

Advanced imaging to advance prostate cancer treatment

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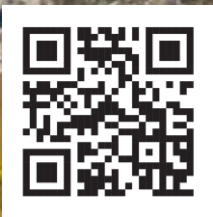
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Disclosures

- Academic affiliations

- University of California San Diego
- VA San Diego
- University of Oslo

- Industry relationships

- GE Healthcare
- Varian
- Cortechs.ai
- Janssen
- WebMD
- Quibim
- Veracyte
- MJH Life Sciences
- Blue Earth Diagnostics
- Lantheus
- AIRA Matrix
- MyOme
- MD Education USA
- OpenMedicine
- Myriad
- MdxHealth



Listen to your patients...

- Worst part of treatment for high-risk prostate cancer?
 - **Androgen deprivation therapy (ADT)**



Status quo

Intermediate Risk



RT to Prostate
ADT x4-6 months

High Risk



RT to Prostate
ADT x18-36 months

Metastatic



ADT + ARPI
RT to Prostate



Will Rogers strikes again

Intermediate Risk



RT to Prostate
ADT x4-6 months

-MRI-guided biopsy
-T3 on MRI



High Risk

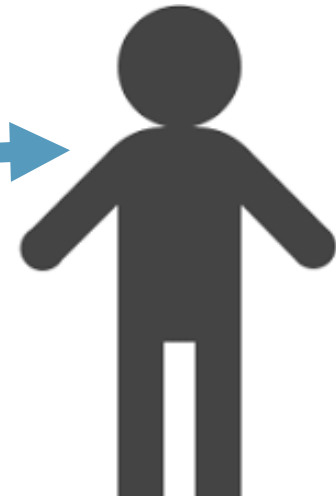


RT to Prostate
ADT x18-36 months

-PSMA PET



Metastatic

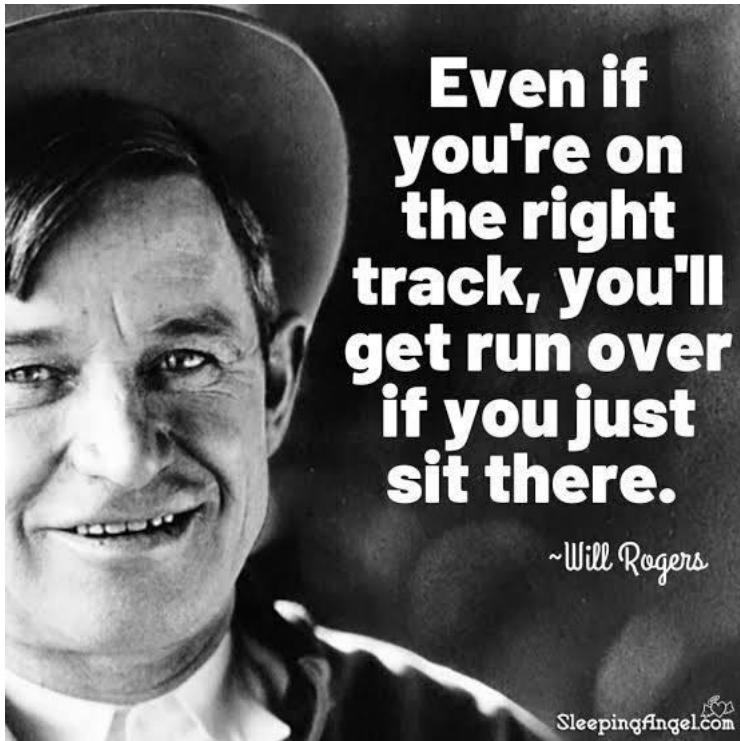


ADT + ARPI
RT to Prostate



Can we move the needle?

