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# **RM Partners / Imperial RAPID Programme**

**Rapid Access Prostate Imaging and Diagnosis**

**Hashim Ahmed**

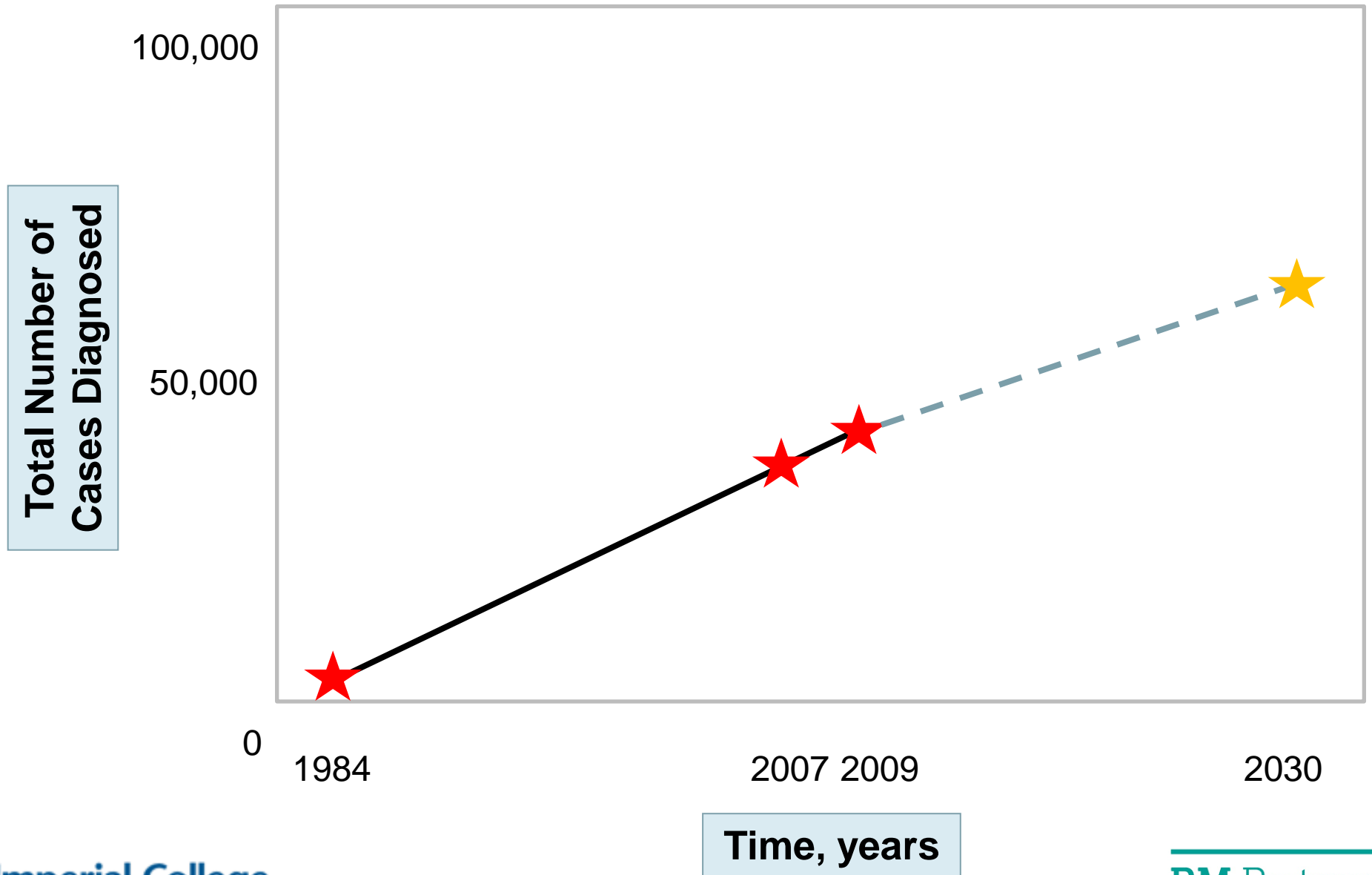
**Professor and Chair of Urology**

Division of Surgery, Imperial College London

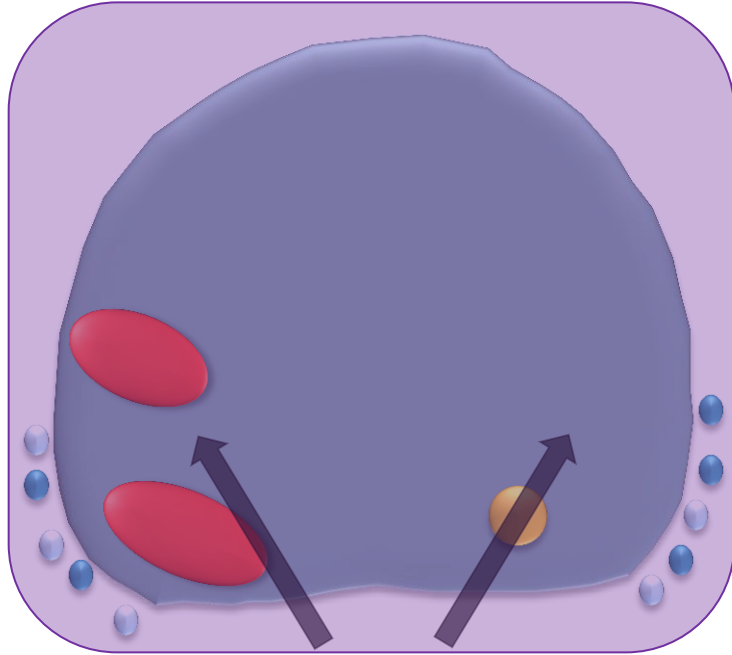
