The Royal Orthopaedic Hospital NHS
NHS Trust

Are we getting better at diagnosing Sarcomas?

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Introduction

- Prognostic factors for all Sarcomas include:
  - grade
  - *size*
  - age
  - response to chemotherapy

- *Size* is the only factor which can be affected by earlier intervention

Introduction

- Patients with small tumours or who are metastasis-free at diagnosis have an increased survival
  - the chance of this is *increased* with more *rapid diagnosis*.

- Guidelines for appropriate referral to a Specialist Centre were published by the Department of Health in 2000

Aim

‘Are we getting better at diagnosing Sarcomas?’

- This study asks whether we are diagnosing sarcomas more quickly, by examining whether symptom duration and tumour size at diagnosis have changed over time

Patients

- Patients diagnosed with a Sarcoma between 01/01/1986 and 31/12/2007 at the Royal Orthopaedic Hospital, Birmingham, UK
- 3596 matched our inclusion/exclusion criteria:

Inclusion

- De Novo
- Any malignant Bone/Soft Tissue Tumour
- Any Age
- Either Gender
- Any cause

Exclusion

- Local Recurrence
- Treated >6 months ago

Method

- Demographic data concerning gender, age and diagnosis were collected

- Data were also collected on *duration of symptoms* and *size* of tumour at diagnosis
  - Symptom duration: length of time patient was experiencing symptoms until the date of diagnosis
  - Size: maximum length of tumour measured from CT/MRI

Method

- Patients were split into two groups using 01/01/2000 as a transition date
  - compared using appropriate statistical methods according to data distribution
- To *describe the change* in *size* of Sarcomas and *duration of symptoms* over time, a least squares regression model was used
- Cubic Spline Transformations were applied to the data and the model of best-fit was selected