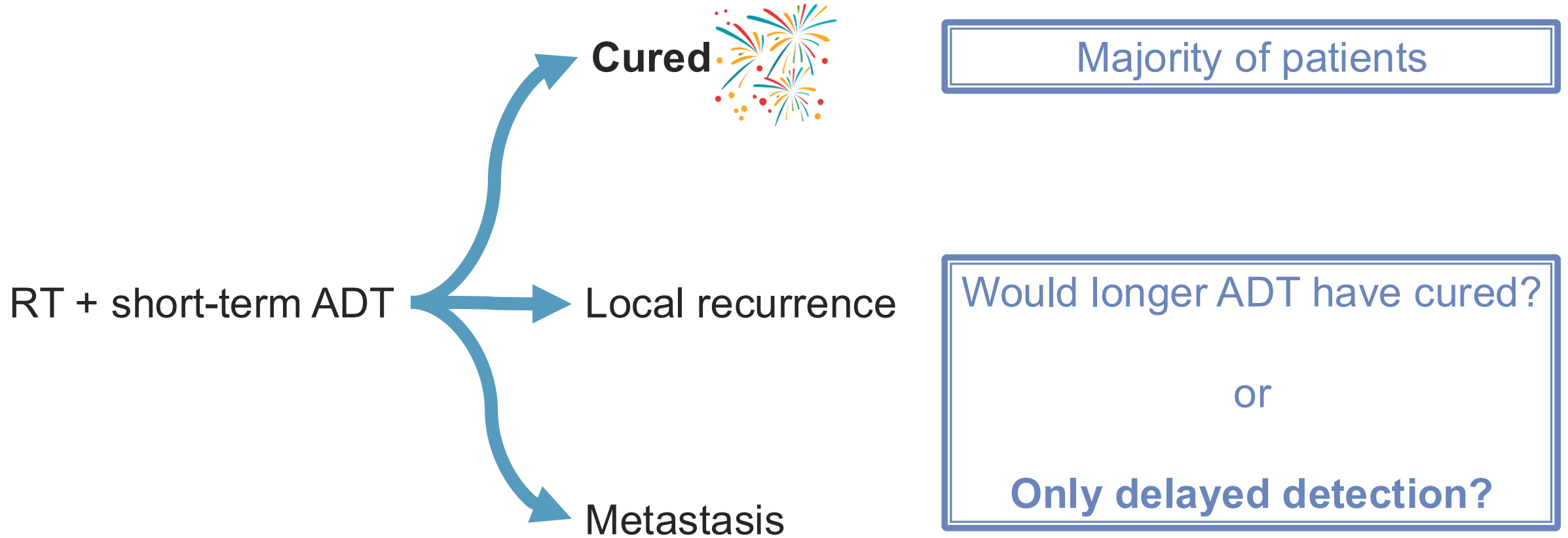
- Long-term ADT
 - A high bar to clear for superiority
 - Hard on patients
 - Overtreatment for many of today's high-risk prostate cancers



It's time to see if we can move beyond long-term ADT for high-risk, localized prostate cancer



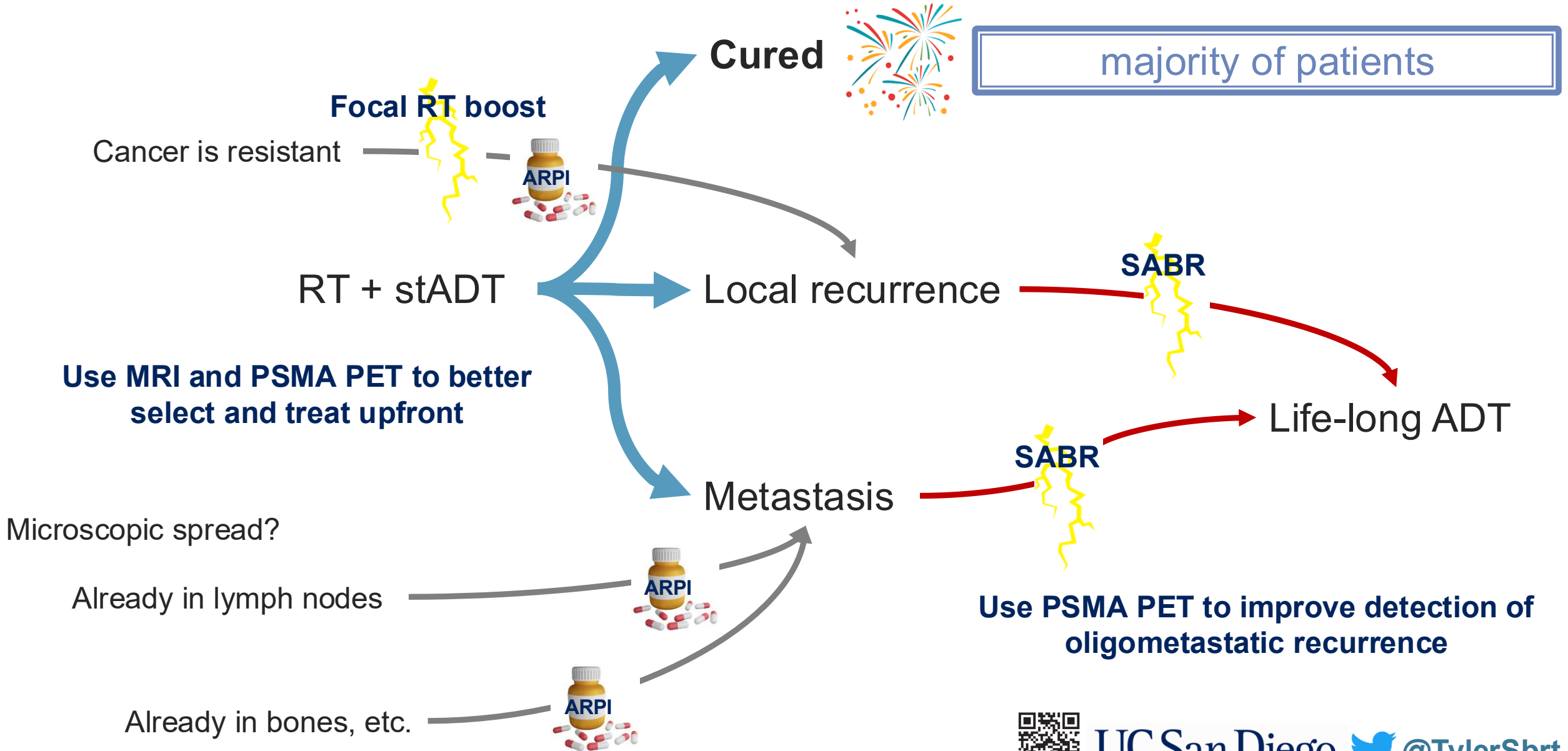
High-risk prostate cancer



What if we only gave short-term ADT with RT?