**Consultant Urological Surgeon**

Department of Urology, Imperial College Healthcare NHS Trust

# Prostate cancer is a growing health burden



# The errors that result from the current pathway...



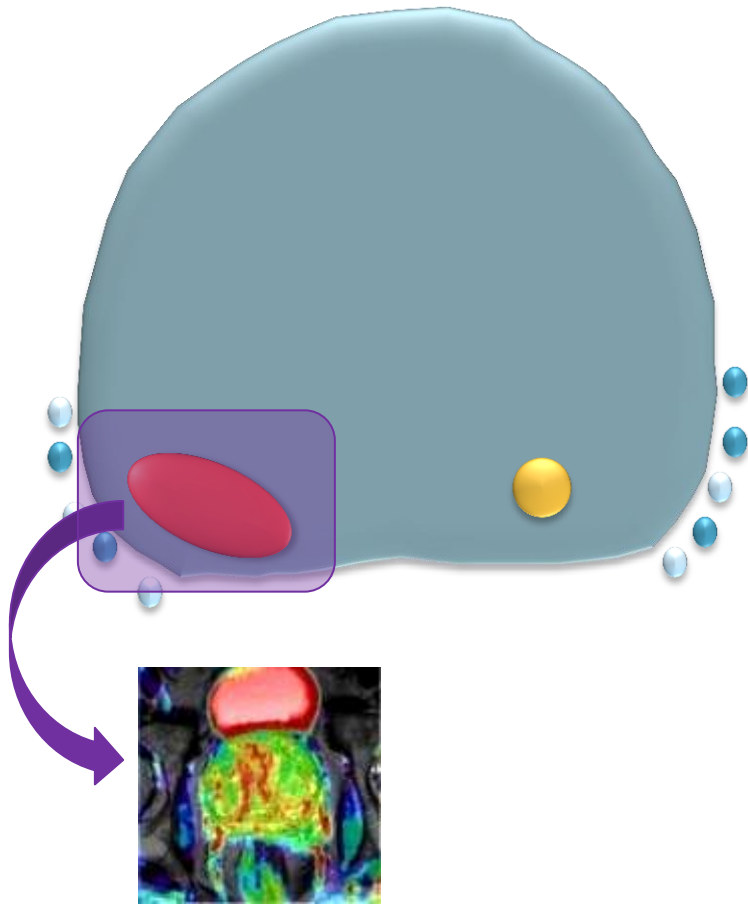
Clinically indolent cancers are identified by chance

