

- Does the magnitude of change of BTM with Rx herald the magnitude of BMD benefit? YES!
- Does the magnitude of change of BTM with Rx herald a greater reduction in fracture risk? YES!
- Absent a baseline BTM, is there utility of post-Rx level to monitor treatment? YES!

# Questions to ponder about monitoring efficacy of osteoporosis treatment with BTM

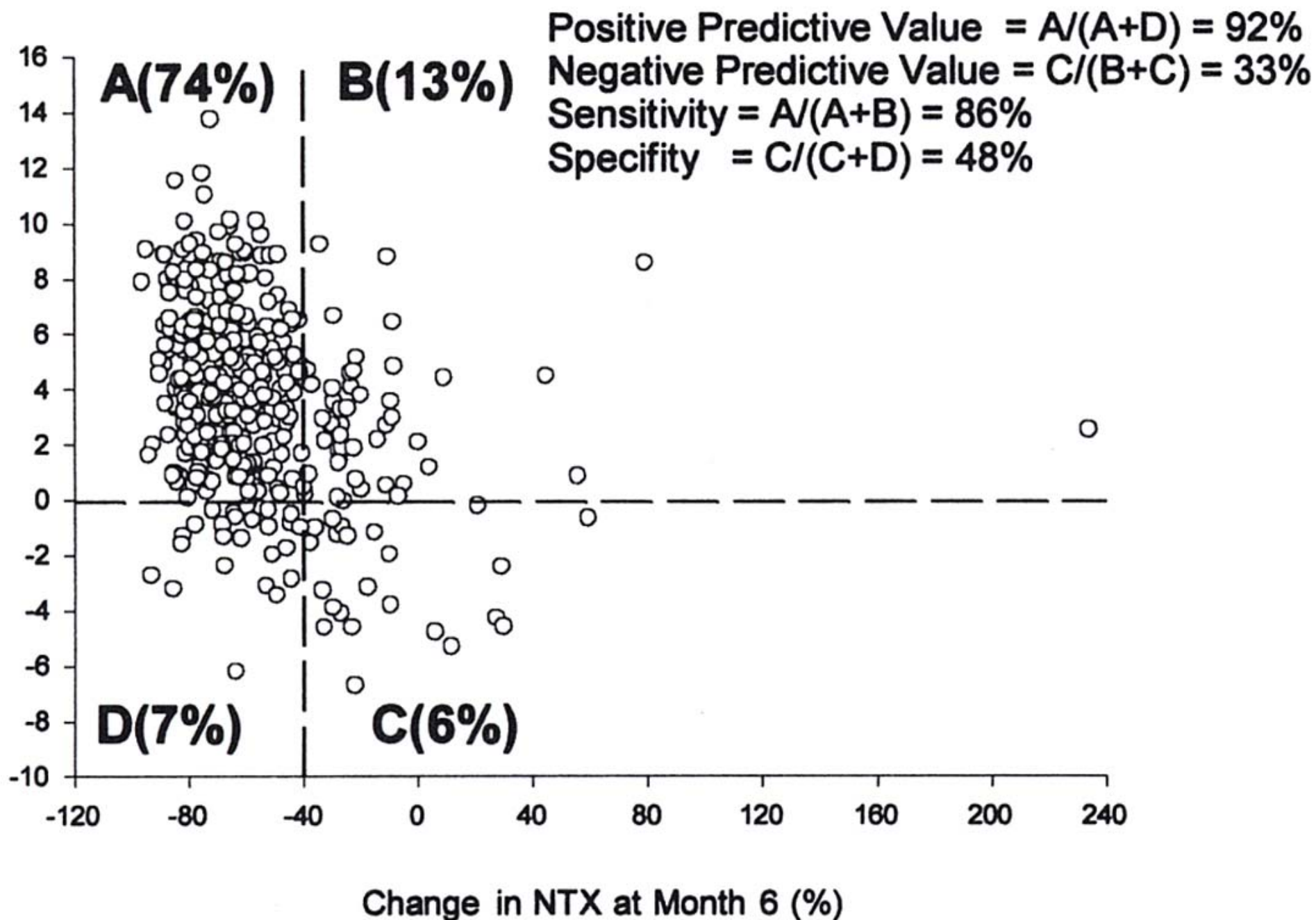
- Is there a threshold change in BTM, or post-Rx level, that proves either
  - Adequacy of dose
  - No further benefit from further suppressionYES, 50% suppression, or T-score around 0
- What is the consequence of not reaching the BTM threshold?  
VARIABLE
- If the BTM response to Rx is suboptimal, what can be done for the pt? CAN CONSIDER INCREASING THE DOSE.