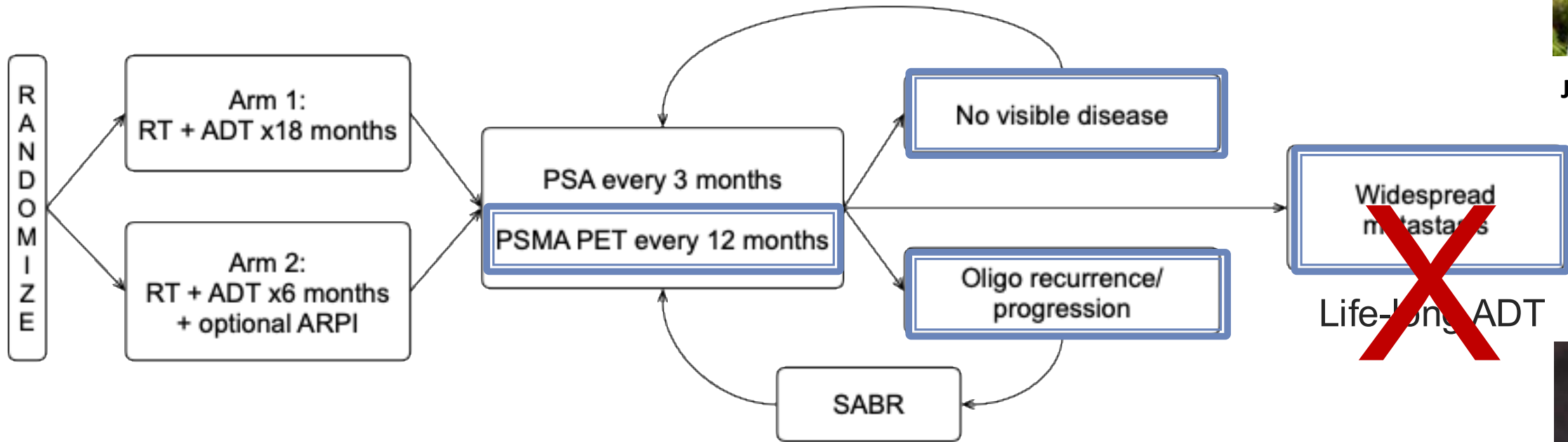
SENTRY trial



Strategic ENdocrine therapy and Targeted RadiotherapY (SENTRY)



Jazmyne Tabb



- Key Eligibility Criteria 
 - High-risk prostate cancer
 - PSMA PET: no metastasis

