

## Background

- Stage I/II Non-Small Cell Lung Cancer (NSCLC) is potentially curable with surgery.<sup>1</sup> However, many patients are unable to have surgery due to medical co-morbidities.<sup>1,2</sup> Radical radiotherapy (RT) is an option.<sup>1</sup> The regimes include CHART (Continuous Hyperfractionated Accelerated Radiotherapy)<sup>3</sup>, 55Gy/20#/4weeks or 64Gy/32#/6.5 weeks.
- Stereotactic Body Radiotherapy (SABR) is now being offered to selected patients in the UK with higher cure rates 5yr OS (42% versus 20%)
- A previous audit of patients treated in Northern Ireland (NI) from 2001 to 2003 inclusive, demonstrated good 2-yr overall survival (OS) (improved from the audit period 1986-1992) and lower pneumonitis compared to literature standards.
- We wanted to re-audit the cohort of patients and compare to a national standard.

## Aims

- Re-audit 2001-2003 dataset to assess the 5-yr OS
- To assess the annual rate of delivery of radical lung radiotherapy for early stage NSCLC
- Determine 2-yr OS from 2004-2007 dataset
- Estimate number of patients suitable for SABR in NI per year

## Standard

- 2 yr & 5 yr OS compared with the CHART trial.
- Overall Survival in CHART : 2 yr 30% and 5 yr 20%

## Methodology

- Retrospective chart review of patients identified from the lung cancer database (2004 to 2007) and from the previous audit (2001 to 2003) was performed.
- Patient and tumour characteristics, as well as treatment outcomes, were extracted from the existing database and from electronic chart review. Included were all patients receiving radical RT for stage I & II lung cancer.
- Kaplan Meier was used to estimate overall survival and Cox proportional hazards model for multivariate analysis.

## References:

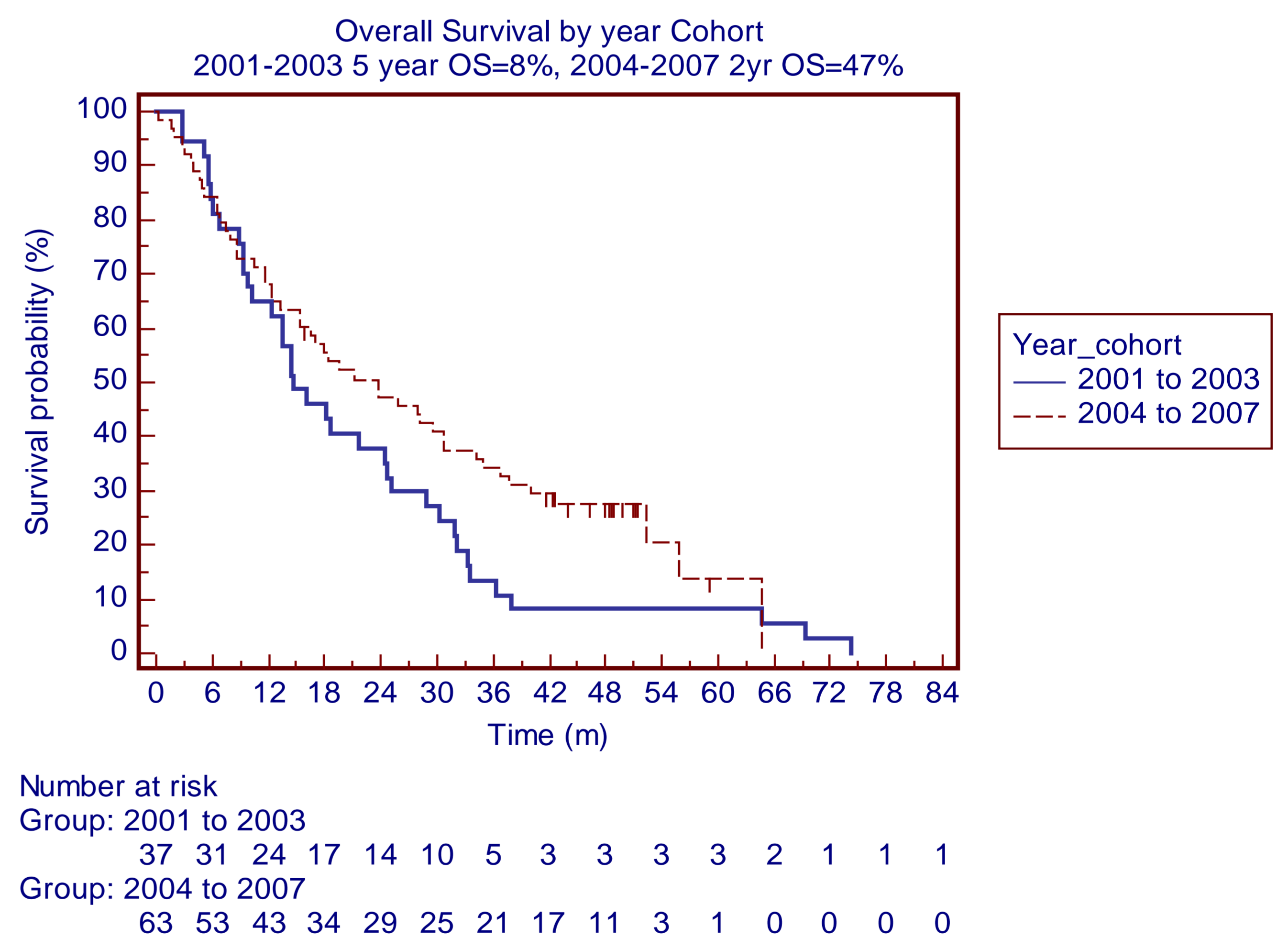
1. "The diagnosis and treatment of lung cancer (update)". NICE 2011.
2. "Radical Radiotherapy for inoperable non small cell lung cancer : What factors predict prognosis". Anderson W, et al Clin Onc 2000;12: 48-52.
3. "Continuous hyperfractionated accelerated radiotherapy (CHART) versus conventional radiotherapy in non small cell lung cancer: mature data from the randomised control trial". Saunders M, et al Rad Oncol 1999;52: 137-8.

## Results

- One hundred pts were identified.
- An average of 14 patients were treated per year with a trend for increasing numbers; 23 were treated in 2007. As expected these patients were elderly and more frail than those from surgical series and from the CHART trial.
- Median age: 74 yrs (45-86); 76% ≥ 70 yrs. PS >2: 37%. Weight loss >5%: 21%. No confirmed histology: 29%. Median tumour size: 3cm (1.1 to 6.4), 5% ≥ 6cm.

	n	2 year OS	5 year OS	PS0-1	PET staged	Weight Loss
CHART study		30%	20%	100%	0%	x
All 01-07	100	45%	18%	50%	61%	14%
2001-2003	37	37%	8%	57%	19%	16%
2004-2007	63	47%		46%	87%	13%

- 98% were Stage I. 61% had FDG PET-CT staging.
- 5yr OS for 2001-3 cohort poor, but 2004-2007 cohort had better 2yr OS.
- on multivariate analysis, weight loss had significantly worse outcome, but tumour size did not. In the PET staged cohort: 2yr OS 51% and 5yr OS 18%, compared to CT Staged (30% and 3%).



## Conclusions

- Improvement in OS for pts undergoing radical RT for early NSCLC, comparable to published outcomes.
- Improvements maybe due to PET-staging, case selection and improved radiotherapy techniques.

## Action Plan

- Continued use of PET staging in all for radical treatment.
- Improve histology rates and re-audit in 2-3 yrs.