Clinically significant lesions are missed

Important cancers are incorrectly classified as unimportant

Men undergo whole-gland treatment which carries harm

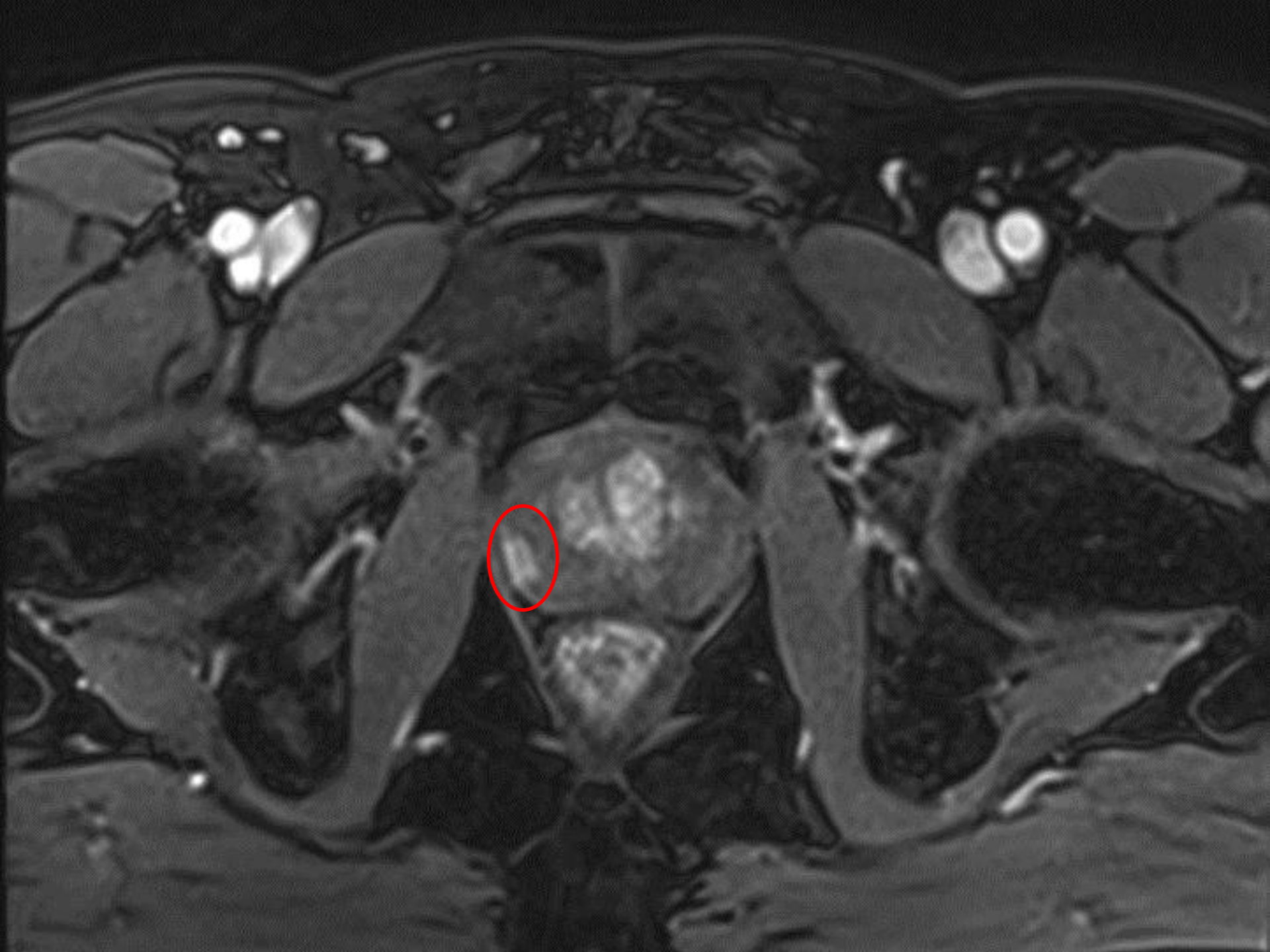
# A strategy to overcome the errors in the current pathway...