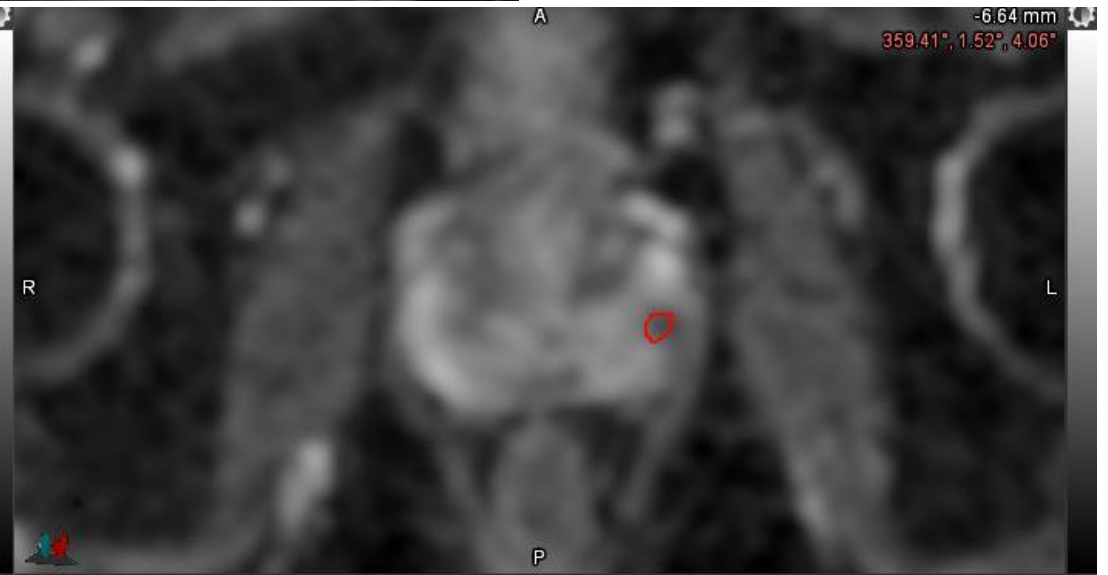
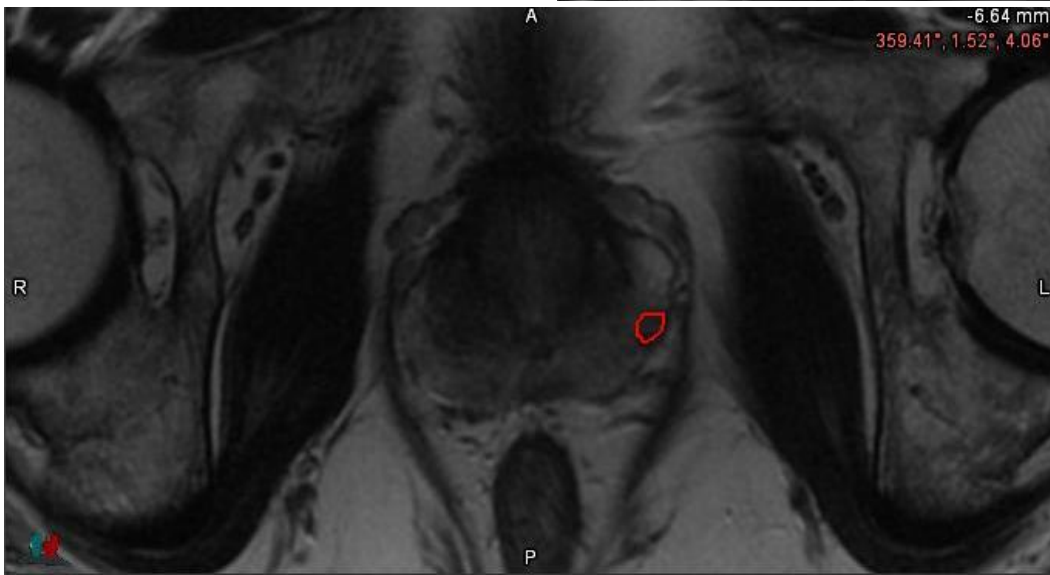
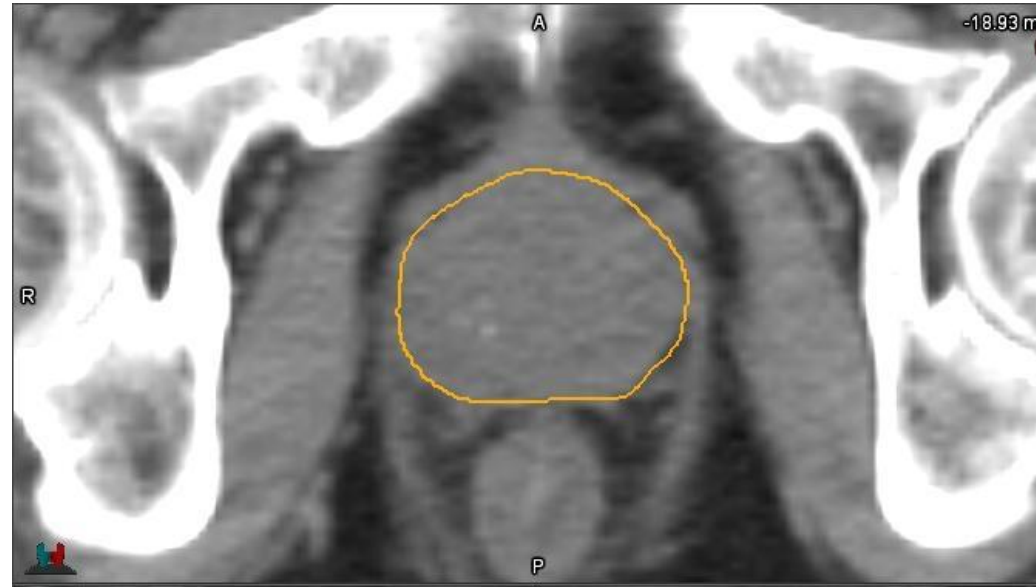
- Key Endpoints 
 - **5-year Failure-Free Survival**
 - Failure = salvage ADT or castration resistance
 - PROs, MFS, CSS, OS



Anna Dornisch



Radiotherapy for prostate cancer -- what is the target?



