



Prostate Cancer

ANDRE JOSHI

Intro

Urologist from Australia

Robotic fellow Royal Berkshire hospital

12 months

Long standing relationship

4th Australian fellow from Brisbane



Why RBH



Robotic surgery is first line and widely available in the NHS

Robot surgery access still limited in Australasia to public patients

Volume and experience

European holidays

Not the only Aussie fellow at RBH currently and we wouldn't be the last

Prostate Cancer

UK VS AUSTRALIA

Prostate Ca UK vs Australia

Across the UK

- Prostate cancer is the most common cancer in men
- More than 52,000 men are diagnosed with prostate cancer every year on average
- 1 in 8 men will be diagnosed with prostate cancer in their lifetime
- 67.33 million people

In Australia

- Prostate cancer is the most common cancer in men
- Around 25,000 men are diagnosed with prostate cancer in the year 2022
- 1 in 6 risk of being diagnosed with prostate cancer by the age of 85
- 25.69 million people

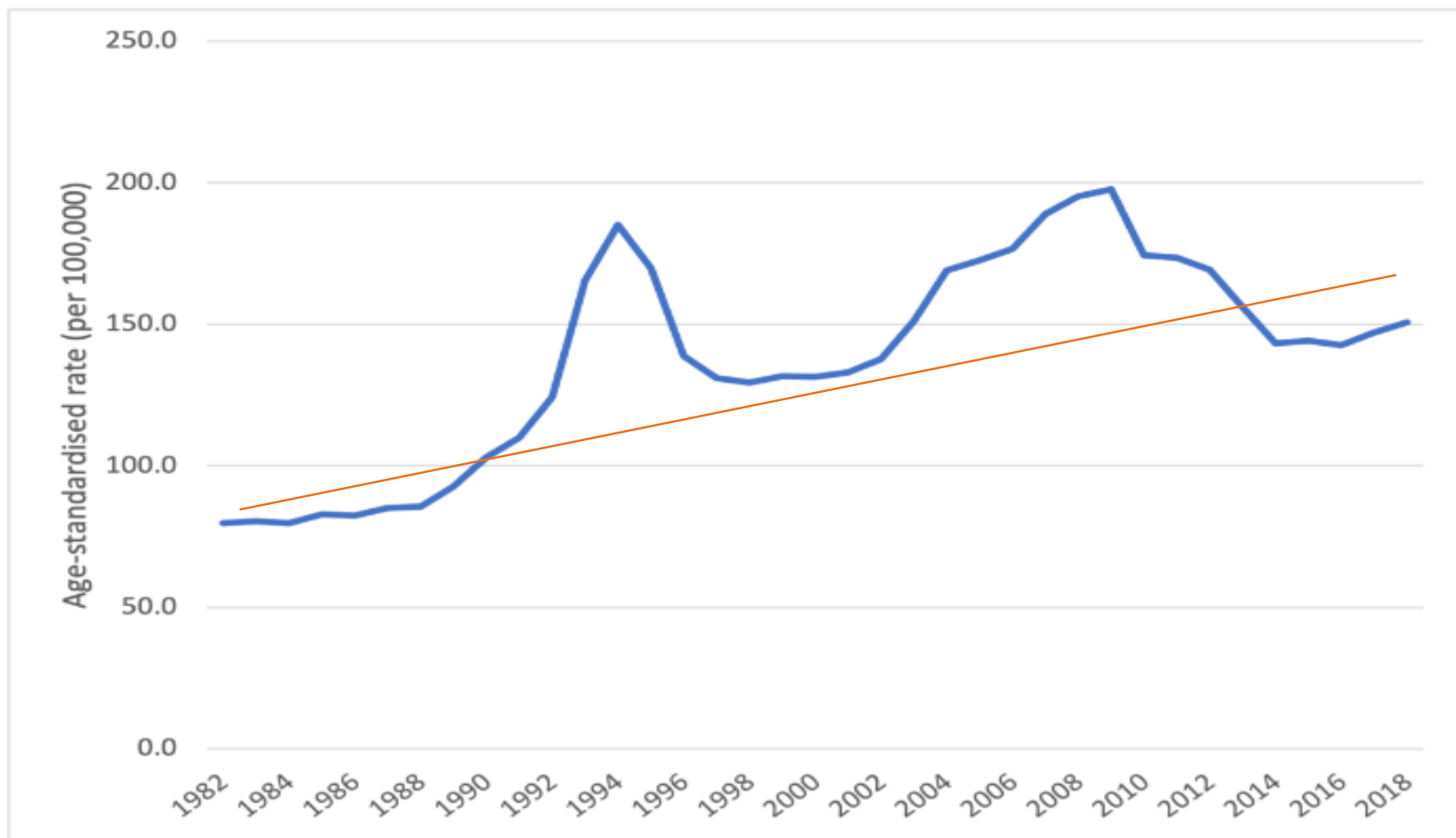


Figure 2. Age-standardised incidence rates for prostate cancer, 1982 to 2018

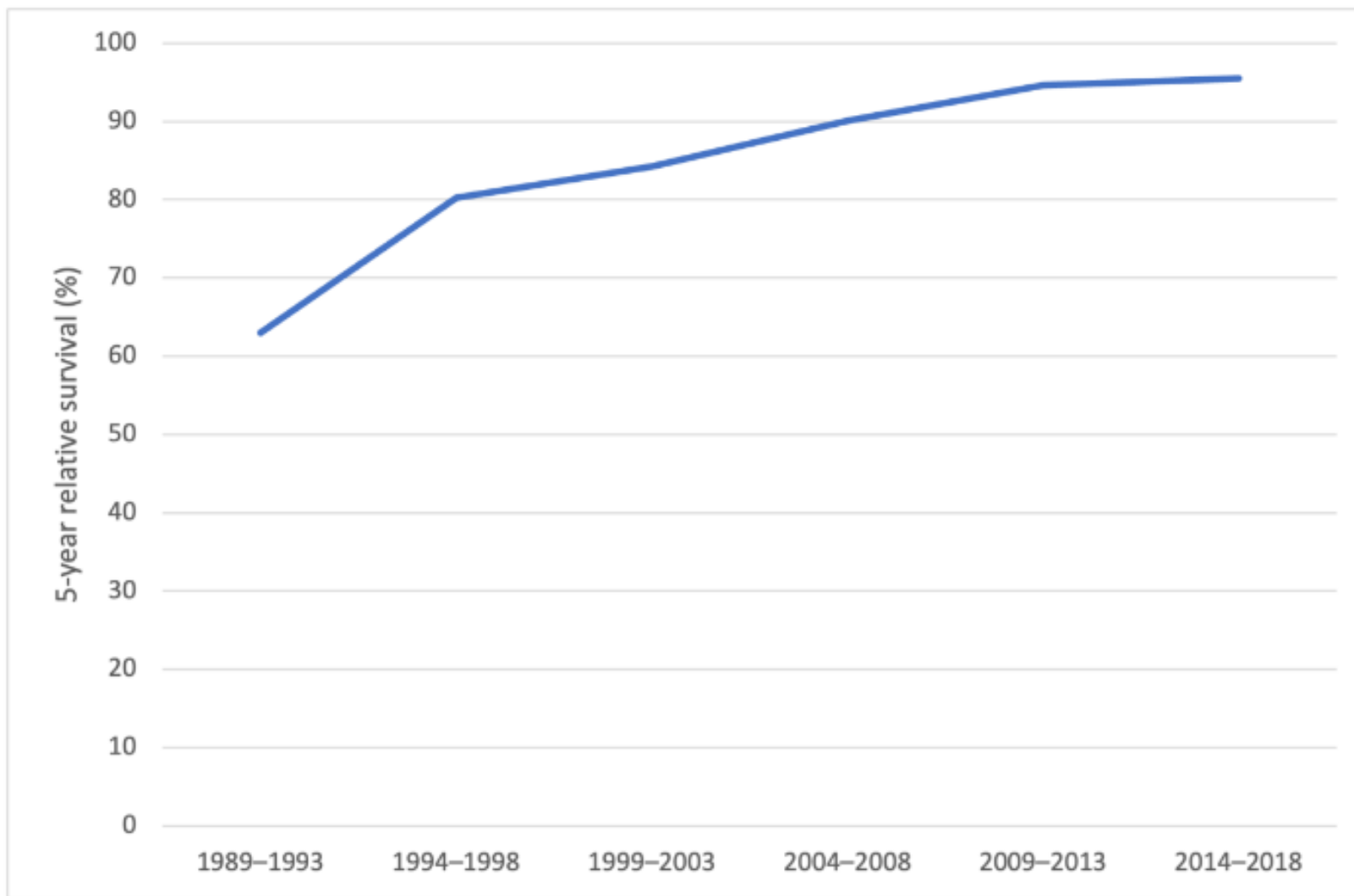


Figure 5. 5-year relative survival for prostate cancer, 1989-1993 to 2014-2018

Prostate Cancer

We are finding more disease

Better at diagnosis, and early detection

Better treatment options – robotics, modern radiotherapy

Better imaging and staging – MRI, PSMA PET

Better outcomes

I have had to relearn prostate cancer treatment 3x in the last 10 years and there's always more

