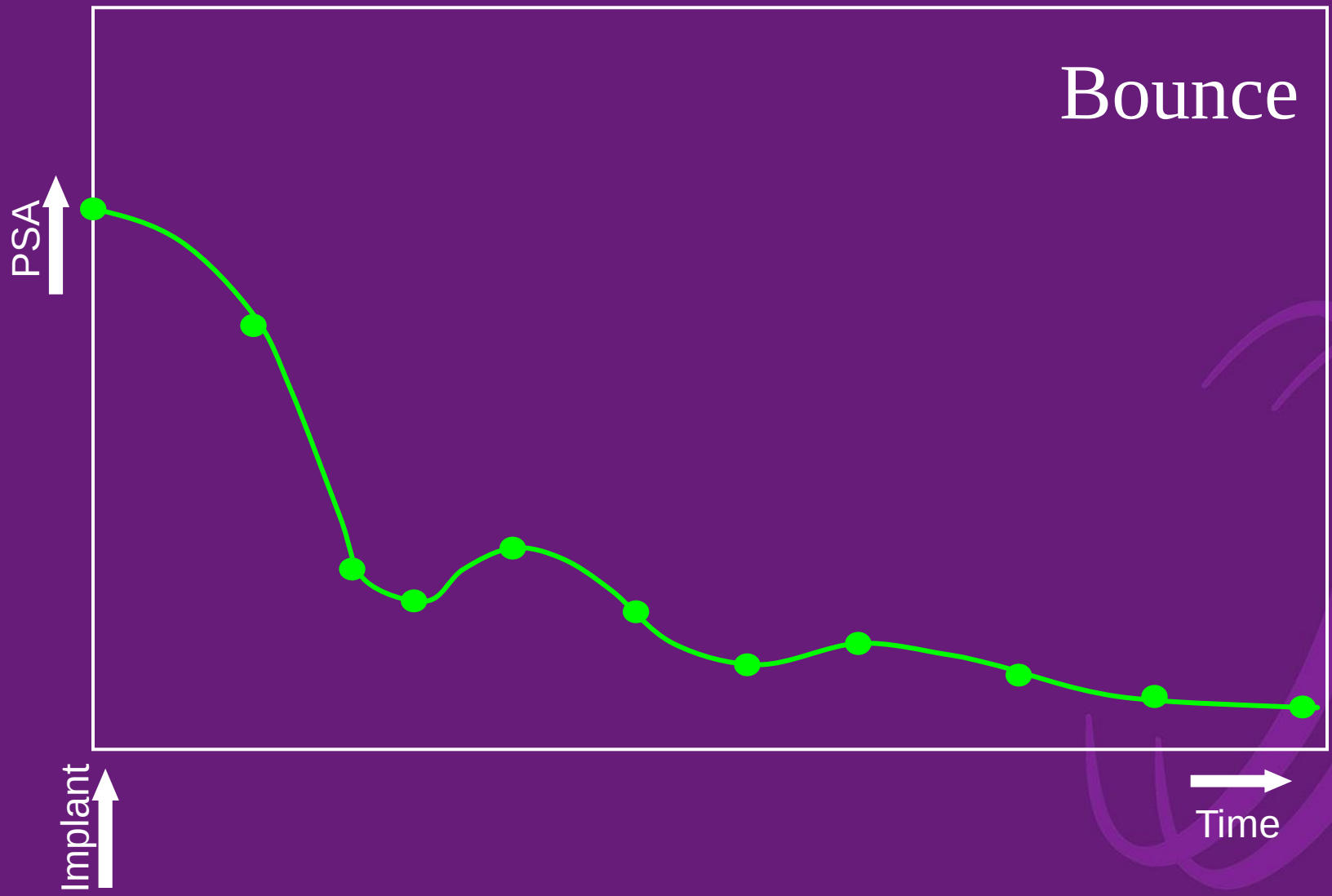
Rising PSA Post LDR Brachytherapy – Recurrence or Bounce

Dr Darren Mitchell
Consultant Clinical Oncologist
Northern Ireland Cancer Centre

HSC Belfast Health and Social Care Trust

Bounce



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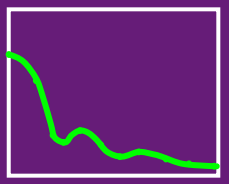
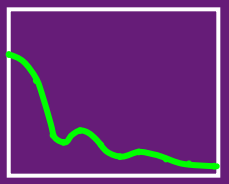
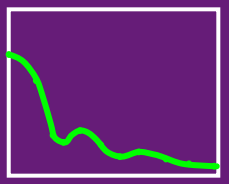


- A PSA bounce is defined as a rise of ≥0.2ng/ml above an initial nadir with subsequent decline to or below that initial nadir without treatment.