FLAME trial: focal radiation boost for prostate cancer

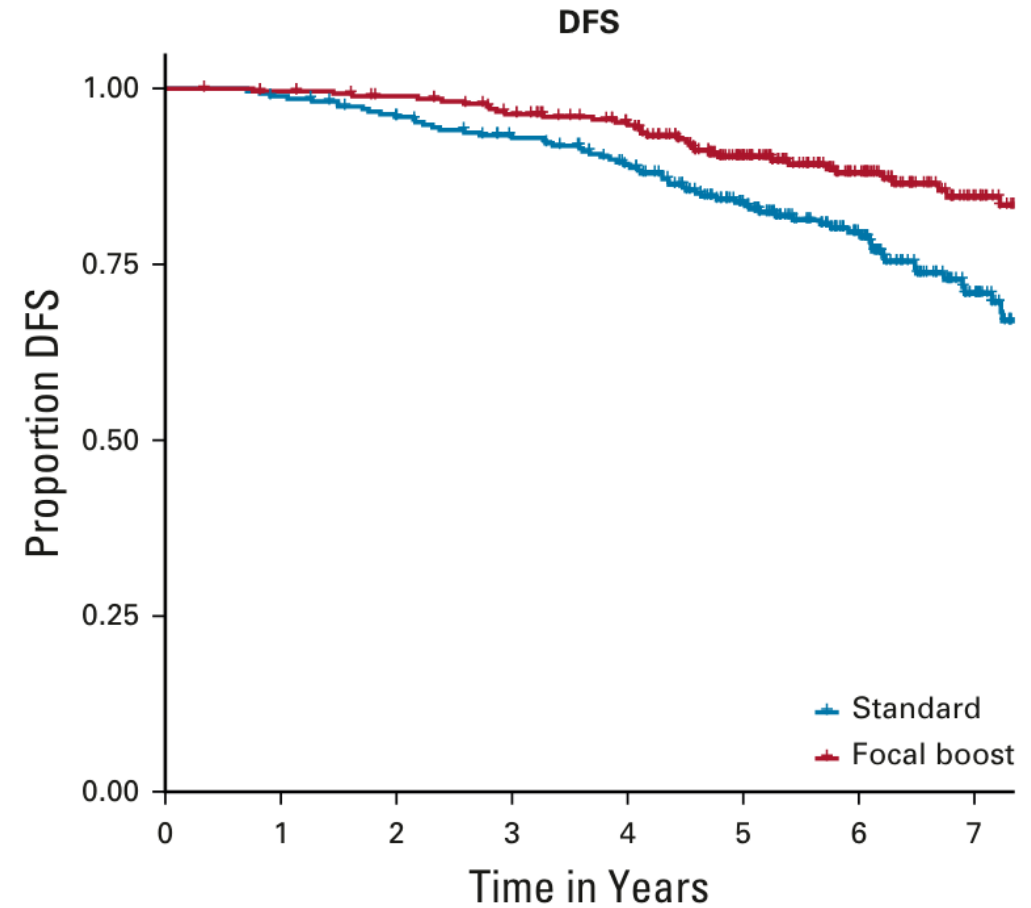
“Full dose” to whole prostate



Focal boost to tumor



- Focal boost group had:
 - **67% lower local recurrence**
 - **44% less regional or distant metastatic disease**
 - **No increase in adverse events** (only boosted as could be safely achieved)



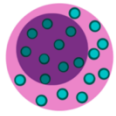
FLAME trial analysis of local recurrences

- If the cancer recurred in the prostate after treatment (uncommon)...
 - **It was almost always in the same location as the original tumor**
- Of 571 participants in both arms, 28 had intra-prostatic recurrence
 - **4.9% overall**
 - 7.7% in standard arm
 - 2.7% in focal boost arm
- Imaging available to determine location of recurrence in 24 of the 28
 - **23 of 24 recurred in the GTV**

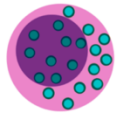
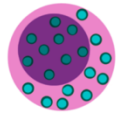


Restriction Spectrum Imaging (RSI) – RSI restriction score (RSIrs)

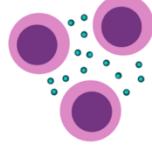
Diffusion compartments



Intracellular restricted diffusion (C_1)



Extracellular hindered diffusion (C_2)



Free diffusion (C_3)



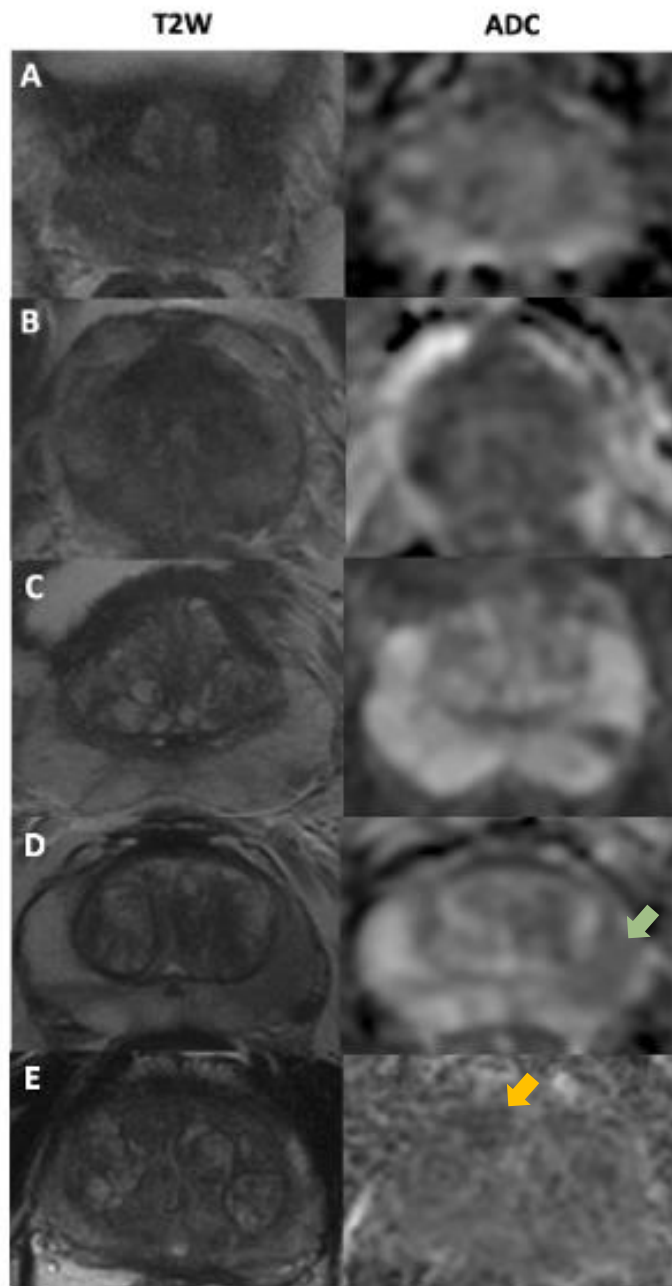
Flow (C_4)