# OR (95% CI) of fx risk with AIn Rx, per SD increase in BMD, or decrease in BMT

<u>Variable</u>	<u>spine fx</u>	<u>non-vert fx</u>	<u>hip fx</u>
• BSAP	0.74(0.63-0.87)	0.89(0.78-1.00)	0.61(0.46-0.80)
• PINP	0.77(0.66-0.90)	0.90(0.80-1.03)	0.78(0.51-1.19)
• sCTX	0.77(0.58-1.03)	1.02(0.75-1.37)	-----
• BMD			
– Spine	0.92(0.76-1.11)	1.05(0.92-1.20)	0.94(0.56-1.58)
– Hip	0.74(0.61-0.89)	1.03(0.90-1.17)	0.74(0.47-1.17)

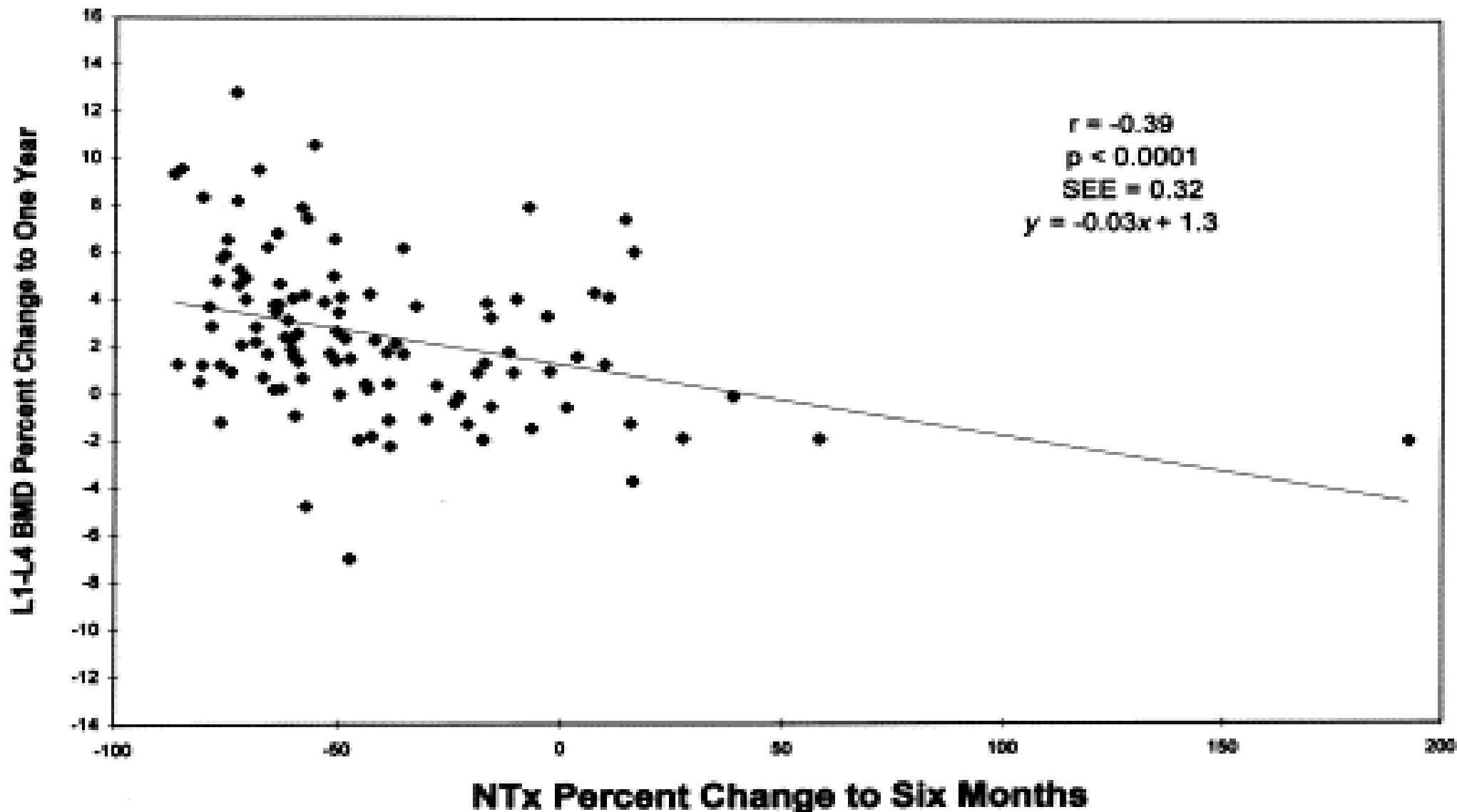
Bauer et al, JBMR 2004;19:1250

Change in Spine BMD at Month 24 (%)

