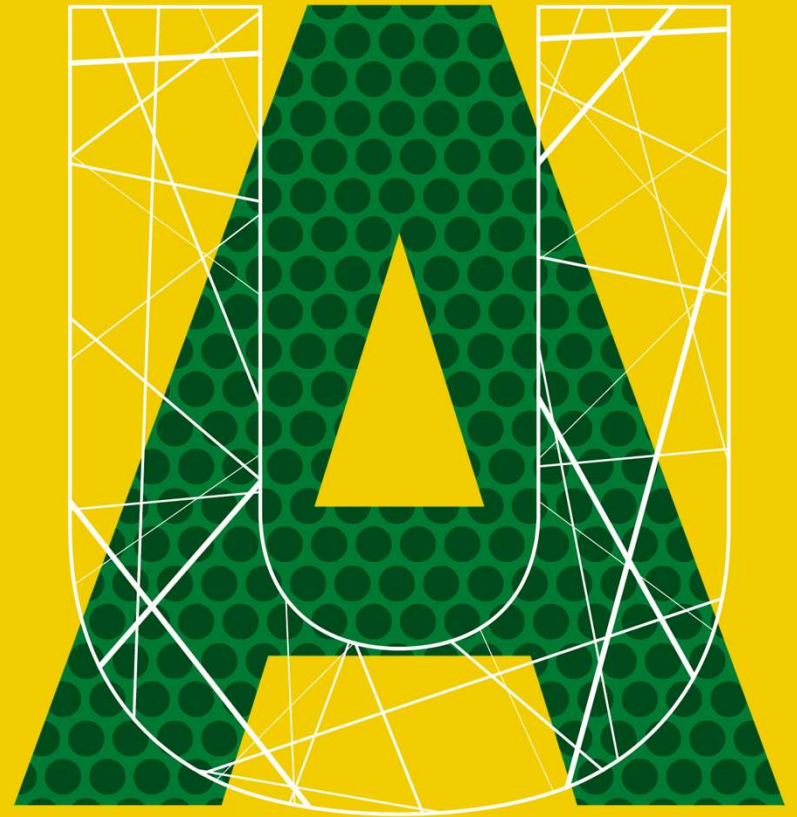


PROSTATE CANCER SCREENING

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Prostate cancer research



UNIVERSITY
OF ALBERTA



Outline

- Review the following aspects of prostate cancer screening:
 - **The data behind it**
 - **The guideline recommendations**
 - When to start
 - When to stop
 - How to do it
 - **Your patient has now screened positive – what's next?**

Evidence behind screening

	PLCO (2017 update)¹⁵	ERSPC (2014 update)¹⁶	Goteborg (2014 update)¹⁷
n	76 683	162 243	20 000
Age	55–74	55–69	50–64
Site	10 US centers	8 European countries	1 city (Goteborg, Sweden)
Intervention	PSA annually x 6 years annual DRE x 4 years	PSA q4 years (in most centers) Some centers offered DRE	PSA q2 years
Current median followup	15 years	13 years	18 years
Definition of positive test	PSA >4 ng/ml Abnormal DRE	PSA>3 ng/ml (most centers)	PSA >2.5 ng/ml (from 2005 on) PSA >2.9 ng/ml (from 1999–2004) PSA>3.4 ng/ml (from 1995–98)

Evidence behind screening

	PLCO (2017 update)¹⁵	ERSPC (2014 update)¹⁶	Goteborg (2014 update)¹⁷
Prostate cancer deaths	Control: 244 Screened: 255	Control: 545 Screened: 355	Control: 122 Screened: 79
Rate ratio for CSS (95% CI)	1.04 (0.87–1.24)	0.79 (0.69–0.91) 21% relative risk reduction in favor of screening	0.58 (0.46–0.72) 42% relative risk reduction in favor of screening
NNS	N/A	1:781	1:139
NND	N/A	1:27	1:13

CSS: Prostate cancer-specific survival; DRE: digital rectal exam; ERSPC: European Randomized Study of Screening for Prostate Cancer; NNS: number needed to screen; NND: number needed to diagnose; PLCO: Prostate, Lung, Colon, and Ovarian screening trial; PSA: prostate-specific antigen.