Time

2-3 minutes on a standard clinical scanner





RSIrs alone

RSIrs overlaid on T2W

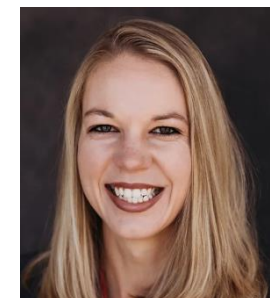
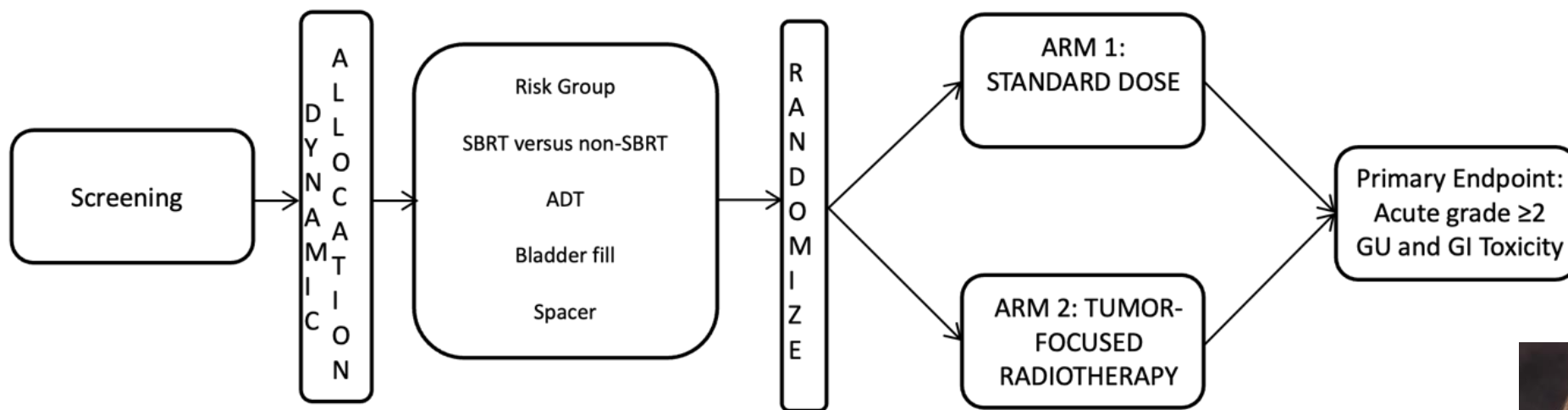
WMHP



Peek into the future of prostate radiotherapy?



Radiation Dose TailoRing Guided by Enhanced Targeting (RadTARGET)