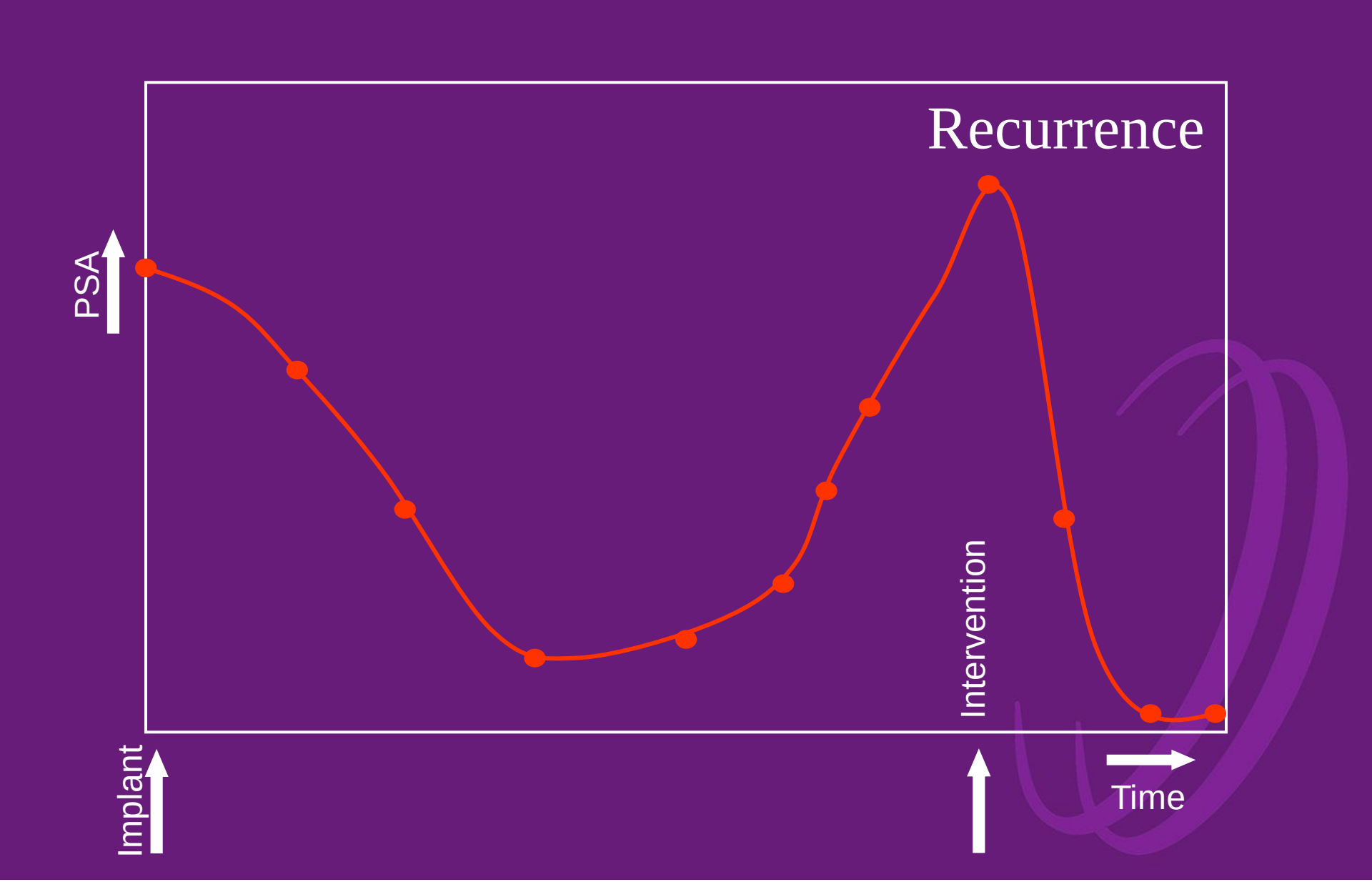


- Different levels have been used
  - 0.1ng/ml
  - 0.2ng/ml
  - 0.4ng/ml
  - >35% above the preceding nadir

Aetiology?



