# MP 37-17

# CHANGING PATTERNS AND PREDICTORS OF SALVAGE RADIATION THERAPY USE OVER TIME IN PATIENTS TREATED FOR POST-PROSTATECTOMY BIOCHEMICAL RECURRENCE: A TREND ANALYSIS OVER A 20-YEAR PERIOD FROM A MULTI-INSTITUTIONAL SERIES





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# INTRODUCTION

A rapidly changing scenario in the management with PSA rising after radical (RP) prostatectomy determined may different patterns of salvage radiation therapy (SRT) use over the last two decades.

We aimed to define patterns and predictors of SRT administration relative to timing of treatment, PSA level, and biochemical outcome after SRT.

## MATERIALS AND METHODS

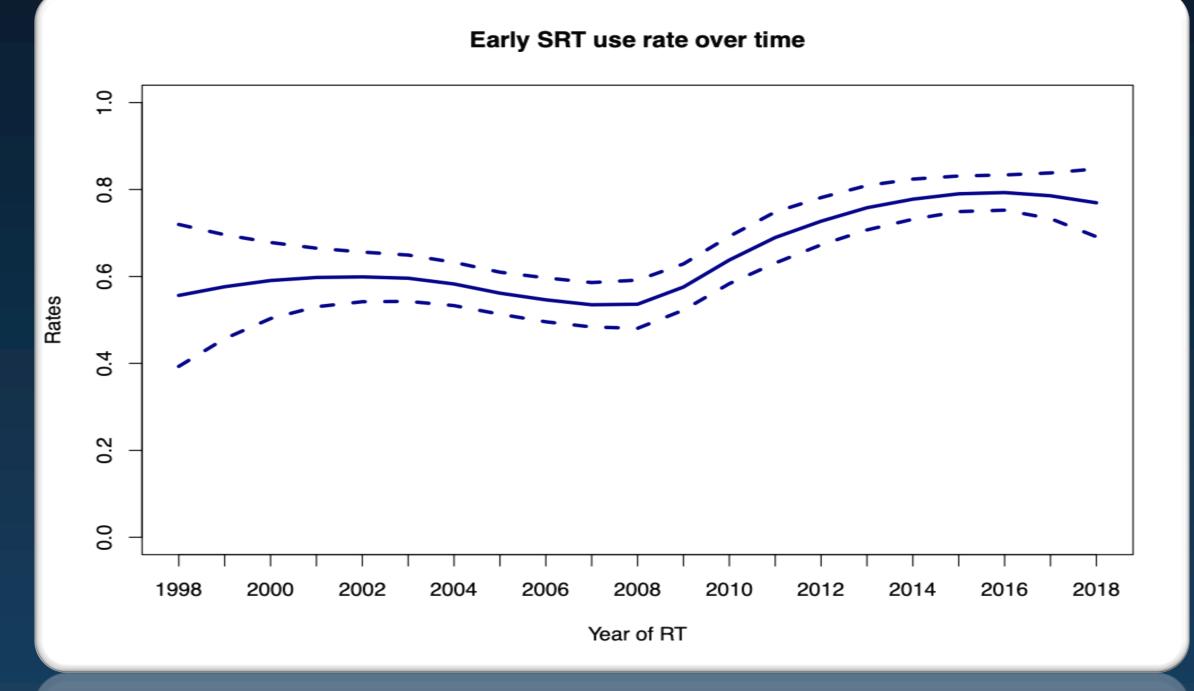
We included 1455 patients who received post-RP local radiation to the prostatic and seminal vesicle bed at seven tertiary referral centres for PSA rise over the last two decades (1998- 2018). Timing of SRT was categorized as early (PSA level 0.5 ng/ ml; ESRT) or late (PSA level >0.5 ng/ml; LSRT). Cumulative incidence methods were used to asses 5-year biochemical recurrence (BCR) rates in patients with at least 5 years of follow-up (n=891).

Lowess analysis graphically represented the yearby-year trends in SRT type, median PSA level at SRT, and 5-year BCR after SRT. Logistic regression models (LoRM) were used to identify predictors of LSRT use. Covariates consisted of age at SRT, year of SRT, concomitant hormonal therapy (HT), pT stage, Gleason grade, and lymph nodal status.