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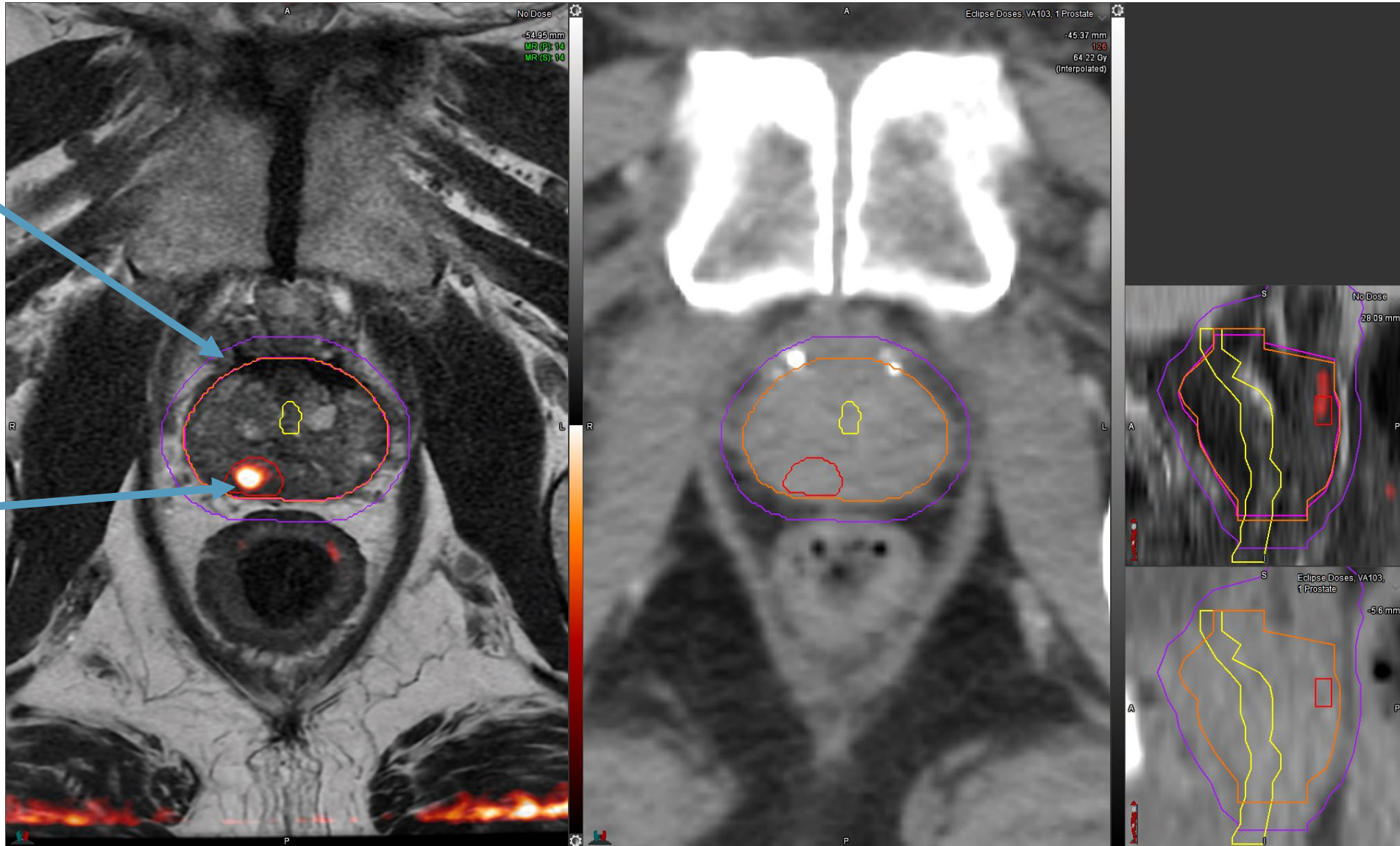