NHS vs Medicare

~20% private health care

BUPA and insurance company controlled providers

Public health care provides everything – acute, urgent, elective, non urgent

Pathway driven

Prostate cancer – 62 days from referral to treatment

I think the NHS does cancer care extremely well

>45% private health care

Too many insurance providers – competition

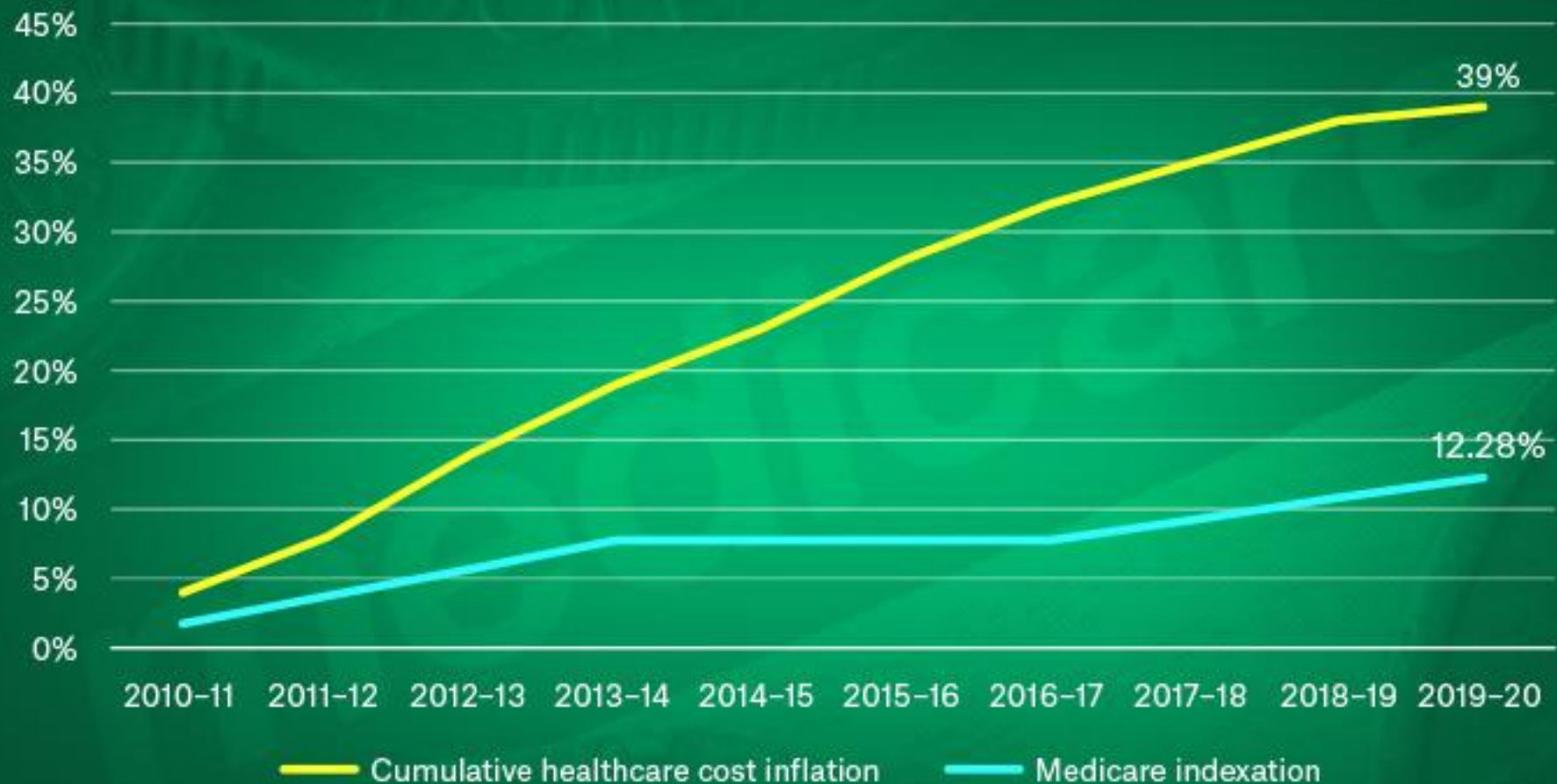
Can chose who you want to treat you usually

Public health care focus largely on acute and urgent surgery, everything else has very long wait times

No real pathways

Prostate cancer ie CAT 2 ie within 90 days from booking

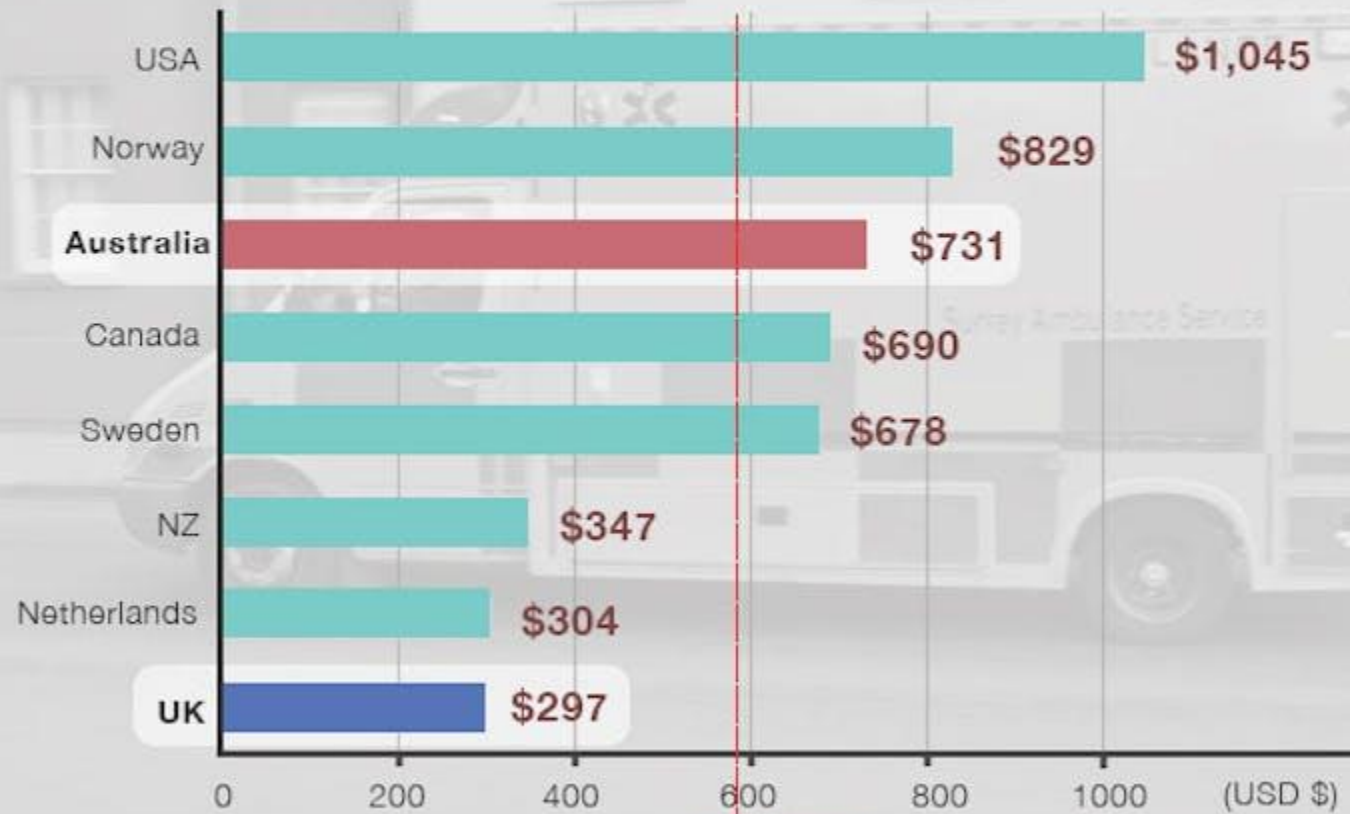
Healthcare costs vs Medicare rebate increases 2010-20