- Bacterial or radiation prostatitis
- Late radiation effect
- Persisting radiation proctitis
- Recent ejaculation
- Recent instrumentation
- Micro-vascular fibrosis/infarction



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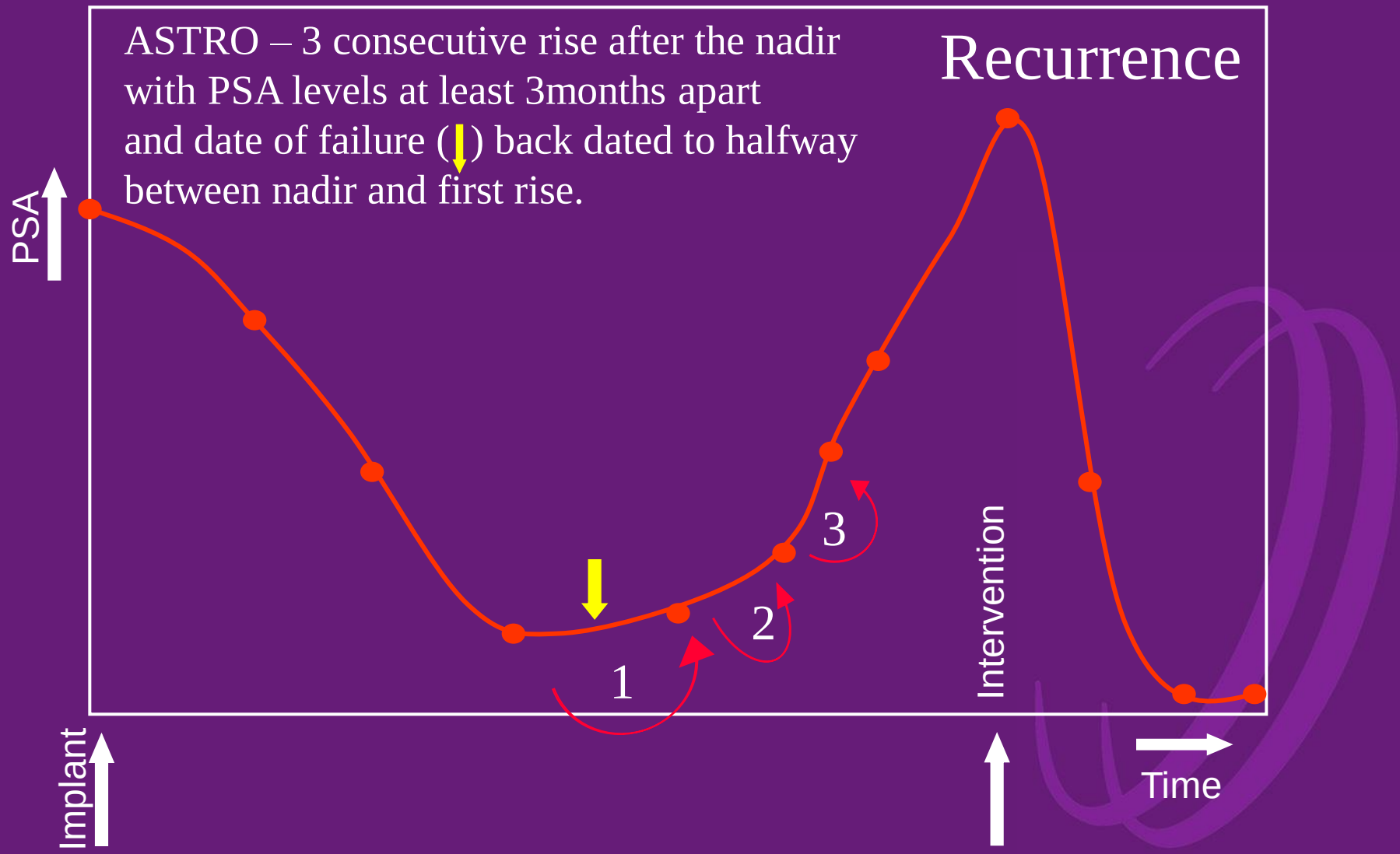