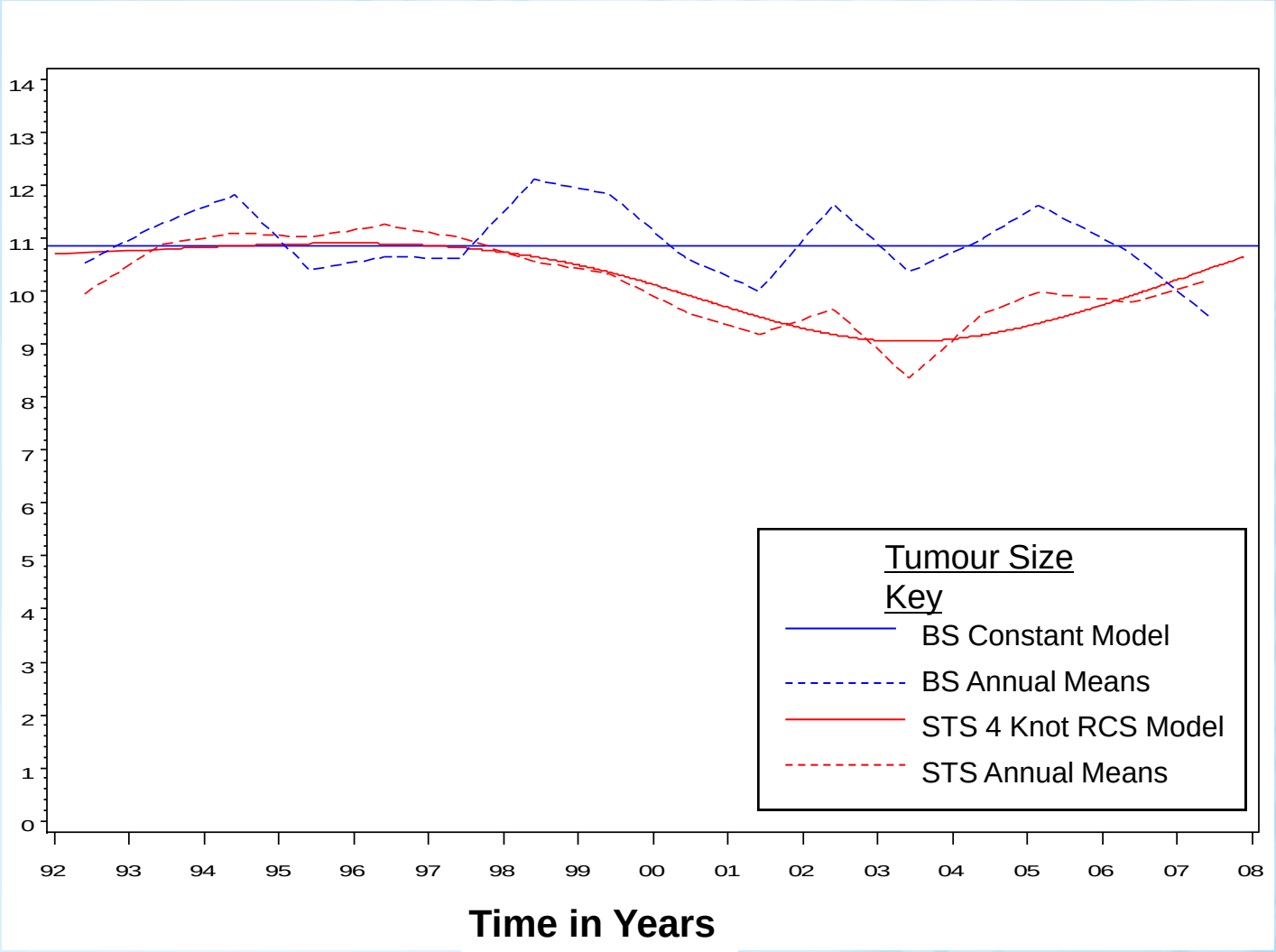
Results: Demographics

	BS		STS	
	Pre Guidelines	**Post Guidelines**	**Pre Guidelines**	**Post Guidelines**
Number	774	818	814	1190
Median Age (yrs)	24	25	55	58
Arithmetic Mean Size (cm)	11.18	10.65	10.76	9.53
Geometric Mean Symptom Duration (wks)	18.0	21.2	27.3	32.1
Total number	1592		2004	

Results: Tumour Size

- Bone Sarcomas
  - No significant difference in size (p=0.09)
  - Model of best-fit confirmed size had not changed over time
- Soft Tissue Sarcomas
  - There was a significant difference in size (10.8cm vs 9.5cm p<0.001)
  - 4 knot-Restricted Cubic Spline model shows size was reducing up until 2003 and then has steadily increased (p<0.001)