2014 – Guidelines (US and Canadian)

Based on the PLCO study (US study) prostate cancer screening **recommended against**

2016 - Major contamination in PLCO



The NEW ENGLAND
JOURNAL of MEDICINE

CORRESPONDENCE

Reevaluating PSA Testing Rates in the PLCO Trial

Randomized to PSA+DRE annually vs. usual care

Usual care group: **90%** of men received PSA test

Evidence behind screening

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2022 - Canadian Urology Association

CUA GUIDELINE

UPDATE – 2022 Canadian Urological Association
recommendations on prostate cancer screening and
early diagnosis



2022 - Canadian Urology Association

When to start:

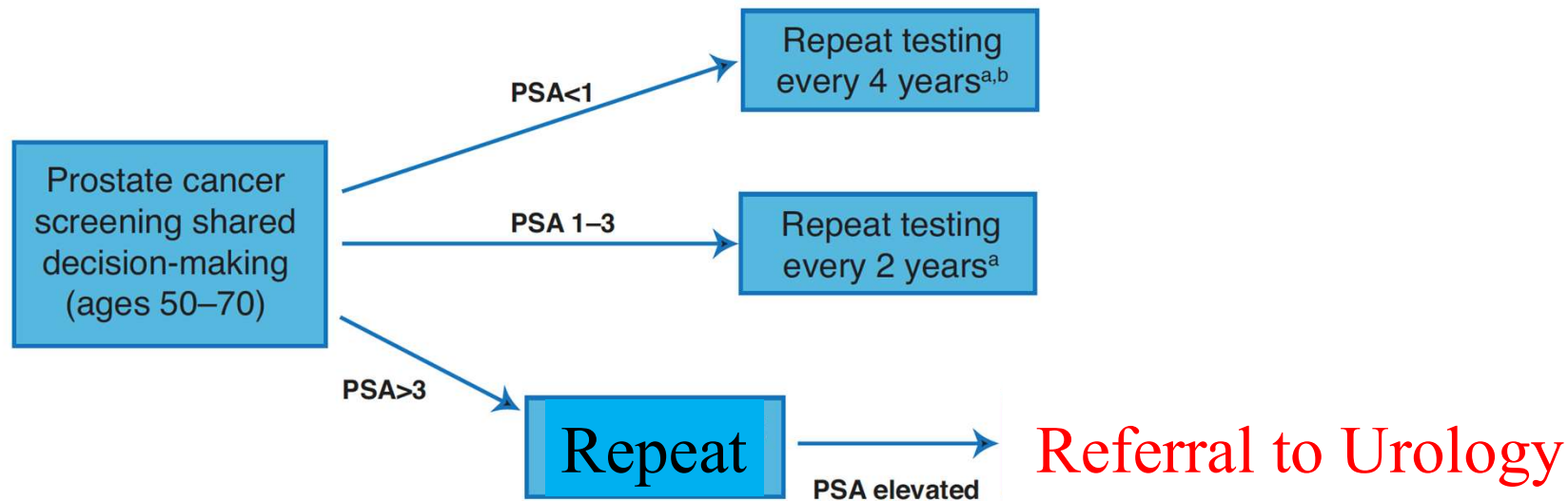
1. Life expectancy >10 years
2. **Age 50**
3. Age 45 if first degree relative with PCa or known BRCA 1 or BRCA 2 mutation

2022 - Canadian Urology Association

When to stop:

1. Life expectancy <10 years
2. **Age 70**
3. Age 60 if PSA < 1

2022 - Canadian Urology Association

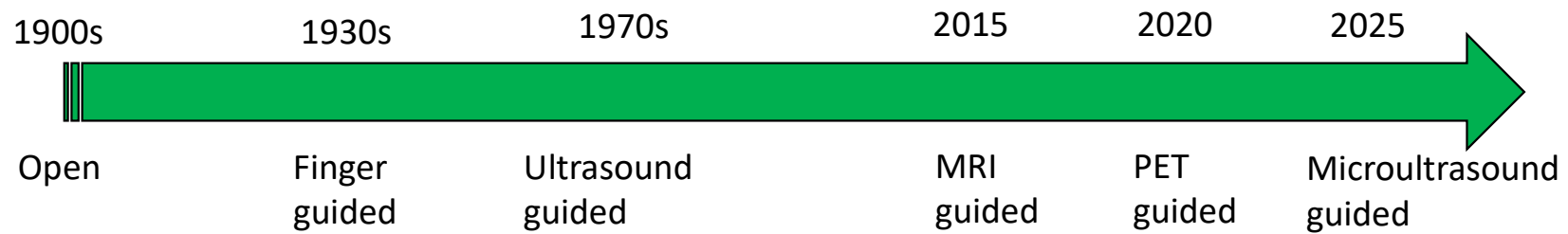


Urological Assessment

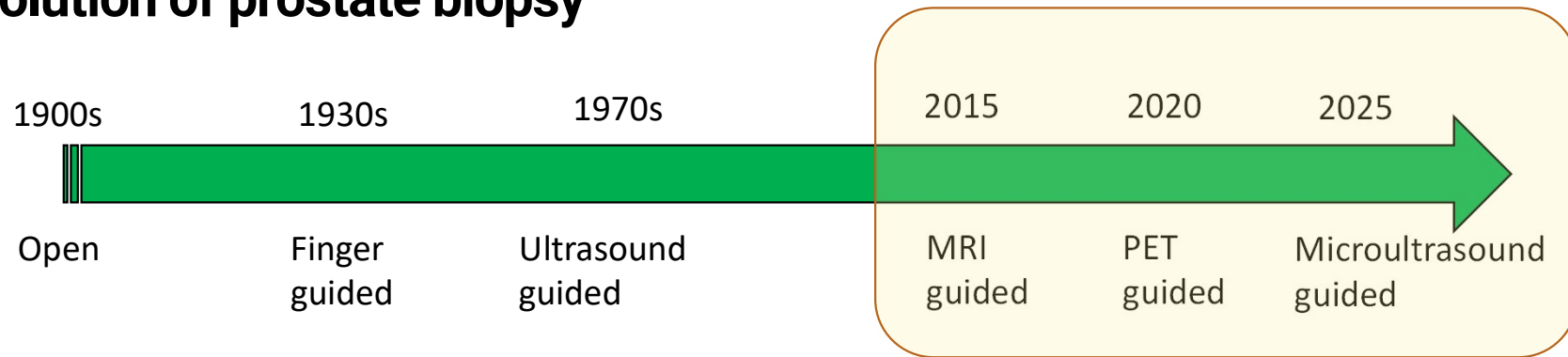
Urology consultation:

1. Life expectancy >10 years based on co-morbidities
2. Family history of prostate cancer?
3. Ethnicity
4. PSA, PSA density
5. DRE
6. Anticoagulation status
7. Biopsy

Evolution of prostate biopsy



Evolution of prostate biopsy



Urological Assessment

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If felt to be at elevated risk of prostate cancer then next step is **prostate MRI**

Urological Assessment

Urology consultation:

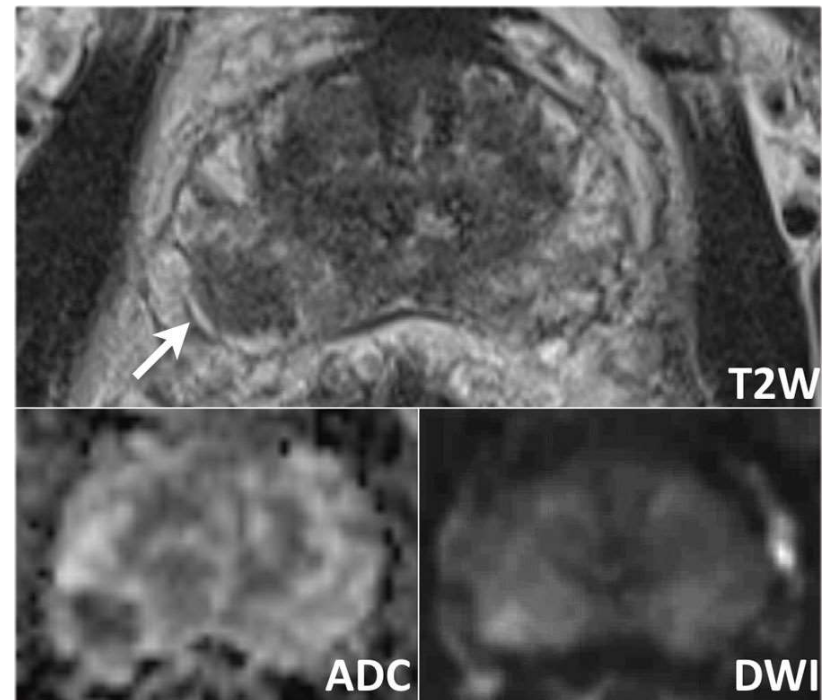
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- ~~7. Biopsy~~

If felt to be at elevated risk of prostate cancer then next step is **prostate MRI**
Currently can only be ordered by a Urologist unless done privately

Multiparametric MRI

Take home points:

1. Likert score of 1 to 5
2. 1+2 = negative
3. 3, 4, 5 = biopsy required
4. 93% sensitivity for GG3 cancer
5. 75% sensitivity for GG2 cancer



Infrastructure award

- State-of-the-art imaging and biopsy equipment

MRI/ultrasound biopsy



UroNAV

High resolution microultrasound



ExactVU

Infrastructure award

- State-of-the-art imaging and biopsy equipment

MRI/ultrasound biopsy

High resolution microultrasound

We performed **>800** advanced imaging guided prostate biopsies in the **last year** using this new technology