Source: Health of the Nation 2020

Out of pocket expenses

Out of pocket expenses per capita \$USD (2012 or latest)



590 OECD Average

Source: OECD, 2012 or latest



Screening

Prostate cancer screening

Yes or No – no established screening program in the UK

Göteborg screening trial with 18 year follow up data → screen 231, to diagnose 10

ERSPC (European Randomized Study of Screening for Prostate Cancer) started in the early 90's, included >182K European men, found a significant reduction in PCa mortality due to screening

- 16 year follow up data in 2013 → screen 570, to treat 18

With extended follow-up the mortality reduction (21% and 29% after non-compliance adjustment) remains unchanged

However, the number needed to screen and to treat is decreasing and is now below the numbers observed in breast cancer trials

PCFA



Prostate Cancer Foundation of Australia

Men should be offered the opportunity to consider and discuss the benefits and harms of PSA testing before making the decision whether or not to be tested

The harms of PSA testing may outweigh the benefits particularly for men aged 70 and older

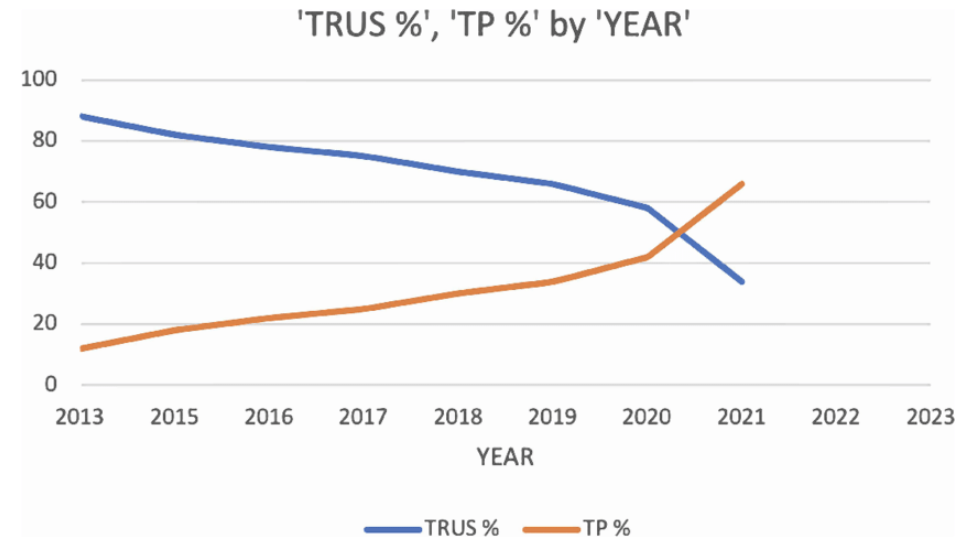
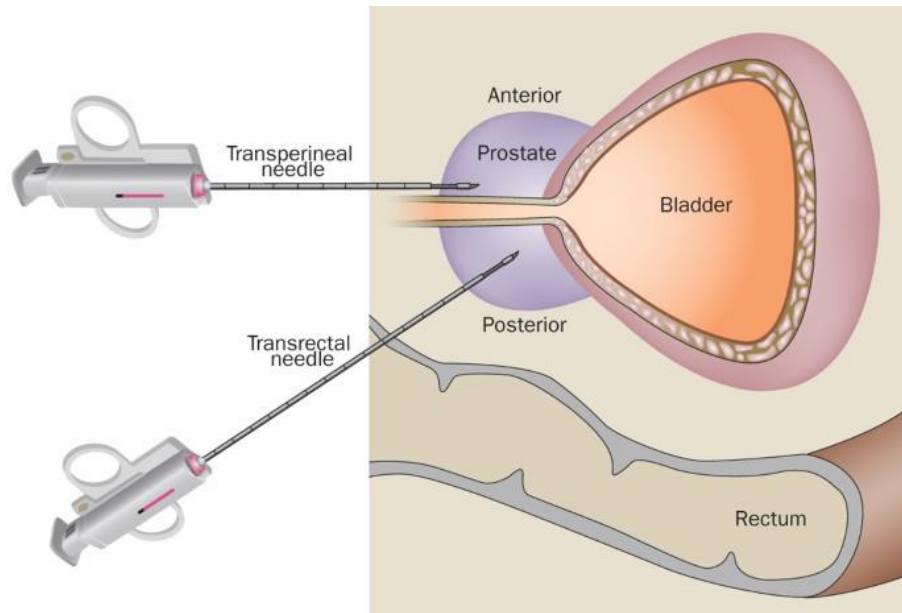
Men at average risk of prostate cancer who decide to undergo regular testing should be offered PSA testing every 2 years from age 50 to 69

Men with a family history of prostate cancer who decide to be tested should be offered PSA testing every 2 years from age 40/45 to 69, with the starting age depending on the strength of their family history

We are becoming a screened population

Advancements

Better biopsies



MRI

Standard of care pre biopsy diagnostic modality

No doubt this is helping our patients

PRECISION (NEJM 2018) and PROMIS (Lancet 2017)