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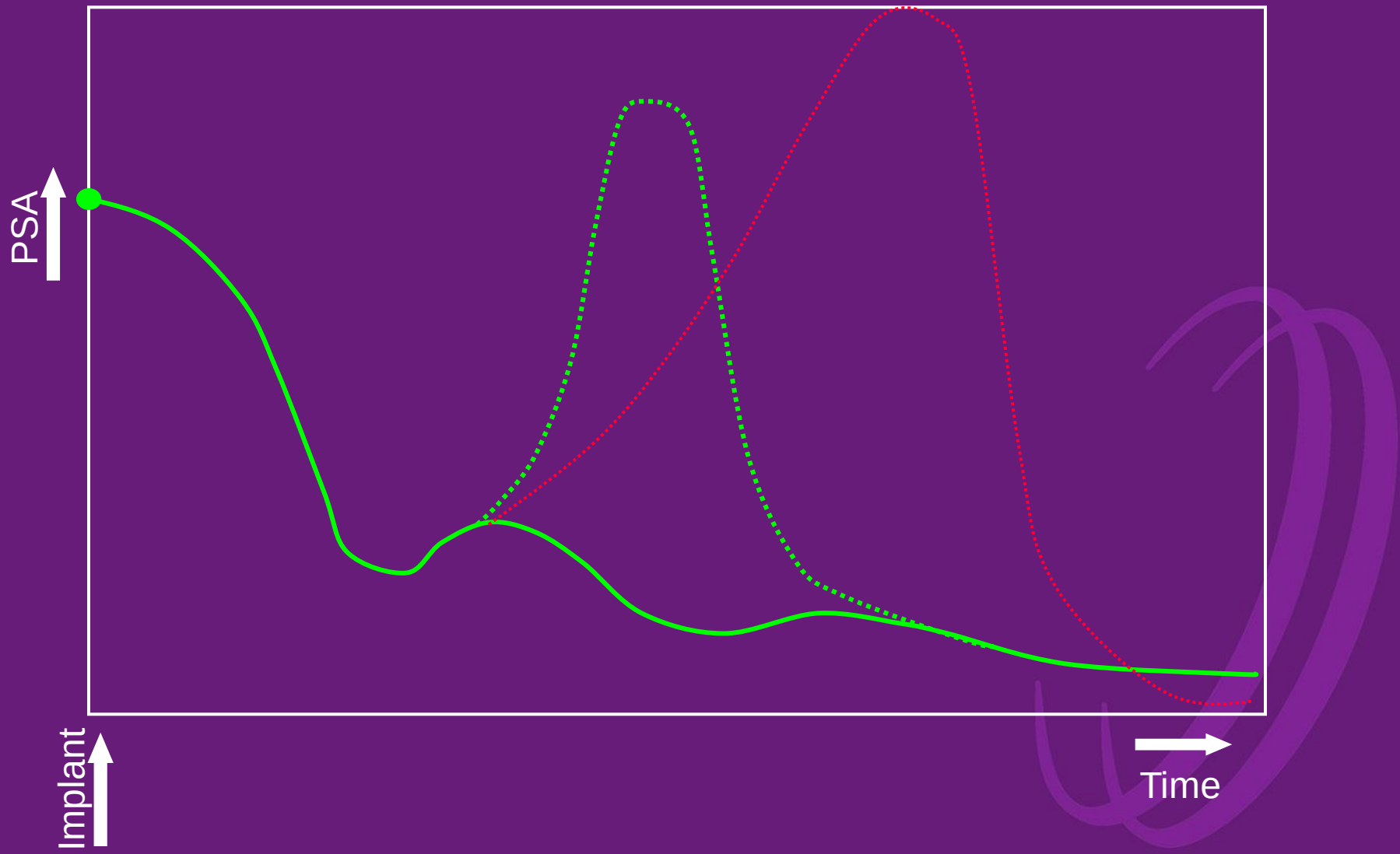