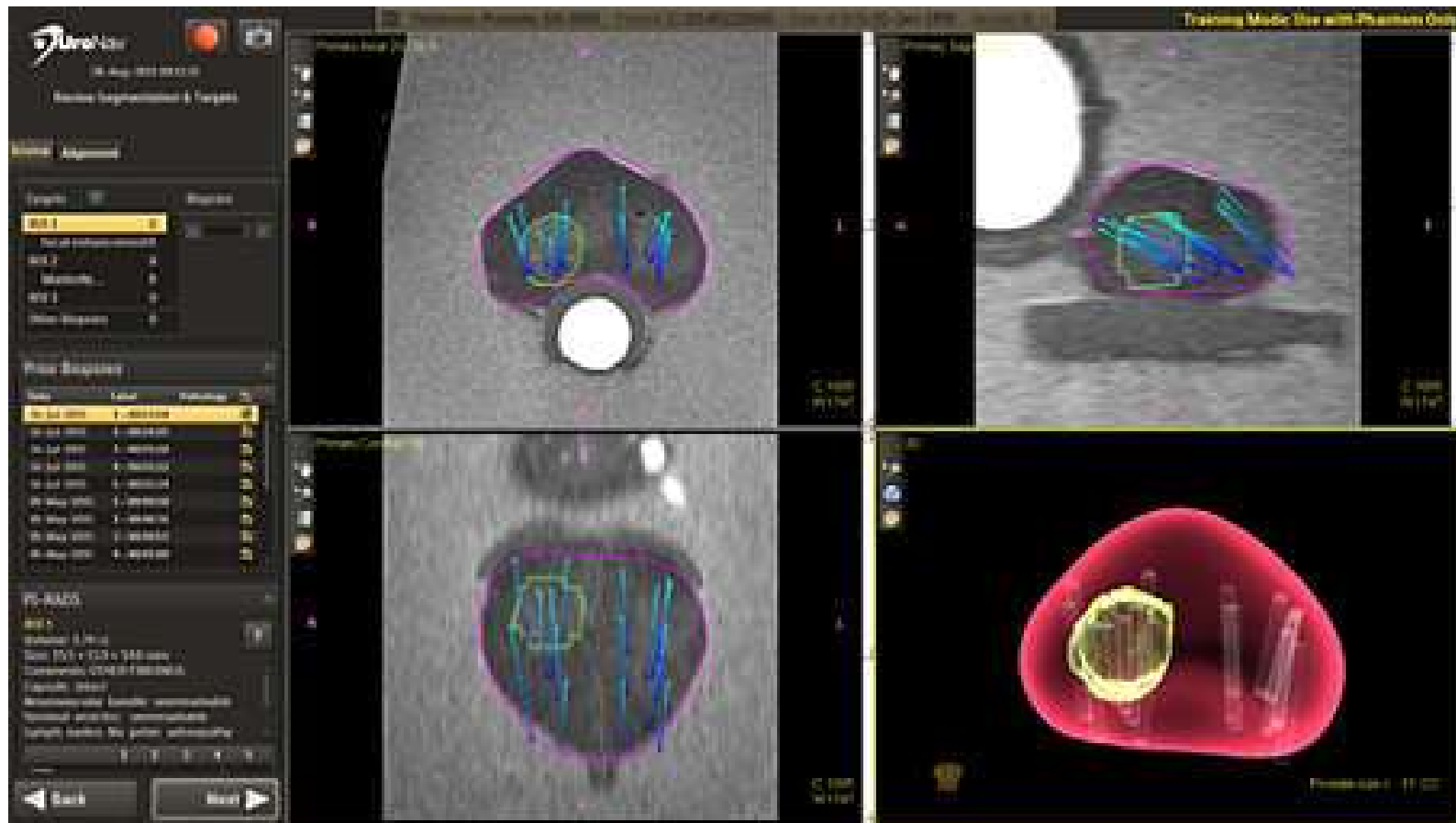


UroNAV