Not all lesions have the potential to progress to invasive and metastatic cancer

Imaging and precision biopsy can identify those lesions that are likely to progress

Prostate 'lumpectomy' can reduce treatment related harms



# PROMIS: Prostate MRI Imaging Study

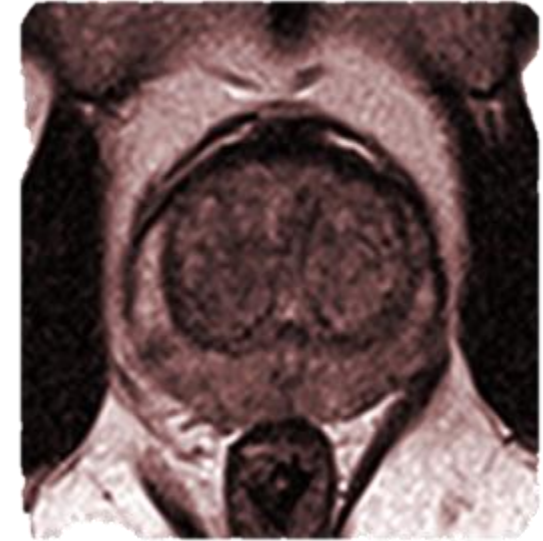
**Co-Chief Investigator:** Mr Hashim Ahmed

**Co-Chief Investigator:** Prof Mark Emberton

**Sponsored by** University College London

**Managed by** MRC Clinical Trials Unit

**Funded by** UK NIHR HTA



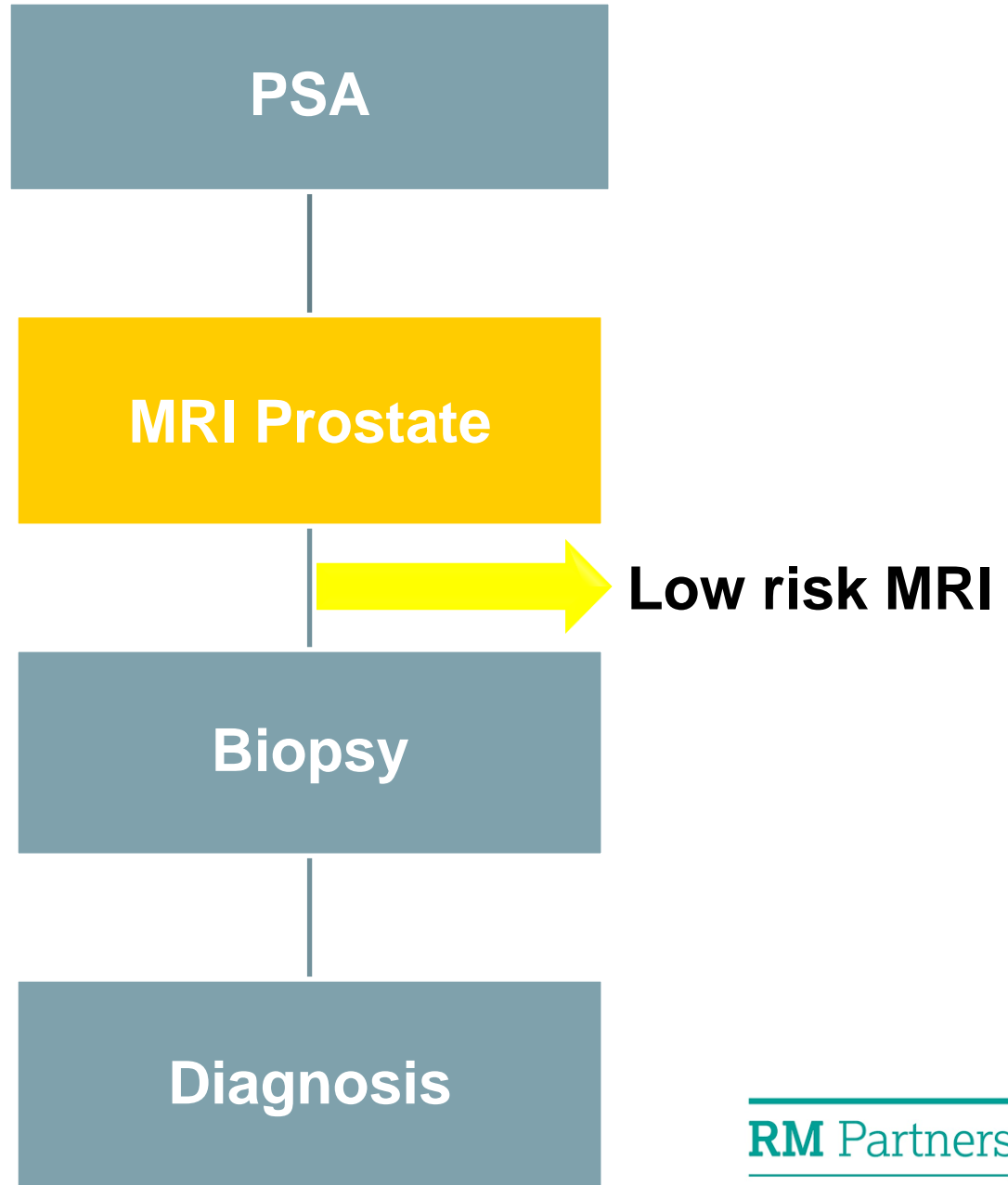
PROMIS is funded by the UK Government Department of Health, National Institute of Health Research – Health Technology Assessment Programme, (Project number 09/22/67).