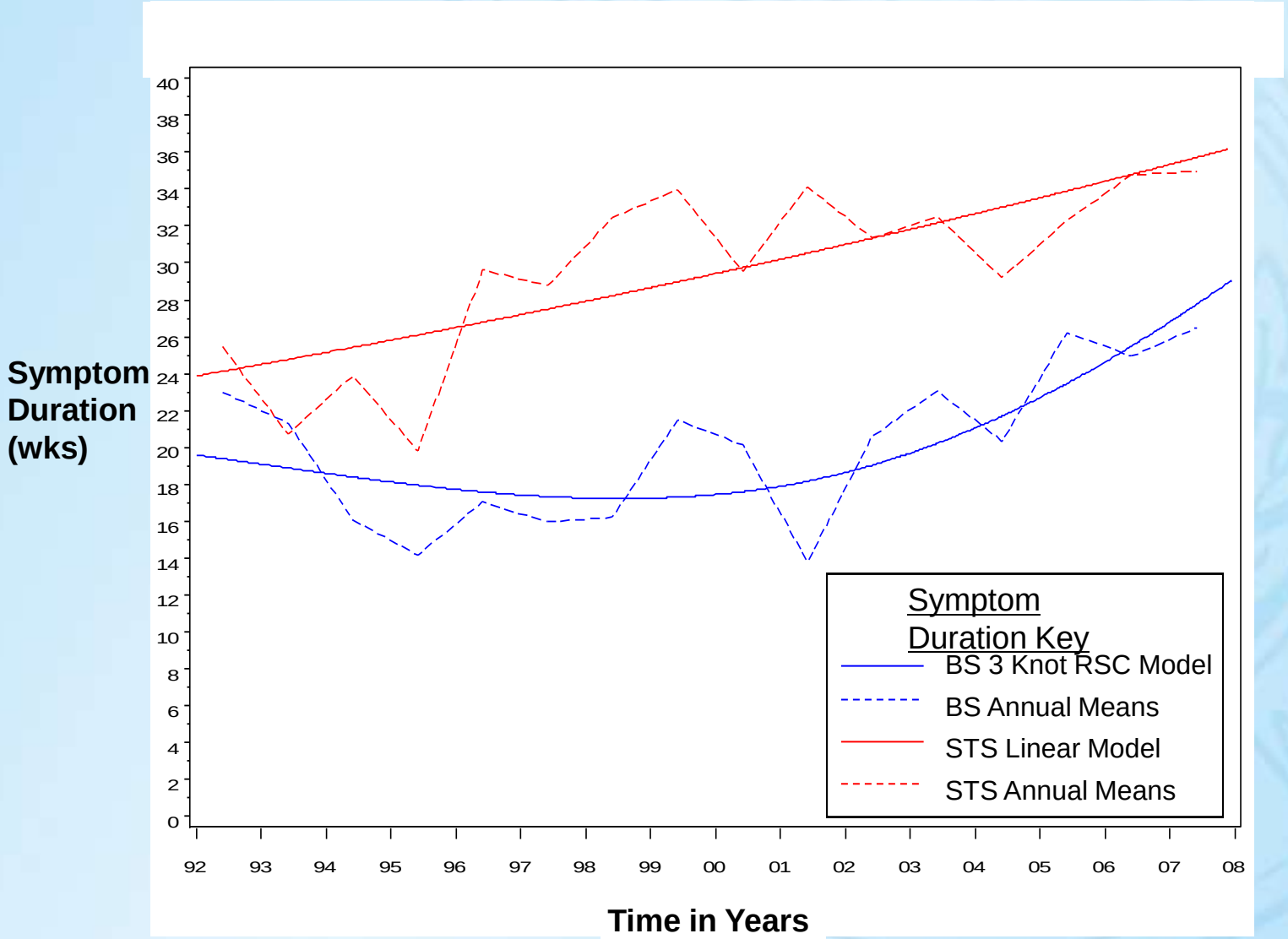
Results: Tumour Size



Results: Symptom Duration

- Bone Sarcomas
  - There was a significant difference in symptom duration (18 wks vs 20 wks p=0.01)
  - 3 knot Restricted Cubic Spline showed it had been increasing since 2000 ($p<0.001$)
- Soft Tissue Sarcomas
  - There was also a significant difference (27.3 wks vs 32.1 wks $p<0.001$)
  - Linear regression model showed that symptom duration had been increasing at a constant rate ($p<0.001$)

Results: Symptom Duration



Conclusions: Tumour Size

- BS size at diagnosis has not changed
- Size of STS initially decreased, but since 2003 has increased
  - Decrease was before guidelines introduced
  - Change in referral practice at this time
- Mean size of all Sarcomas at diagnosis is ***10cm***
- Disappointing finding

Conclusions: Symptom Duration

- ***Increase*** for both BS and STS symptom duration over time
  - Subjective measure, vulnerable to recall bias

- Does not fit with decrease in size of STS
- Previous studies show delay at all stages of patient journey to diagnosis

Summary

- This is a large study with sufficient numbers to provide reliable results
- Duration of symptoms is subjective whereas size data is more reliable
- Difficult to assess if guidelines were insufficient or not publicised widely enough
- Too early to assess impact of NICE guidance in 2005
- Further initiatives are needed to reduce delays
  - Patient and doctor education programs
  - Awareness campaigns

Thank for listening

Any Questions?