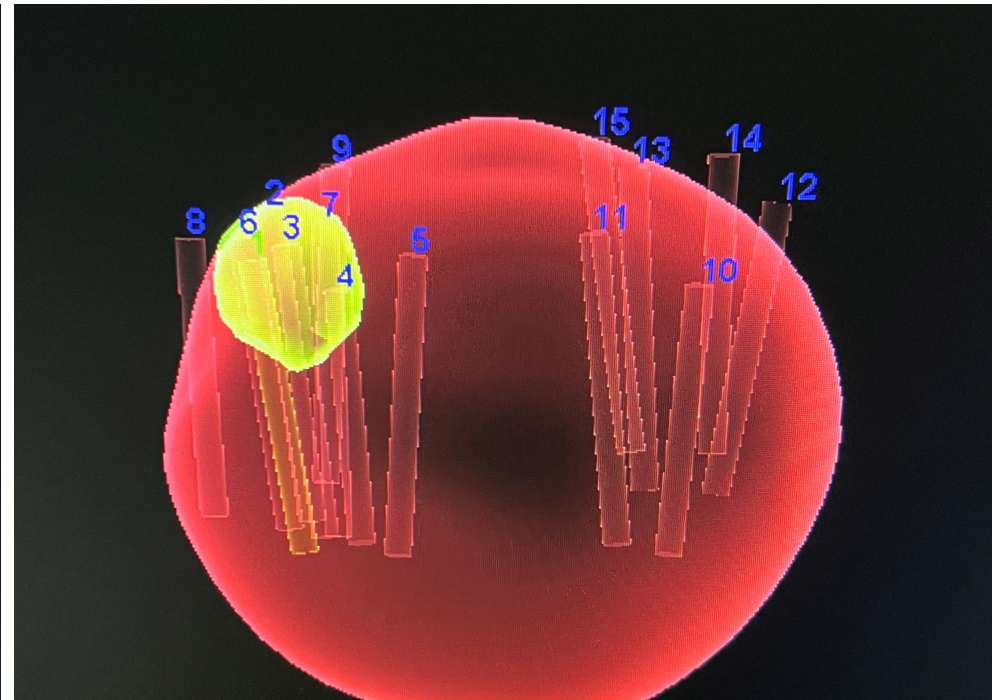
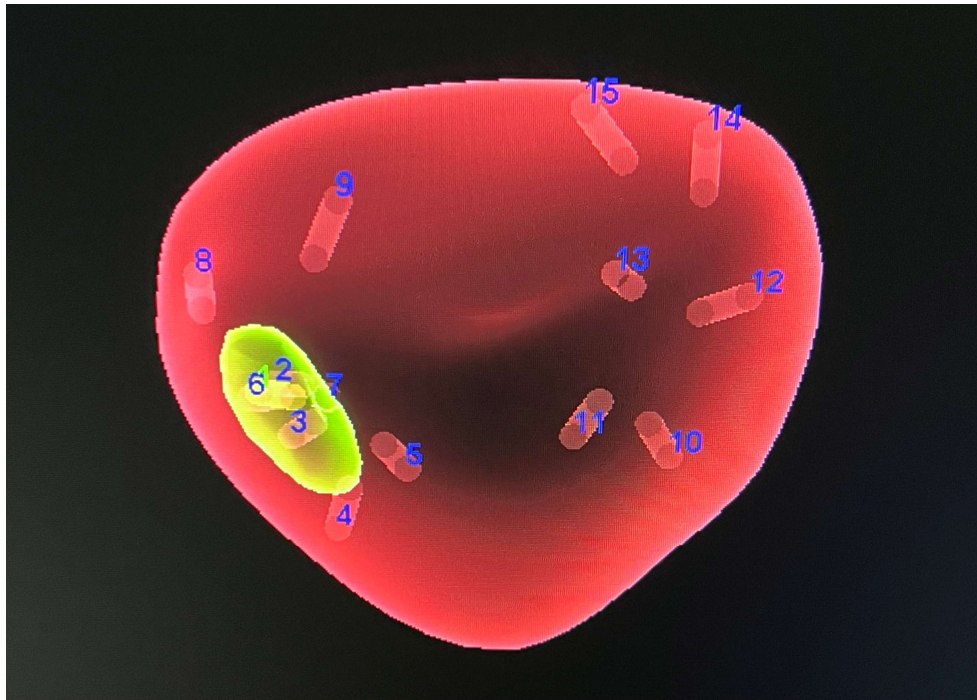