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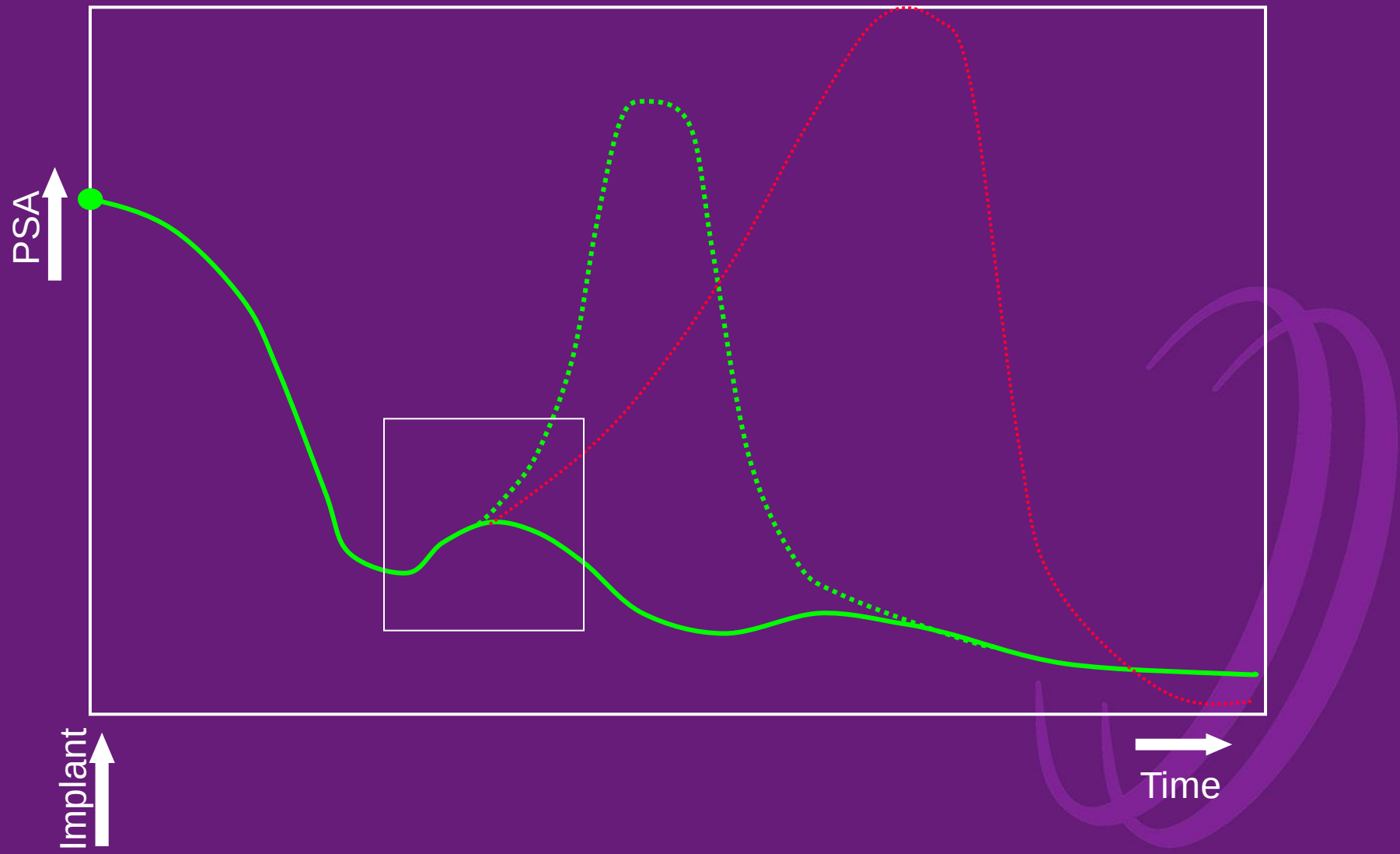

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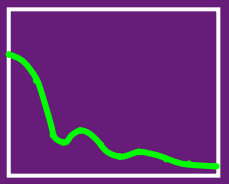
Christie experience



- 205 men
- Median FU 45months (24-85)

- 79 (37%) Bounce
- Median time to bounce 14.8months (1.7-40.6)
- Median Peak PSA 1.8ng/ml (0.4-7.4)
- Median Magnitude 0.91ng/ml (0.2-5.8)
- Median Duration 11.3months (2.3-32.5)

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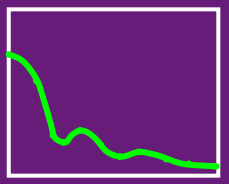
Radiotherapy and Oncology 2008; 88: 102-107

Christie experience



- Younger Men (mean 60yrs vs 64yrs)

- ASTRO failure 5% vs 15% (p=0.02) Mean 20.8months
- Phoenix failure 7.5% vs 15% (p=0.004) Mean 28months