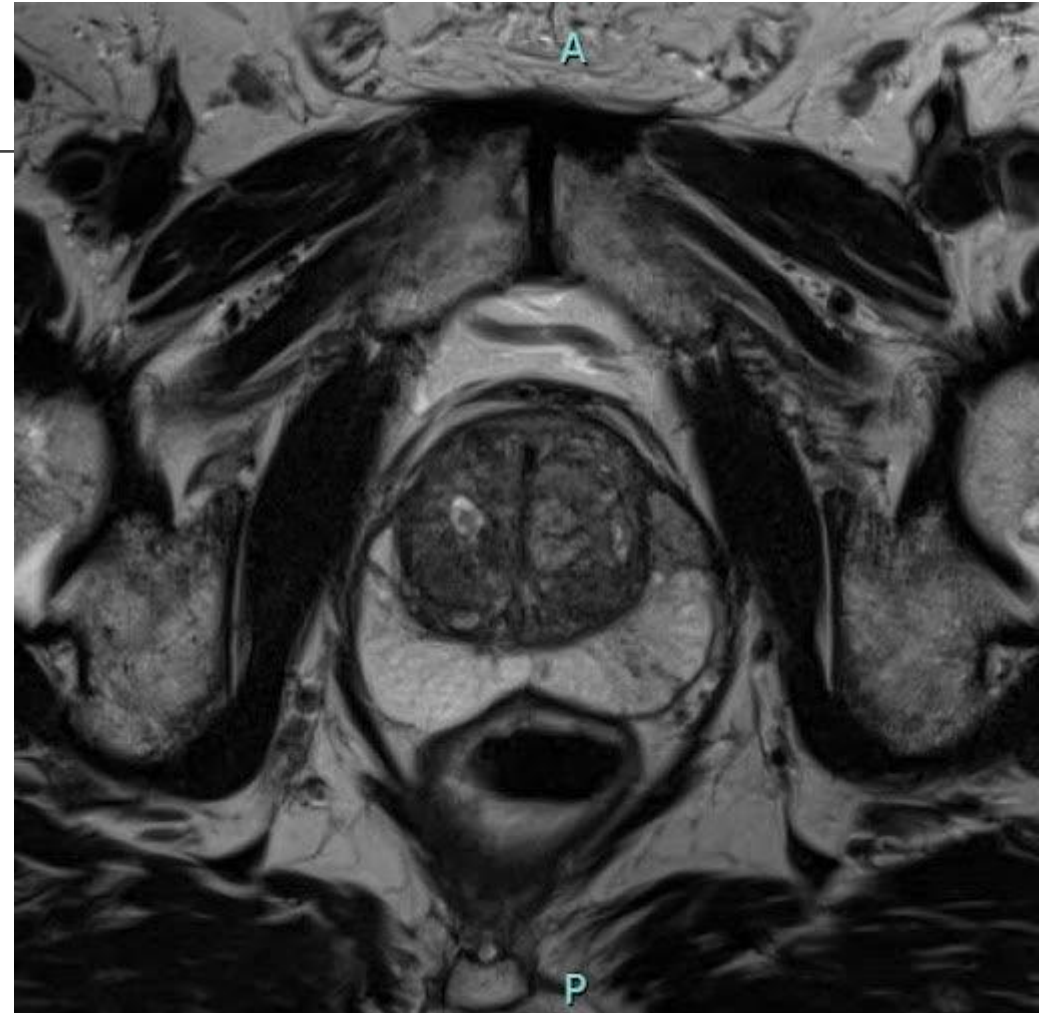
Pokorny et al (European Urology 2014) → rebate 2018

But its not a one size fits all – some men with ‘normal MRI’ should still get biopsies or at least PSA surveillance initially

Surveillance – serial MRIs

Targeted biopsy – cognitive vs fusion

10-15% miss rate → improves with experience radiologists and scanner quality



Prostate Specific Membrane Antigen (PSMA)

Benign prostate tissue

Salivary glands

Kidneys

Small bowel

Nervous system

Solid tumour vessels



PSMA is upregulated by 10-1000 times

- 98% of prostate cancer cells
- High grade prostate cancer
- Castrate resistant prostate cancer
- Metastatic disease
- PSMA expression is associated with androgen independence and progression

The new standard of care in Australia

proPSMA (Lancet 2020) - superior accuracy to the combined findings of CT and bone scanning (Movember and Prostate Cancer Foundation of Australia)

Potential cost benefits of PSMA

July 2022 – rebate for our patients


Initial staging of intermediate to high-risk prostate adenocarcinoma

Restaging in recurrent disease

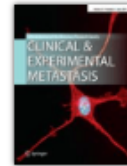
Issue remains access

Prostate-specific membrane antigen PET-CT in patients with high-risk prostate cancer before curative-intent surgery or radiotherapy (proPSMA): a prospective, randomised, multicentre study

Prof Michael S Hofman, MBBS   • Nathan Lawrentschuk, MBBS • Roslyn J Francis, MBBS • Colin Tang, MBBS • Ian Vela, MBBS • Paul Thomas, MBBS • et al. [Show all authors](#) • [Show footnotes](#)

Published: March 22, 2020 • DOI: [https://doi.org/10.1016/S0140-6736\(20\)30314-7](https://doi.org/10.1016/S0140-6736(20)30314-7) •  Check for updates

Exploratory cost-effectiveness analysis of ⁶⁸Gallium-PSMA PET/MRI-based imaging in patients with biochemical recurrence of prostate cancer



Louisa G Gordon ^{1 2 3}, Thomas M Elliott ⁴, Andre Joshi ^{5 6 7 8}, Elizabeth D Williams ^{6 7}, Ian Vela ^{5 6 7 8}

Robotic Surgery

First RCT Lancet Oncology 2018

- From Brisbane!
- Controversial results


Better outcomes

Shorter hospital stays

Less blood transfusion

Faster recovery

ARTICLES | [VOLUME 19, ISSUE 8, P1051-1060, AUGUST 2018](#)

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Robot-assisted laparoscopic prostatectomy versus open radical retropubic prostatectomy: 24-month outcomes from a randomised controlled study

[Geoffrey D Coughlin, FRACS](#) • [John W Yaxley, FRACS](#) • [Prof Suzanne K Chambers, PhD](#)  