ExactVU

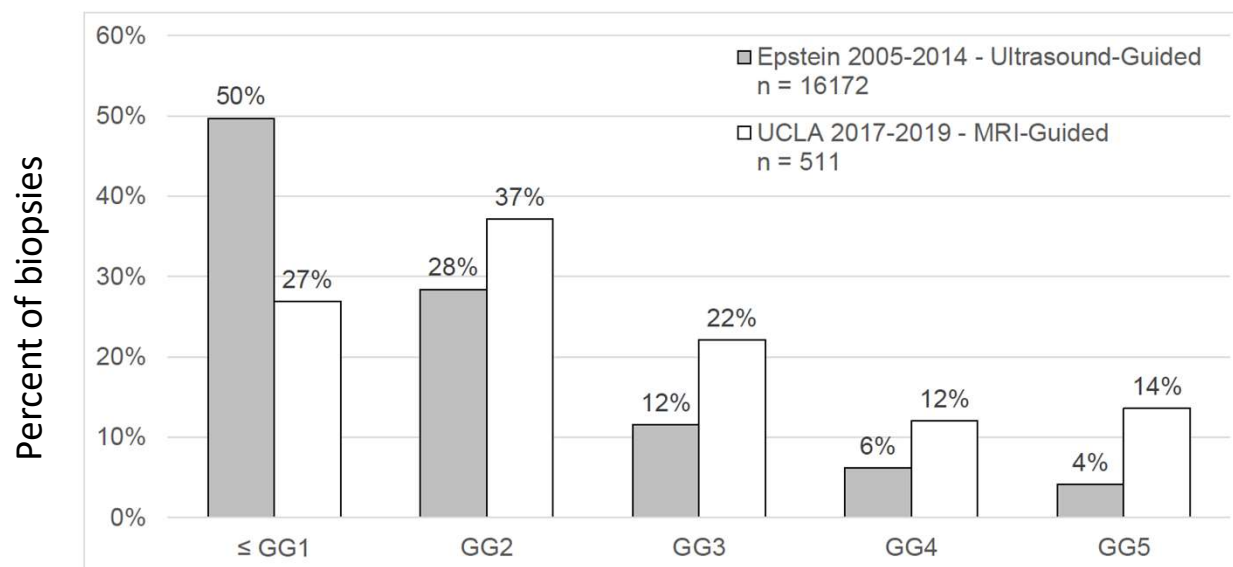
MRI/US fusion biopsy



MRI/US fusion biopsy



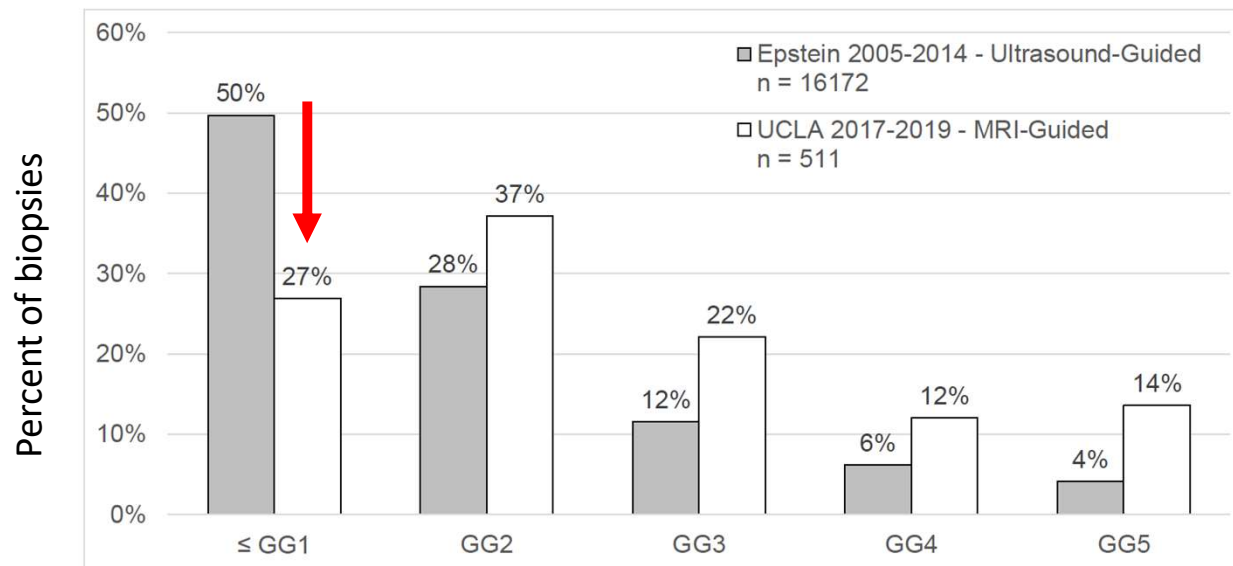
MRI/US fusion biopsy



¹Chuang*, Kinnaird* et al. 2020 J Urol

*Co-first authors

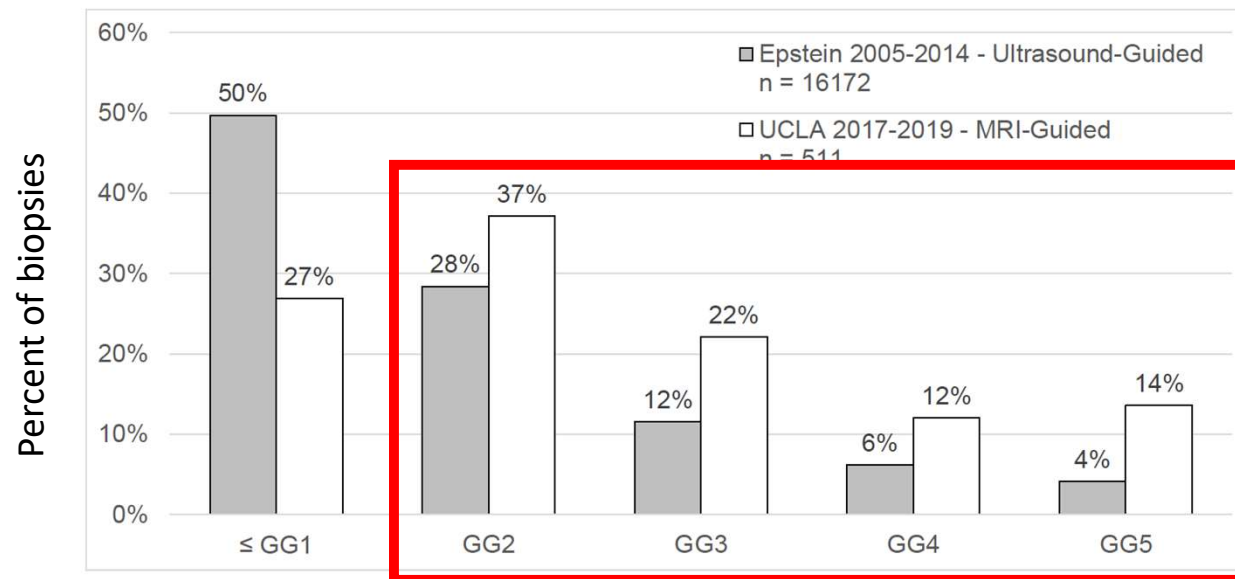