- False calls with both definition
  - 7 ASTRO
  - 8 Phoenix

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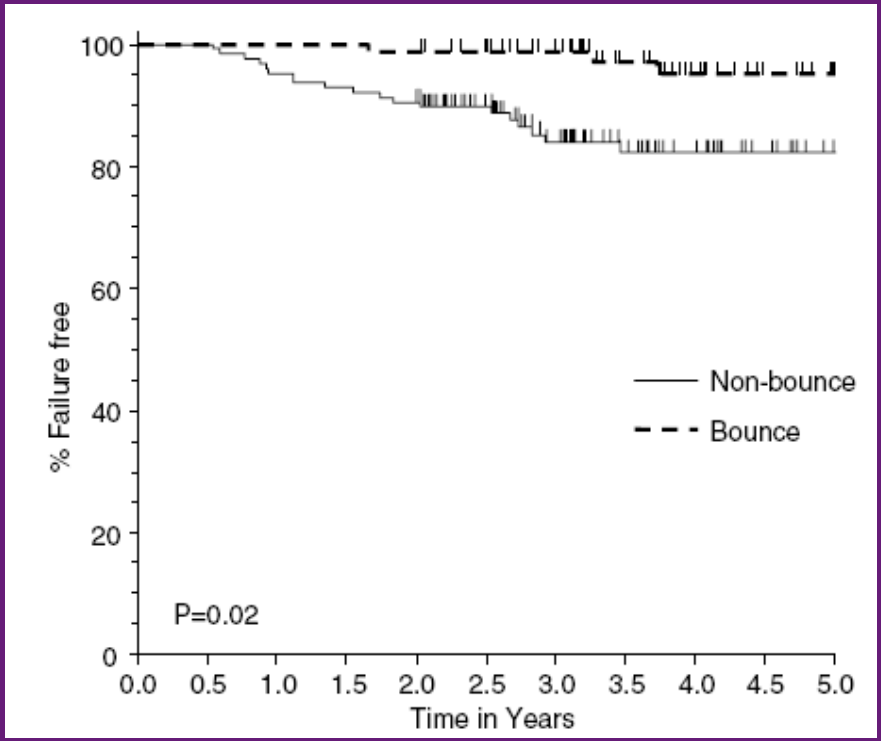
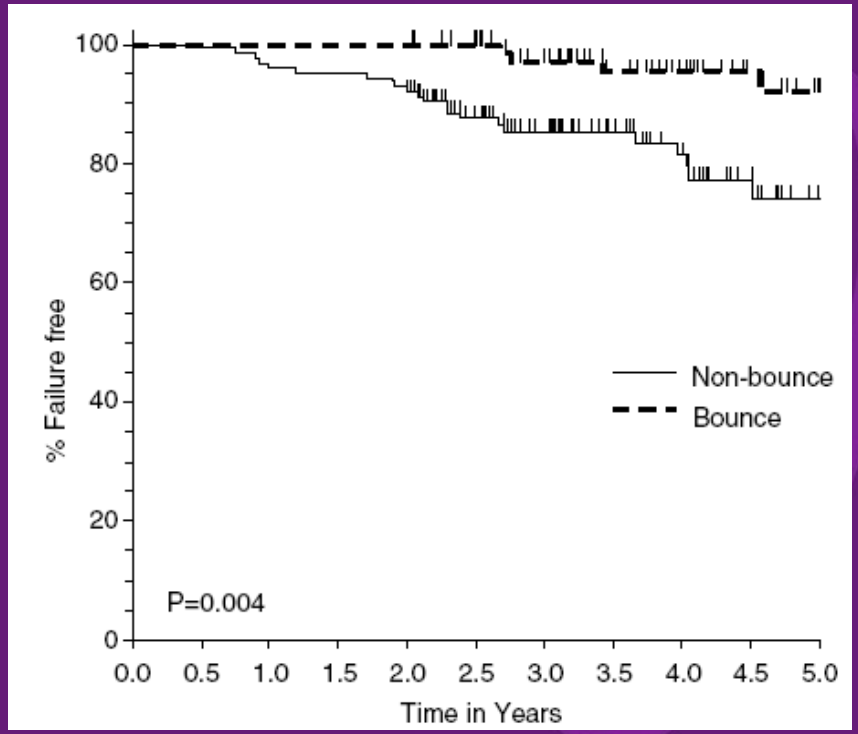
Radiotherapy and Oncology 2008; 88: 102-107