RadTARGET: standard radiotherapy



70 Gy / 28fx
(40 Gy / 5fx)

84 Gy / 28fx
(45 Gy / 5fx)



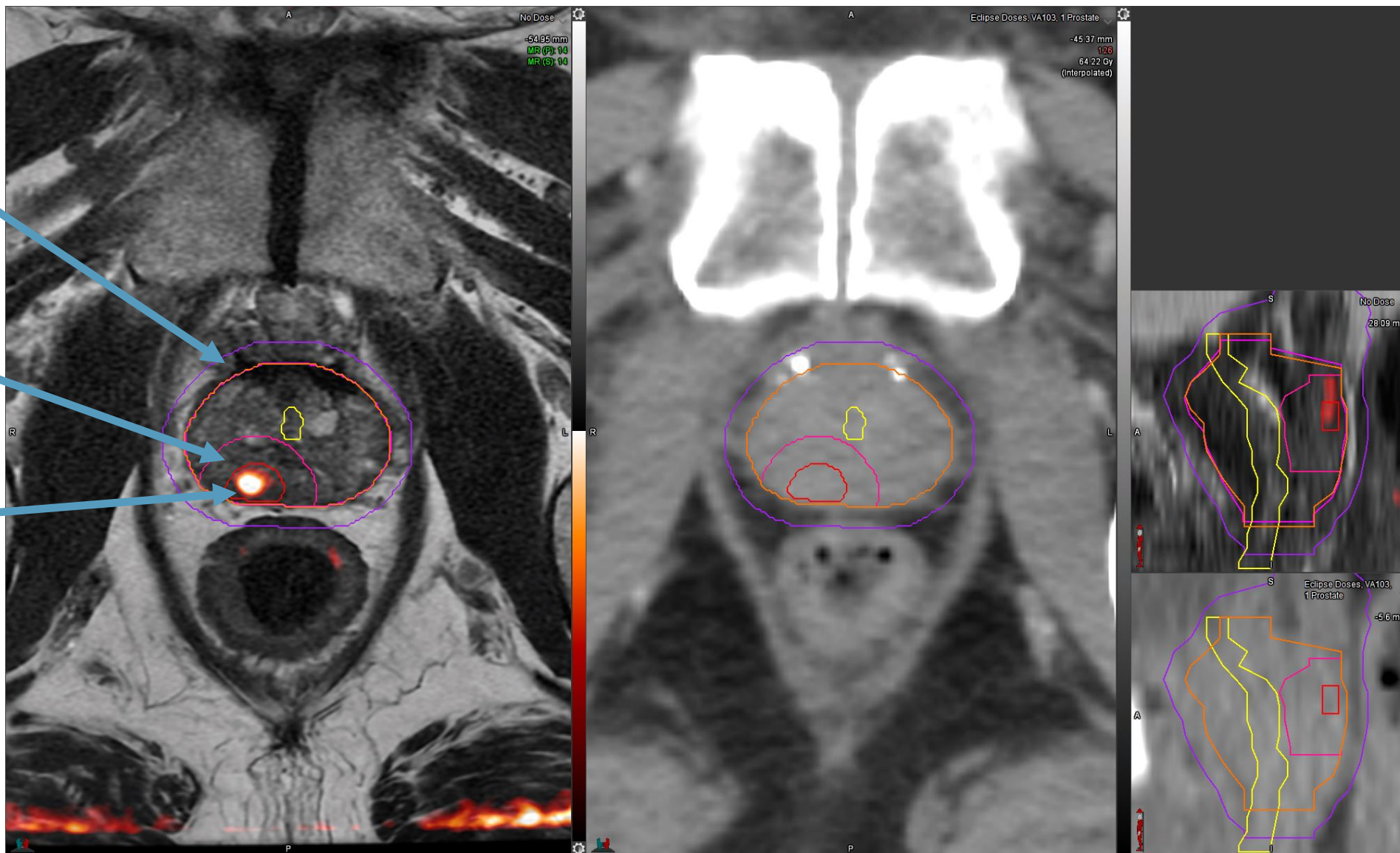
RadTARGET: tumor-focused radiotherapy



56 Gy / 28fx
(30 Gy / 5fx)

70 Gy / 28fx
(40 Gy / 5fx)

84 Gy / 28fx
(45 Gy / 5fx)



RadTARGET: tumor-focused radiotherapy



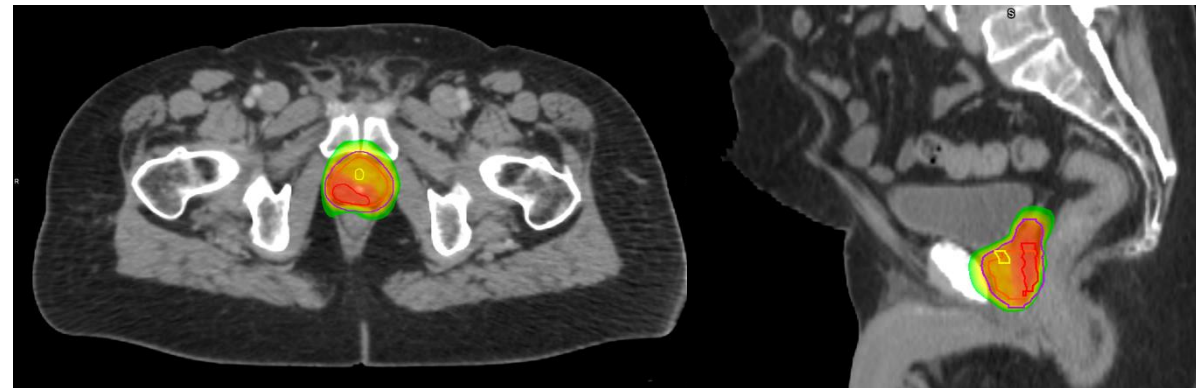
FLAME

“Full dose” to whole prostate

Focal boost to tumor



(most common today)



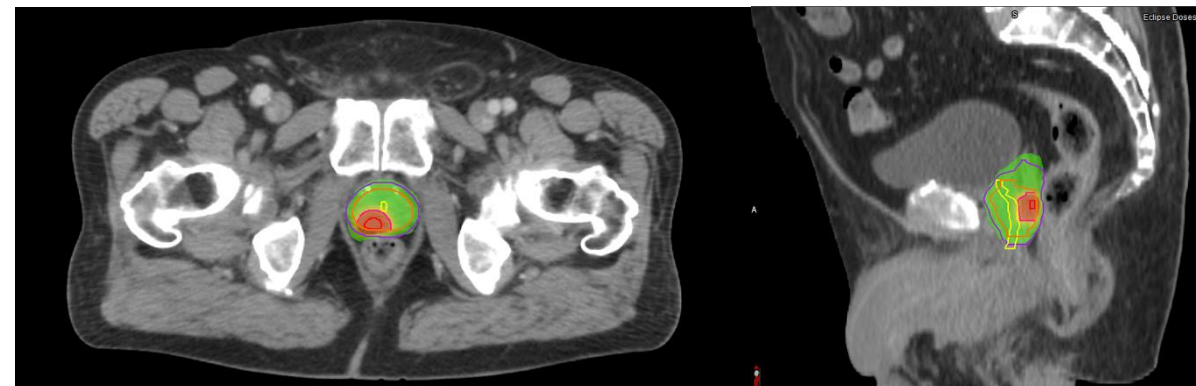
RadTARGET

Tumor-focused radiotherapy

■	84.00 (Gy)
■	74.00 (Gy)
■	70.00 (Gy)
■	55.00 (Gy)



RSIrs biomarker



Conclusions

- We can leverage **advanced imaging** to improve the **precision** and **efficacy** of prostate cancer treatment
- Clinical trials are the key to progress
- THANK YOU to:
 - patients who participate in trials
 - physicians who offer them the opportunity to do so