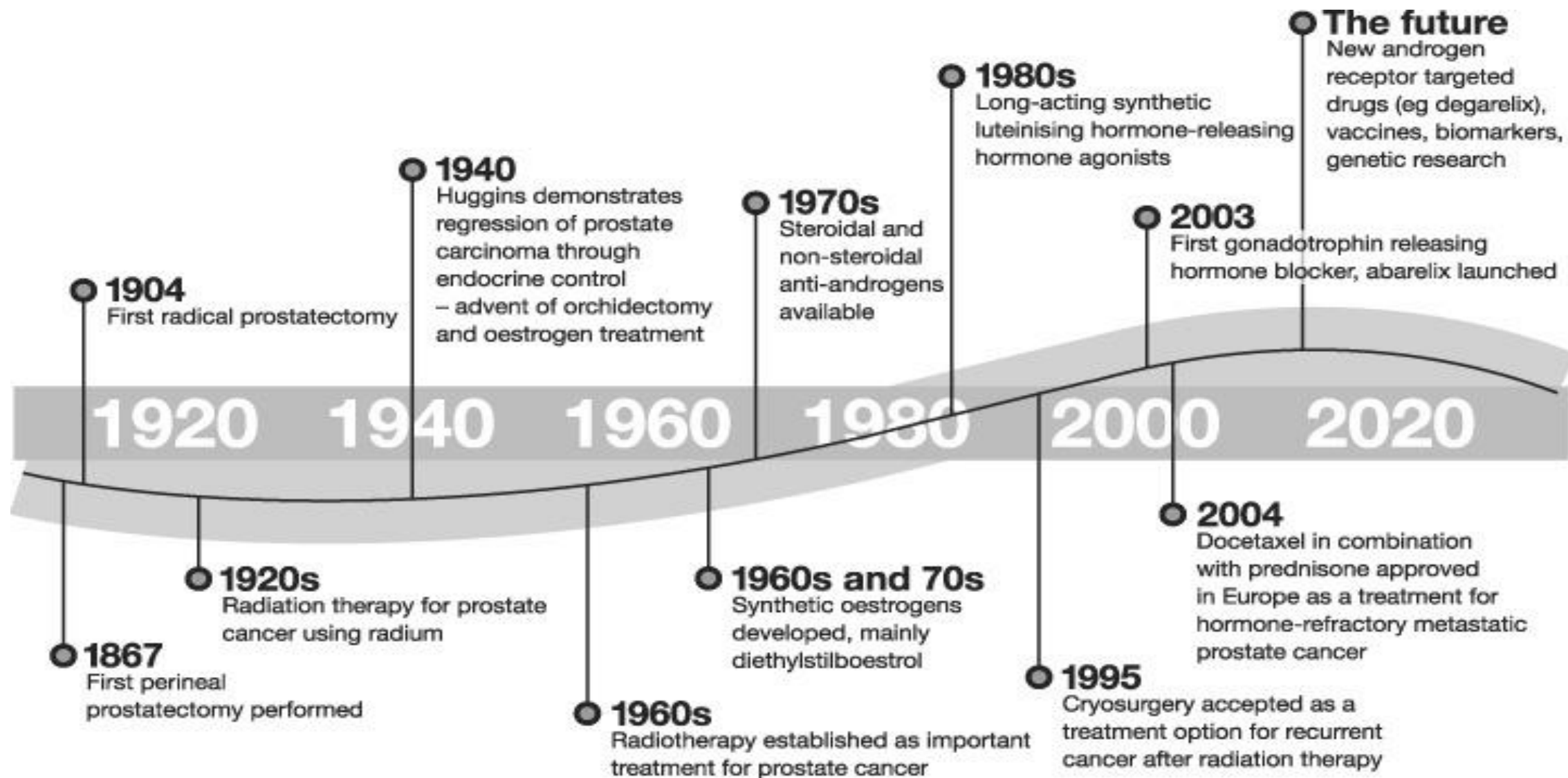
[Stefano Occhipinti, PhD](#) • [Prof Hema Samaratunga, FRCPA](#) • [Leah Zajdlewicz, MORGPsych](#) • et al. [Show all authors](#)

Published: July 12, 2018 • DOI: [https://doi.org/10.1016/S1470-2045\(18\)30357-7](https://doi.org/10.1016/S1470-2045(18)30357-7)

 [Check for updates](#)

Then vs Now

NEW OPTIONS FOR OUR PATIENTS



1940's- 2004

Estramustine
Mitoxantrone + P

CRPC

CRPC

2004

Docetaxel + P vs
Mitoxantrone + P
19.2 vs 16.3m

2010 - 2014

Sipuleucel-T
NEJM 2010
25.8 vs 21.7

Cabazitaxel + P
Lancet 2010
15.1 vs 12.7

Enzalutamide
NEJM 2014
32.4 vs 30.2

2020

Olaparib
NEJM 2020

Rucaparib
JCO 2020

2022

LuPSMA

Abiraterone+P
NEJM 2011
15.8 vs 11.2

Enzalutamide
NEJM 2012
18.4 vs 13.6

Radium-223
NEJM 2013
14.9 vs 11.3

Abiraterone+P
NEJM 2013
34.7 vs 30.3

Zoledronic acid for risk reduction of
SREs: JNCI 2002; 2004

Denosumab for risk
reduction of SREs:
Lancet 2011

• **2017: Pembrolizumab:**
FDA approved for PCa patients with
microsatellite instability–high or
mismatch repair–deficient tumors–
**MSI-H/MMR-D is found in about 3% of
men with mCRPC** JAMA Oncol. 2019.