ASTRO



Phoenix



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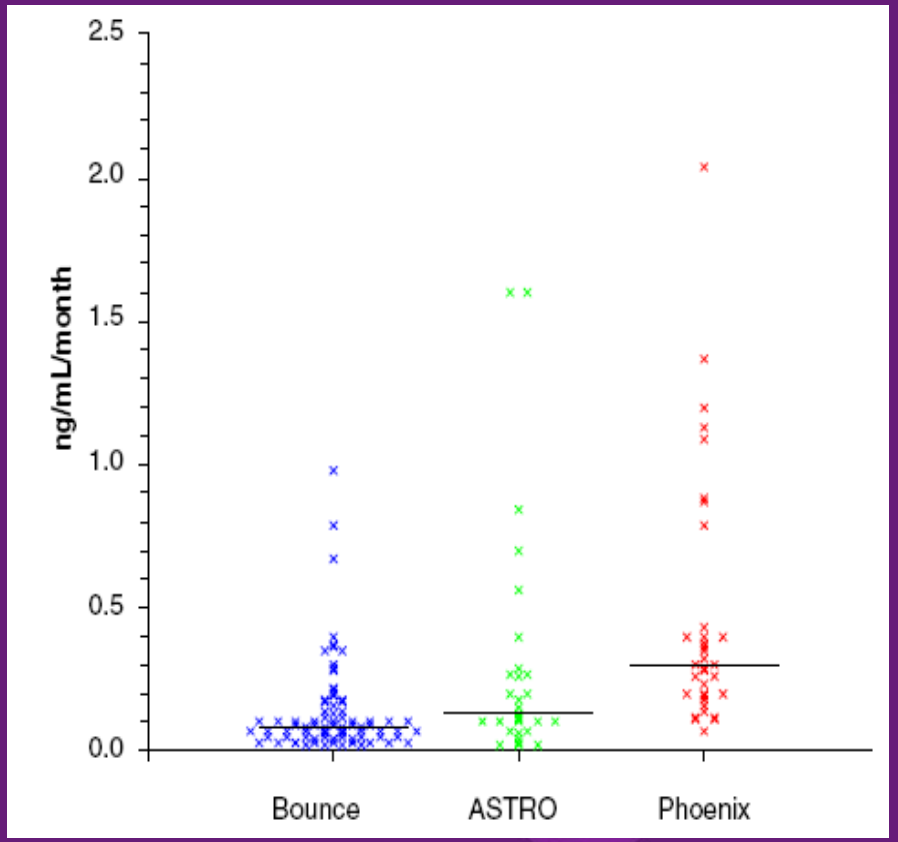
- Velocity
  - >1ng/ml
  - Considerable overlap



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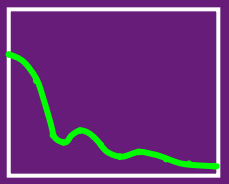

- Velocity

- No significant difference in PSAdt during bounce compared to ASTRO or Phoenix failures

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Radiotherapy and Oncology 2008; 88: 102-107

	Christie (205)	Crook et al (292)	Stock et al (373)	Ceizki et al (162)	Pickles et al (468)	Patel et al (295)
% Bounce	37	40	17-31	46.3	71.4*	28
Median time to bounce (mo)	14.8	15.2	19.5-20.5	15.1	13	19.4 (no ADT)
Median Peak PSA (ng/ml)	1.8				1.1	
Magnitude (ng/ml)	0.91	0.76				0.6 (no ADT)
Duration (mo)	11.3	6.8			6.5	
Younger	✓	✓	✓	✓		✓
Time to Failure (A/P)	20.8 / 28	30.9		22.3 / 30		
Better Outcome	✓			✓		✓