*UK Department of Health Disclaimer:* The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the health technology assessment program, NIHR, NHS or the Department of Health.

# MP-MRI triage compared to Transrectal biopsy

Test attribute	Transrectal biopsy	MP-MRI	Odds ratio* [95% CI]	<i>p</i> -value
Sensitivity	<b>48%</b>	<b>93%</b>	0.06 [0.02-0.12]	<i>p</i> <0.0001
Specificity	<b>96%</b>	<b>41%</b>	0.02 [0.003-0.05]	<i>p</i> <0.0001
PPV	<b>90%</b>	<b>51%</b>	8.2 [4.7-14.3]	<i>p</i> <0.0001
NPV	<b>74%</b>	<b>89%</b>	0.34 [0.21-0.55]	<i>p</i> <0.0001

# The new pathway





# What have we learnt so far when we embed MRI into the pathway?

	Standard TRUS pathway	Triage mp-MRI Pathway	p-value
<b>Biopsy</b>	<b>100%</b>	<b>59%</b>	<b>≤ 0.05</b>
UCL/Ahmed definition 1	12%	24%	≤ 0.05
UCL/Ahmed definition 2	25%	33%	≤ 0.05
Any length of Gleason $\geq$ 3+4	23%	31%	≤ 0.05
Any length of Gleason $\geq$ 4+3	6%	16%	≤ 0.05
<b>Insignificant cancer detection</b>	<b>12%</b>	<b>2%</b>	<b>≤ 0.05</b>

Definition 1: Any length of Gleason  $\geq$ 4+3 or  $\geq$ 6mm of Gleason 3+3

Definition 2: Any length of Gleason  $\geq$ 3+4 or  $\geq$ 4mm of Gleason 3+3

# We will need to set standards for MP-MRI



**Editorial**

**The PROMIS of MRI**

**BJUI**  
BJU International

Hashim Ahmed

- Independent accreditation
- Independent scan conduct and report quality control
- Rates and types of cancers detected
- Rates of repeat biopsies
- Rates of unnecessary radical therapy