The Future

The Future

Precision medicine

Aim to provide the right treatment for the right patient at the right time with treatment directed by targetable tumoral aberrations rather than traditional histologic subtypes

SU2C East Coast Dream Team (Robinson et al. Cell 2015)

Prospective whole-exome and transcriptome sequencing of tumor biopsies from 150 mCRPC patients
→ Approximately 90% of mCRPC harbor clinically actionable molecular alterations

Higher than previously thought – indicating a role of precision medicine in this setting

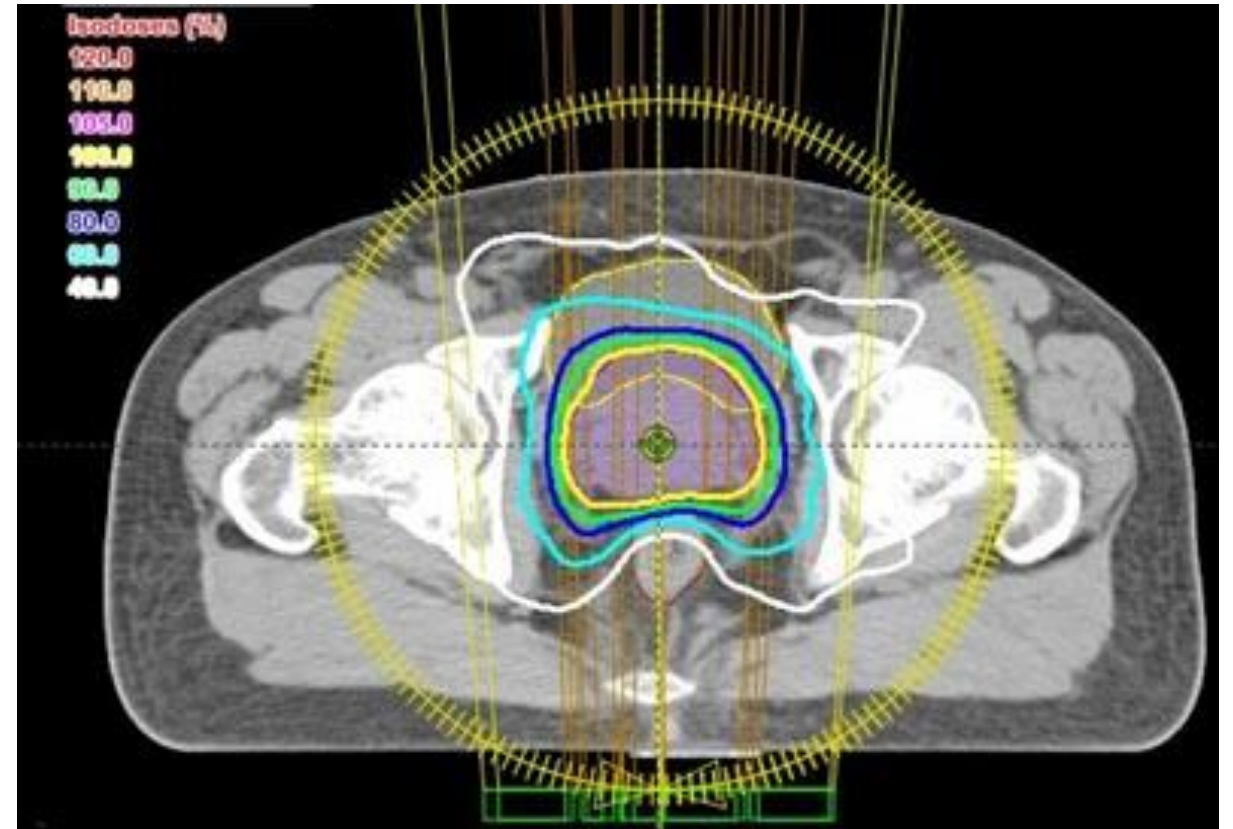
Already happening in the UK for patients with advanced and recurrent disease

PARP inhibitors in men with BRCA mutations

Improving Radiotherapy

IMRT

Hypofractionated radiotherapy – shorter treatment duration



Theranostics – Lutetium PSMA

Weineisen M, et al. ^{68}Ga - and ^{177}Lu -Labeled PSMA (Journal of Nuclear Medicine. 2015)