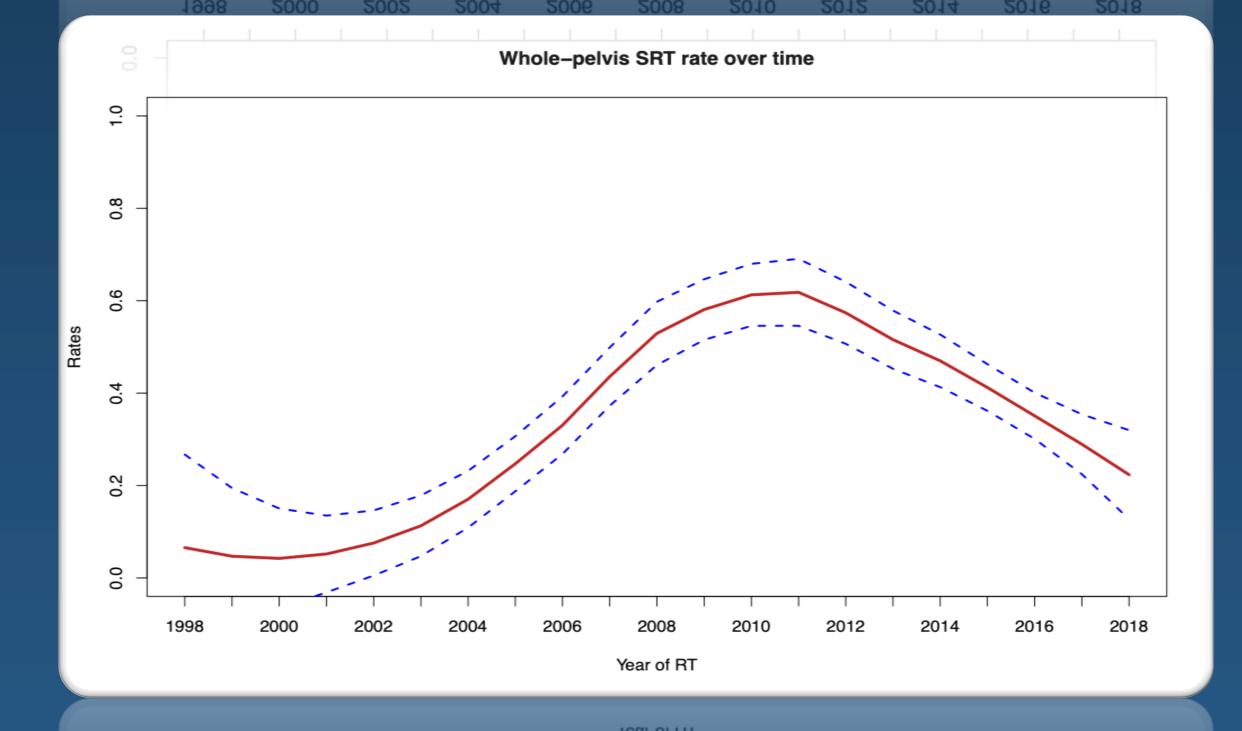
#### **Patients characteristics**

Variable	Overall, n=1455
Age at surgery, years	66 (62, 71)
Year of RT	2010 (2005, 2015)
Time from RP to RT , months	24 (11, 50)
Timing of SRT, n (%)	004 (07)
ESRT LSRT	981 (67) 474 (33)
Radiation therapy total dose, n (%)	
≤66 gy >66 gy	1,010 (73) 445 (27)
RT type, n (%)	
3D IMRT	1,052 (72) 403 (28)
Concomitant hormonal therapy use, n (%)	
No Yes	729 (50) 726 (50)
Biochemical recurrence post-RT, n (%)	
No Yes	1,056 (72) 399 (28)

