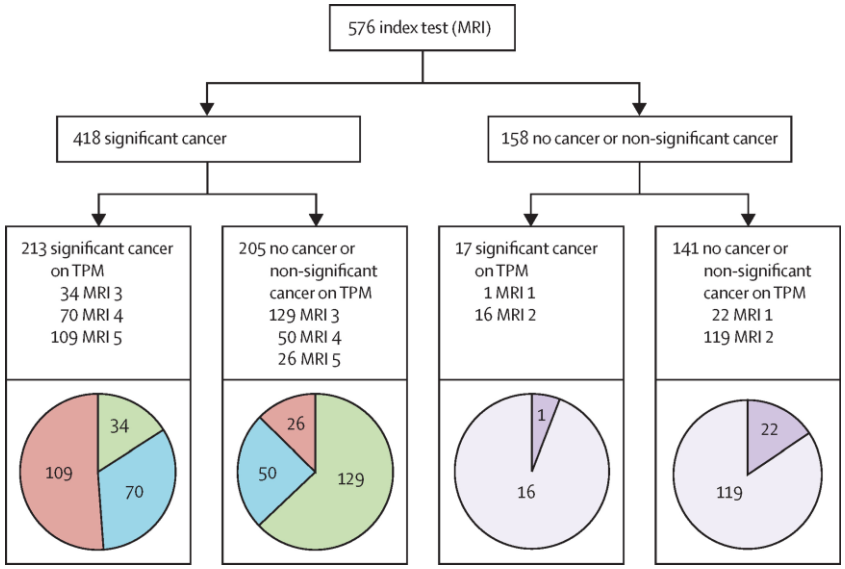
and Mr Gary Filer

Database

- Purpose: Not a research project
  Better understanding of quality of existing service

Database

- PROMIS



	MP-MRI, % (95% CI)	TRUS-biopsy, % [95% CI]	Test ratio* [95% CI]	p value
Primary definition (Gleason score ≥4+3 or cancer core length ≥6 mm), prevalence of clinically significant cancer 230 (40%, 36–44%)				
Sensitivity test	93 (88–96)	48 (42–55)	0·52 (0·45–0·60)	p<0·0001
Specificity test	41 (36–46)	96 (94–98)	2·34 (2·08–2·68)	p<0·0001
PPV	51 (46–56)	90 (83–94)	8·2 (4·7–14·3)	p<0·0001
NPV	89 (83–94)	74 (69–78)	0·34 (0·21–0·55)	p<0·0001
Secondary definition (Gleason score ≥3+4 or cancer core length ≥4 mm), prevalence of clinically significant cancer 331 (57%, 53–62%)				
Sensitivity test	87 (83–90)	60 (55–65)	0·69 (0·64–0·76)	p<0·0001
Specificity test	47 (40–53)	98 (96–100)	2·11 (1·85–2·41)	p<0·0001
PPV	69 (64–73)	98 (95–100)	22·7 (8·6–59·9)	p<0·0001
NPV	72 (65–79)	65 (60–70)	0·70 (0·52–0·96)	p=0·025
Any Gleason score 7 (≥3+4), prevalence of clinically significant cancer 308 (53%, 49–58%)				
Sensitivity test	88 (84–91)	48 (43–54)	0·55 (0·49–0·62)	p<0·0001
Specificity test	45 (39–51)	99 (97–100)	2·22 (1·94–2·53)	p<0·0001
PPV	65 (60–69)	99 (95–100)	40·8 (10·2–162·8)	p<0·0001
NPV	76 (69–82)	63 (58–67)	0·53 (0·38–0·73)	p<0·0001

Prevalence of disease on TPM-biopsy, N (%, 95% CI) *McNemar test to compare sensitivity and specificity present ratio of proportions. TPM-biopsy=template prostate mapping biopsy. MP-MRI=multi-parametric-MRI. TRUS-biopsy=transrectal ultrasound-guided prostate biopsy. PPV=positive predictive value. NPV=negative predictive value. General Estimating Equation logistic regression model to compare PPV and NPV present odds ratios. All ratios presented as TRUS relative to MRI.

***Table*: Diagnostic accuracy of TRUS-biopsy and MP-MRI in the detection of clinically significant prostate cancer using alternative secondary definitions of clinically significant cancer**

Database

- What does MpMRI mean for me ?

Database

- Nominated data collector for each trust
- Support (Band 4 additional hours)
- Timeline: Implement mid June
- Review: First two quarters initially

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Next Steps

by Prof Raj Persad

Next Steps

- Agree pathway modifications and standards with flexibility according to local practices
- Agree metrics to be derived from Database eg prospectively record no. of PIRADS 1-2 reported, no. of PIRADS 1-2 ***Not*** biopsied
- Gap analysis against agreed pathway (create plans on a page) and identify what can be done in house and what needs to be escalated.
- Sept– report back on initial data base findings
- Oct – Nov work with commissioners
- Clinical network development and communication with future challenges in mind

Metrics

- Pre-biopsy mpMRI
- Non-suspicious mpMRI
- Biopsies in non-suspicious mpMRI
- Low-risk cancers diagnosed
- Low-risk cancers treated (unnecessarily)
- Significant cancers diagnosed when mpMRI suspicious
- Rates of repeat biopsies and re-referrals