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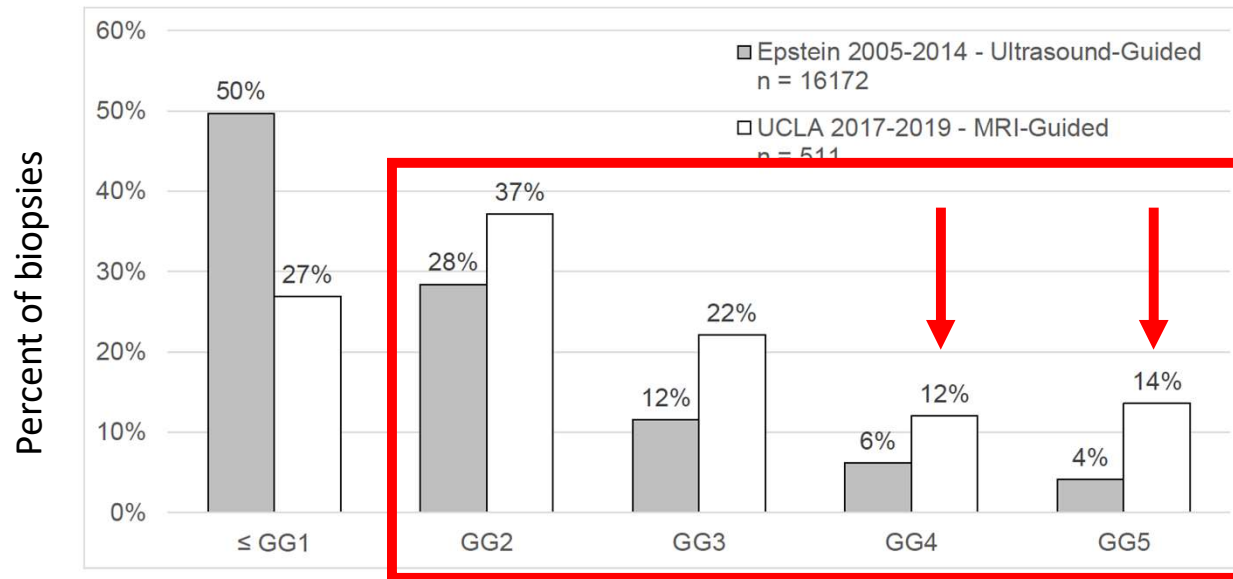
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Summary

Prostate cancer screening:

1. You should do it!
2. Ages 50 to 70
- 3. Stop at 70**
4. Stop if life expectancy <10 years
5. PSA + DRE q1 to 4 years depending on last PSA value