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R O 2008; 88: 102-107

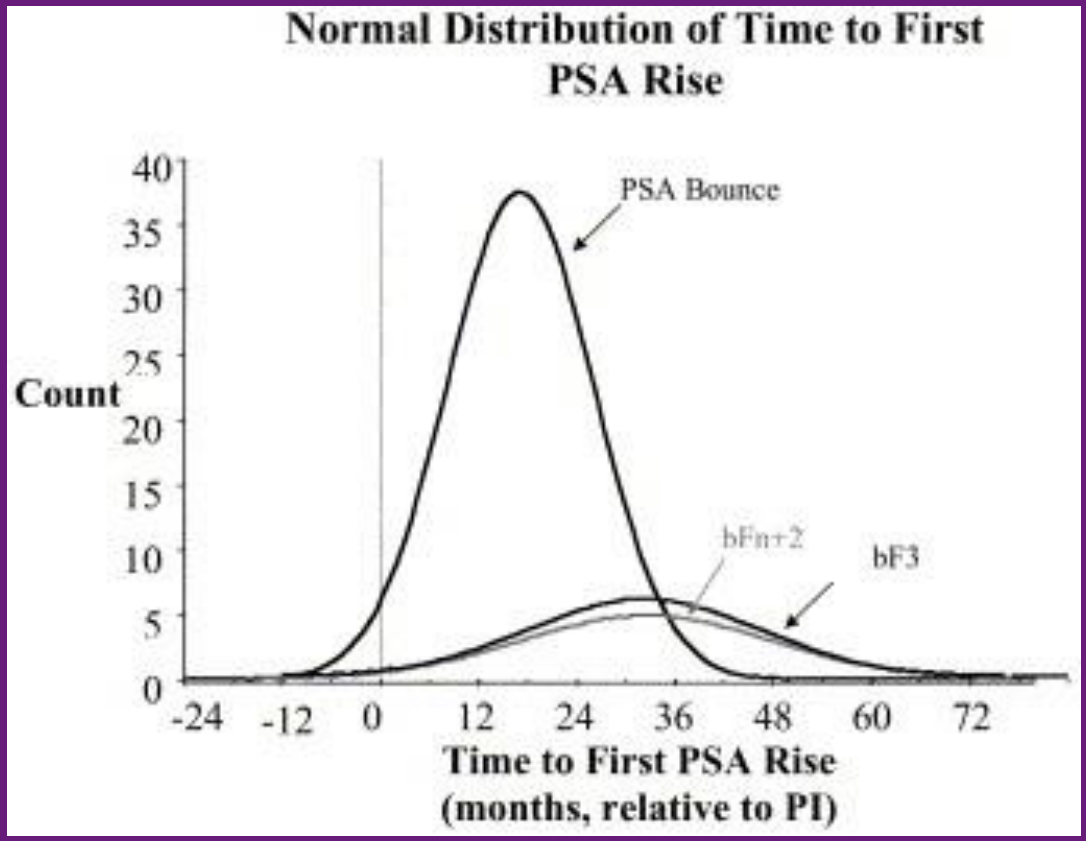
IJROBP 2007; 69: 426-433

IJROBP 2003; 56: 448-453

IJROBP 2006; 64: 512-517

IJROBP 2006; 64: 1355-1359

Urology 2004; 63:110-113



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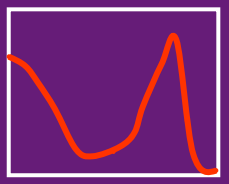
IJROBP 2006; 64: 512-517

What is the best definition of failure following brachytherapy?



- British Columbia Cancer Agency
  - Nadir +2 2.4% False call
    - Christie 10%
    - PMH 15%
    - WBH 6%
  - Nadir +3 1.3% False call

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IJROBP 2006; 64: 1355-1359
IJROBP 2007; 69: 426-433
RO 2008; 88: 102-107

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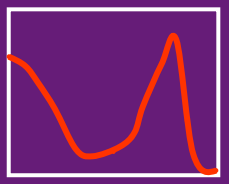

- William Beaumont Hospital
  - Nadir +5 for 2years
  - then nadir +2 particularly if <60yrs old

- WBH 1.2% False call
- PMH 3.5%
- Christie 2.5%

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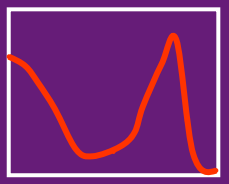
Practical guidance



- PMH
  - Inform and reassure
  - Review pre-treatment and implant characteristics
  - Centralised review 3monthly
  - If PSA has not corrected by 30months then biopsy should be performed.
  - If PSA >10ng/ml then systemic investigations are warranted.

IJROBP 2007; 69: 426-433

Conclusion

- Current definitions of biochemical failure used following LDR prostate brachytherapy are prone to false calls as a consequence of the Benign PSA bounce phenomenon
- Commit to appropriate PSA surveillance
- Avoid the premature and inappropriate initiation of salvage therapy