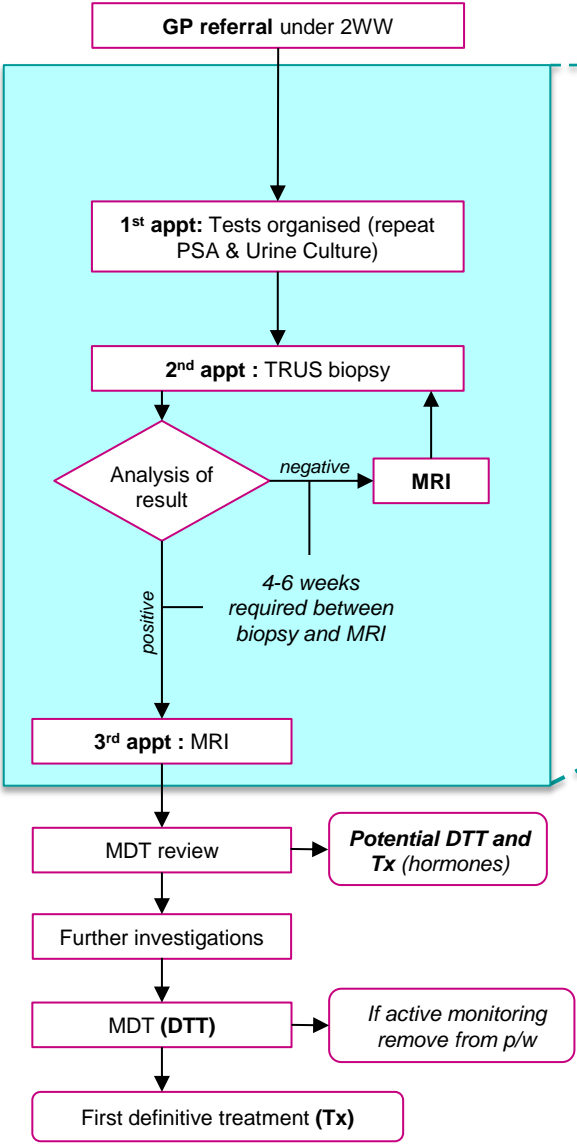
# **RM Partners / Imperial RAPID Programme**

## **NHS England Transformation Funded**

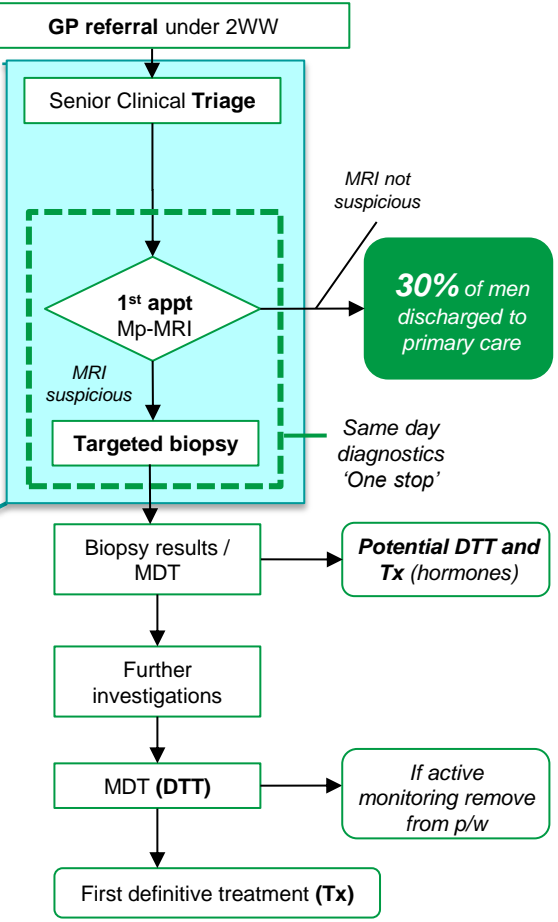
### **Lead: Ahmed HU. £2.8M (2017-2019)**

- 3 pilot sites (Imperial, St Georges, Epsom)
- Same day MRI and report, clinical review and IF NECESSARY, a targeted biopsy
- Transperineal NOT Transrectal biopsy
- Quality reviews at every stage

# Conventional Pathway



# RAPID Pathway



## **Initial pilot results at Imperial**

**99 patients**

**75% biopsied**

**Time from Referral to Diagnosis 26 → 22 → 17 days**

**Time from Referral to Treatment 37 → 45 → 37 days**

# Conclusions

- The standard approach to diagnosing prostate cancer is blind to location of cancer
- The standard approach to diagnosing prostate cancer leads to unnecessary harms
- Prostate MRI can allow at least one-third of men to avoid an unnecessary biopsy
- Prostate MRI can improve the detection of higher risk cancers
- There is a considerable challenge in delivery and dissemination