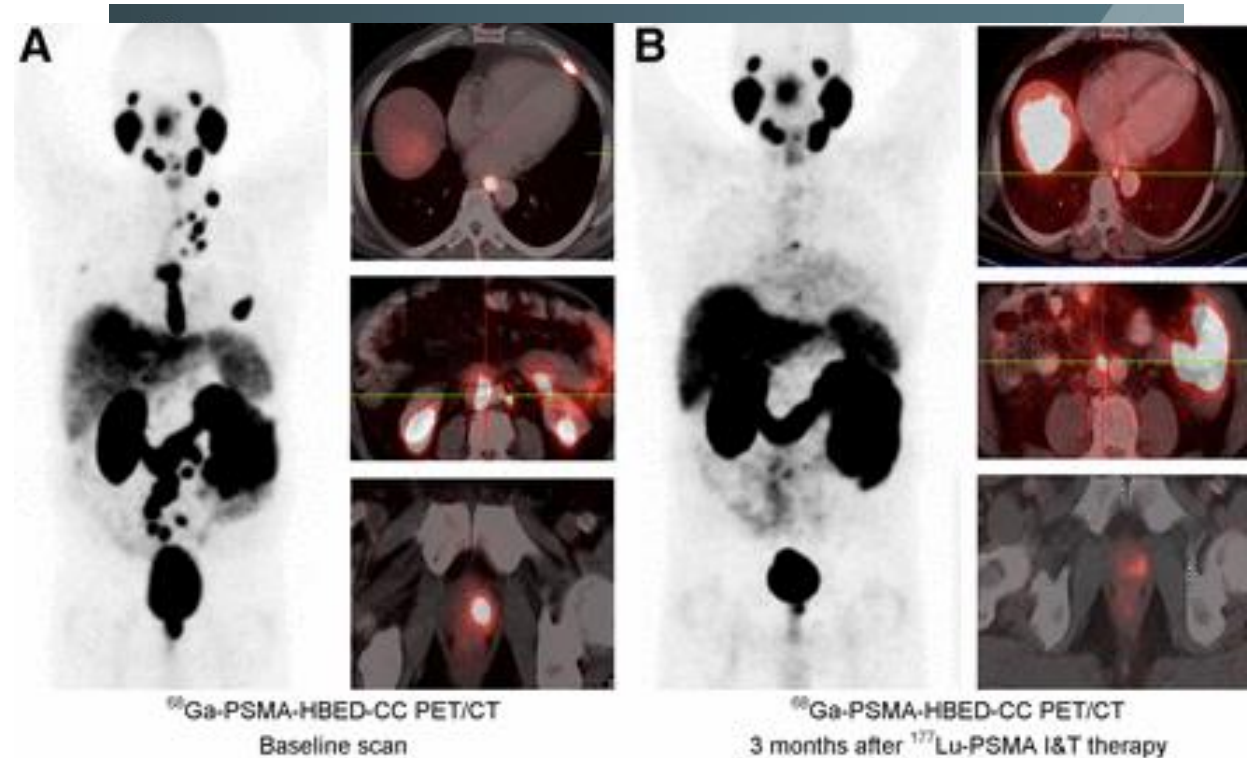
Available in the UK – privately

Cost - It typically costs \$10,000 per round in Australia....TheraP was 6 cycles

Higher PSA response with less side effects than Cabazitaxel

Safety, efficacy, long term benefit??

Ongoing trials around the world

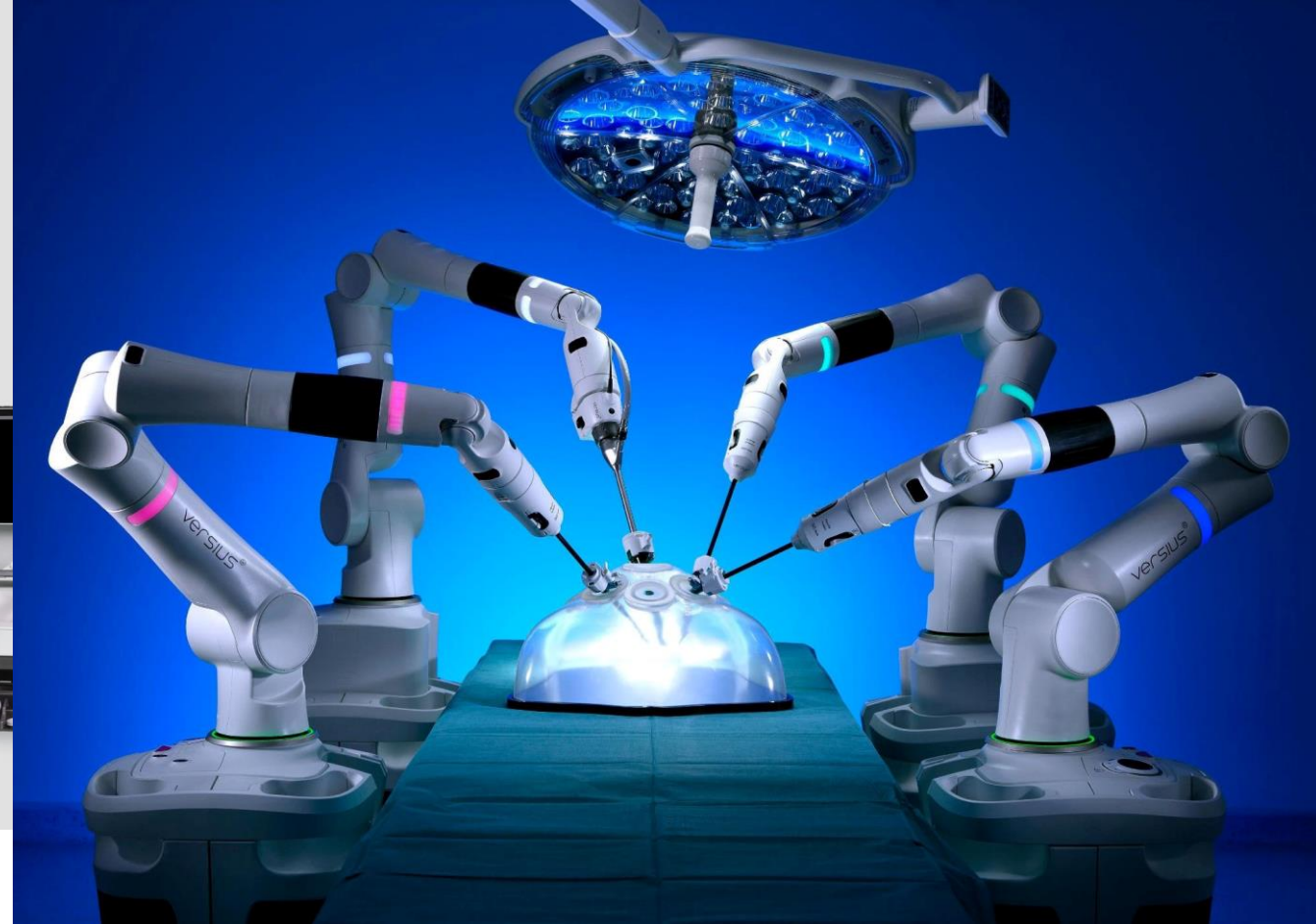


More Robots

CMR Versius



Medtronic HUGO





Intuitive Da Vinci



“Doctor says I’ve got an enlarged procrastinate.”

Thank You!

Questions