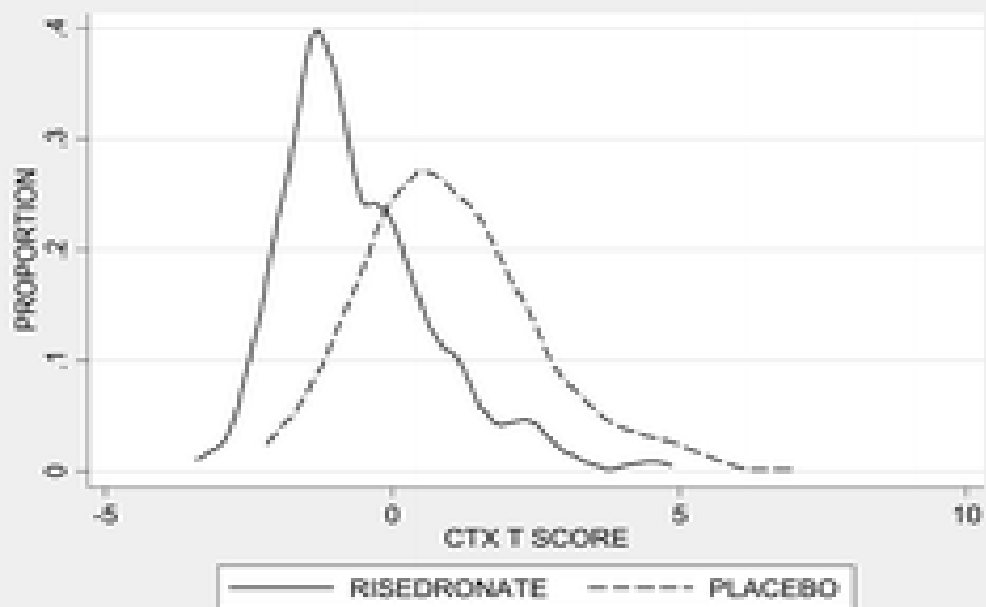


# Urine NTX predicts response of BMD to HRT

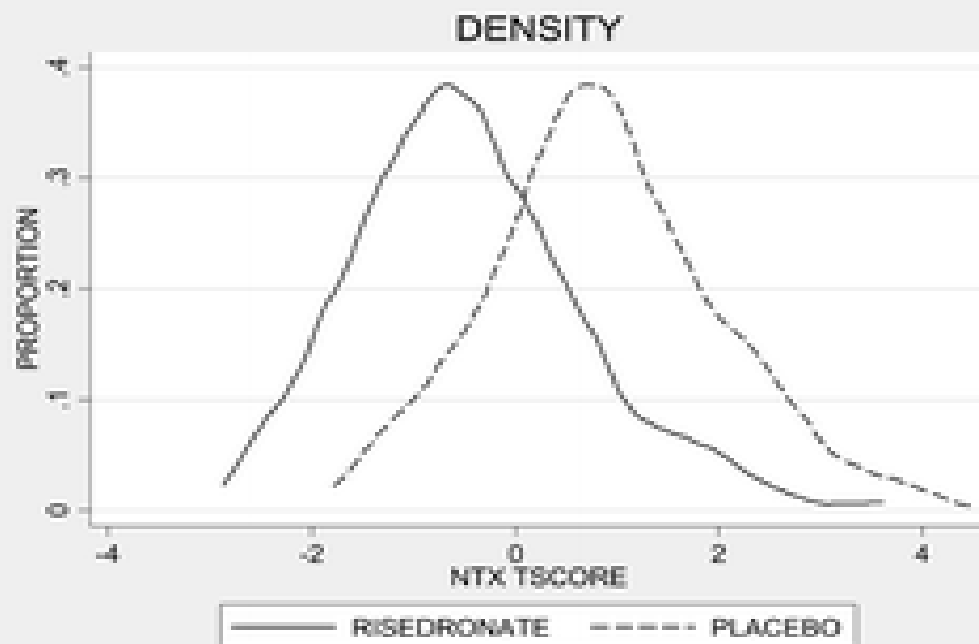
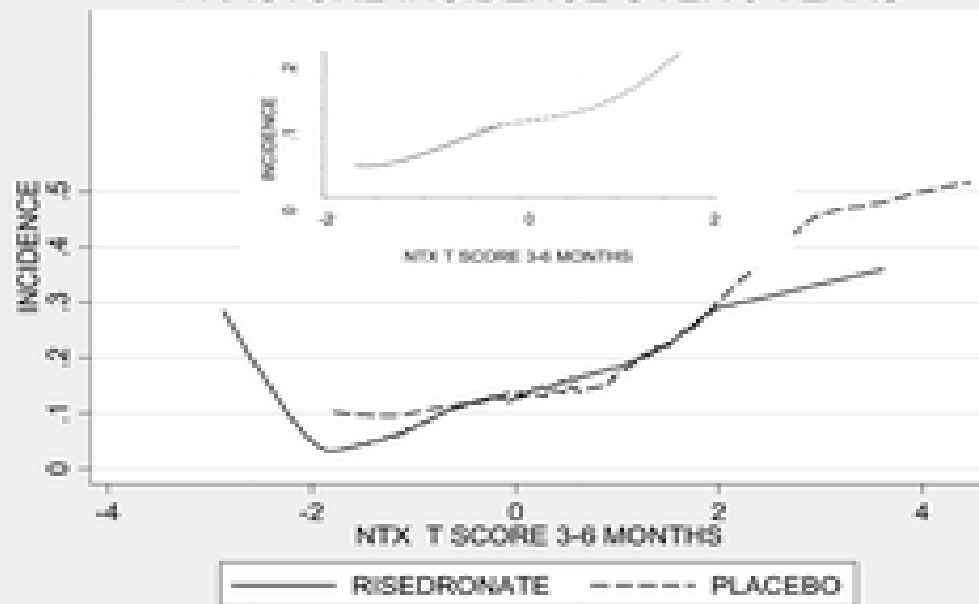
Chestnut et al AJM 1997;102:29



### FRACTURE INCIDENCE OVER 3 YEARS



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# Greatest utility for BTM in the individual patient on Rx

- BTM suppression on Rx can reassure us in a patient losing BMD on Rx
- BTM suppression on Rx can be used to provide positive feedback to patients on Rx to encourage compliance.

# Risk of vertebral fractures on raloxifene according to $\Delta$ BMD and $\Delta$ turnover

	PERCENT CHANGE IN FN BMD		
	<u>-1%</u>	<u>+1.5%</u>	<u>+3.9%</u>
• % $\Delta$ OSTEOCALCIN			
– -5%	11.8%	10.3%	9.0%
– -25%	9.6%	8.8%	8.1%
– -41%	8.2%	7.8%	7.5%

Sarkar et al, JBMR 2004;19:394

# BMD vs BTM in providing feedback to pts on RIS

- Spine BMD stable to increasing on RIS allows us to give 89% of pts a positive message (FACT)
- Message of urine NTX decline of more than 30% could only be delivered to 66% of pts (Delmas et al, JCEM 2007;92:1296).
- Argues to me that BMD feedback would be more supportive of pts on RIS.

# Conclusions

- 50% decrease in BTM, or nadir BTM at the mean for menstruating women, predicts improvement in BMD and fx risk with Rx
- Many pts without the 50% decrease in BTM, will have stable to increasing BMD.
- Poor precision of BTM makes them hard to use in decision-making or feedback for individuals
- In patients on Rx with bone loss and suppressed BTM, maybe there is no need to change Rx.