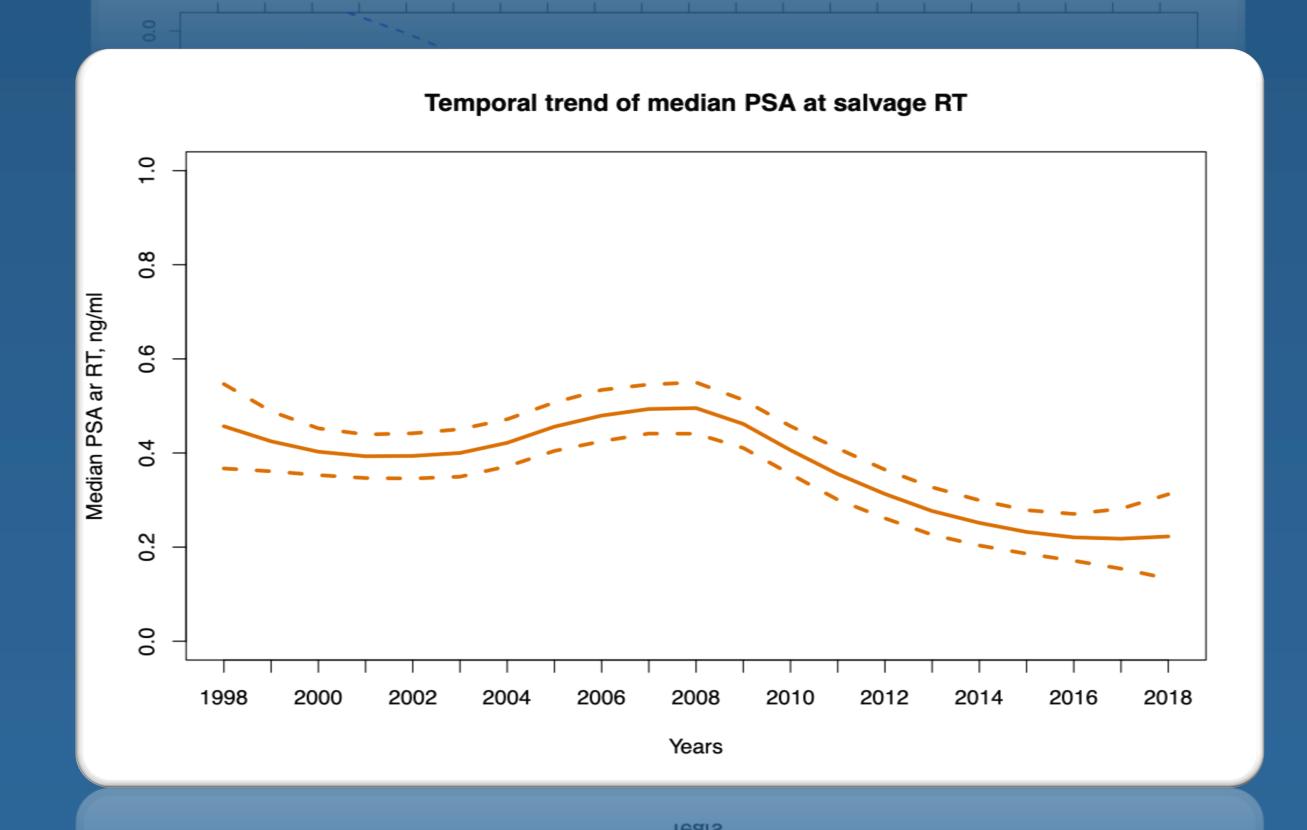
### Early salvage radiotherapy use rate



### Whole pelvis radiotherapy use rate



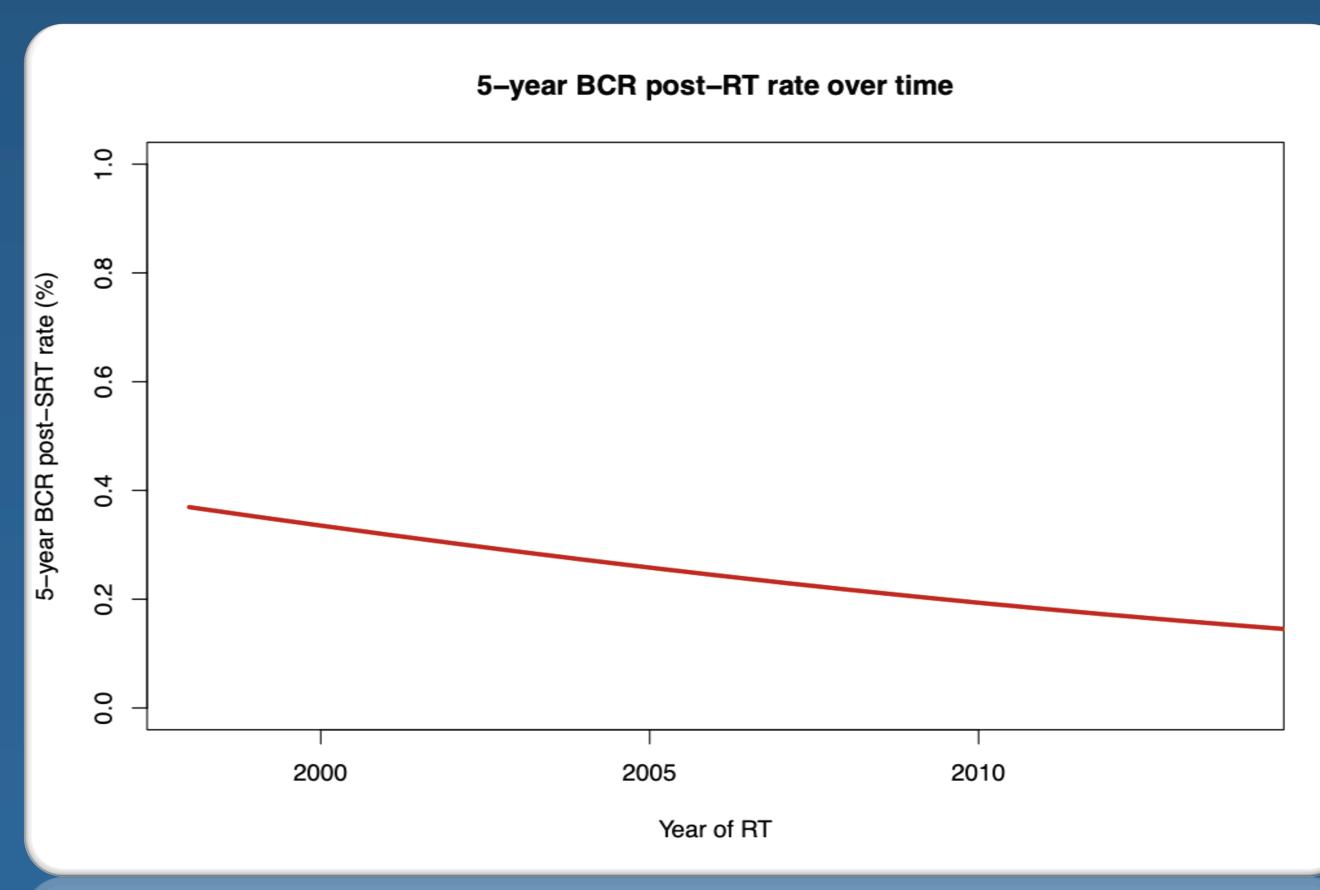
#### Median PSA at radiotherapy over time



#### Multivariable logistic regression model predicting use of ESRT

	Multivariable Model		
	HR	95% CI	p value
Age at RT	0.92	0.90-0.95	<0.001
Year of SRT	1.04	1.02-1.06	<0.001
HT use			
No	Ref		
Yes	1.79	1.37-2.34	<0.001
pN status			
pN0	Ref		
pN1	0.99	0.61-1.58	0.9
Pathological stage,			
pT2	Ref	<b></b> .	
≤ T3a	0.86	0.63-1.17	0.3
≥pT3b	1.12	0.78-1.59	0.5
Pathological GS,			
≤ 7	Ref		
8-10	0.96	0.70-1.30	0.8

## 5-year BCR post-RT rate over time



### CONCLUSIONS

The rate of patients treated with ESRT and WPRT steadily increased during the last two decades. This trend seems to be associated with an encouraging decreasing rate of post- SRT 5-yr BCR that was also confirmed at multivariable analyses. This trend highlights current practice of SRT, and reinforces the evidence on the association between ESRT and patient outcomes.