

30- and 90-day mortality after major lung cancer resection in 2242 patients

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**Zertifiziertes
Lungenkrebszentrum**

Author's Declaration

I have no conflicts of interest

Background I

- Operation for lung cancer nowadays is associated with low 30-day mortality
- Postoperative mortality is a common surgical quality measure
- Mortality rates at 90 days probably provide a better estimation of the operative risk
- Evaluation of 30- and 90-day mortality of patients after lung cancer resection in a certified lung cancer center

Background II

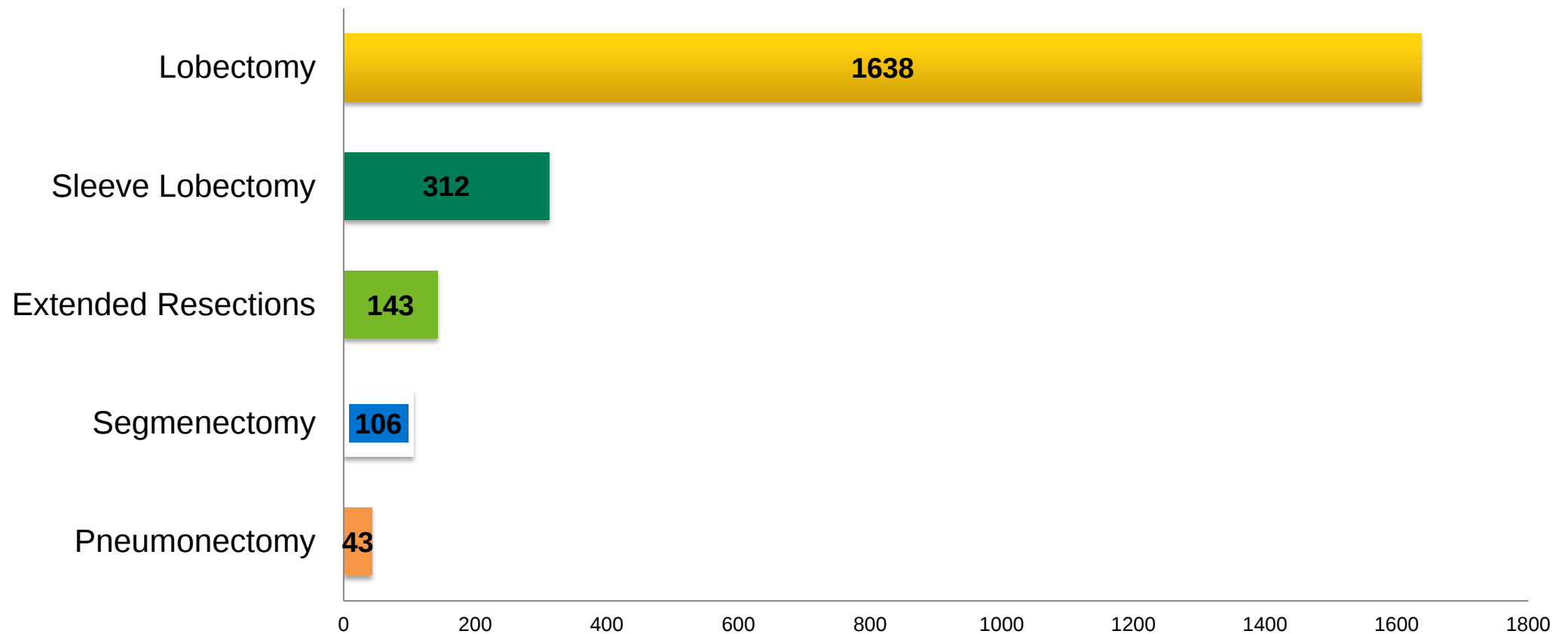
- *Pezzi et al. Ninety-day mortality after resection for lung cancer is nearly double 30-day mortality. J Thorac Cardiovasc Surg. 2014 Nov;148(5):2269-7*
 - 124,418 patients out 1233 facilities with major pulmonary resection (2007-2011): 30-day mortality: 2.8%, 90-day mortality: 5.4%
- *Hu et al. Lung cancer resection mortality measures. Ann Thorac Surg, 2014;97;973-9*
 - 11,787 patients out of 686 hospitals (2006-2010): 30-day mortality: 3.69 %, 90-day mortality: 6.89 %
- *Falcoz et al. The impact of hospital and surgeon volume on the 30-day mortality of lung cancer surgery: a nation-based reappraisal. J Thorac Cardiovasc Surg. J Thorac Cardiovasc Surg. 2014 Sep;148(3):841-8.*
 - 19,556 patients out of 89 hospitals (2005-2010): from 2005-2007 30 day mortality: 10% and decreased to 3.6% in 2010

Methods

- Retrospective single center study
- From September 1998 to December 2013
- All patients undergoing lung cancer resection were included (segmentectomy, lobectomy, sleeve lobectomy, pneumonectomy or extended resections)
- Univariate and multivariate methods for logistic regression model for analyzing the 30-day and 90-day mortality

Results I

- 2242 pulmonary cancer resections out of 7436 lung cancer patients (registered in the GDTs)



Results II

■ 76 (3.40%) patients

Tab 1. Patient characteristics I	N (%)
<u>Gender</u> -Female -Male	13 (18) 63 (82)
<u>Age</u> - Mean age: 64.2 years (ranges from 44 – 78.3 years)	
<u>Type of histology</u> -Large cell carcinoma -Squamous cell carcinoma -Adenocarcinoma -Carcinoid tumor -Small cell carcinoma	4 (5,30) 40 (52.70) 27 (35.50) 2 (2.60) 3 (3.90)

Results III

Tab 2. Patient characteristics II	N (%)
<u>Tumor Stage according to the TNM Classification (7th Edition)</u>	
- IA	8 (10.50)
- IB	17 (22.40)
- IIA	2 (2.60)
- IIB	11 (14.50)
- IIIA	23 (30.30)
- IIIB	5 (6.60)
- IV	10 (13.20)
<u>Cause of death</u>	
- Heart failure (acute myocardial infarction, ventricular fibrillation)	16 (21)
- Pulmonary failure (pulmonary oedema, pulmonary embolism, unilateral and bilateral pneumonia, ARDS)	20 (26,30)
- Postoperative bleeding	2 (2,60)
- Multiorgan failure	3 (4)
- Ischemic insult	1 (1.30)
- Bronchial stump insufficiency	1 (1.30)
- NA	33 (43.40)

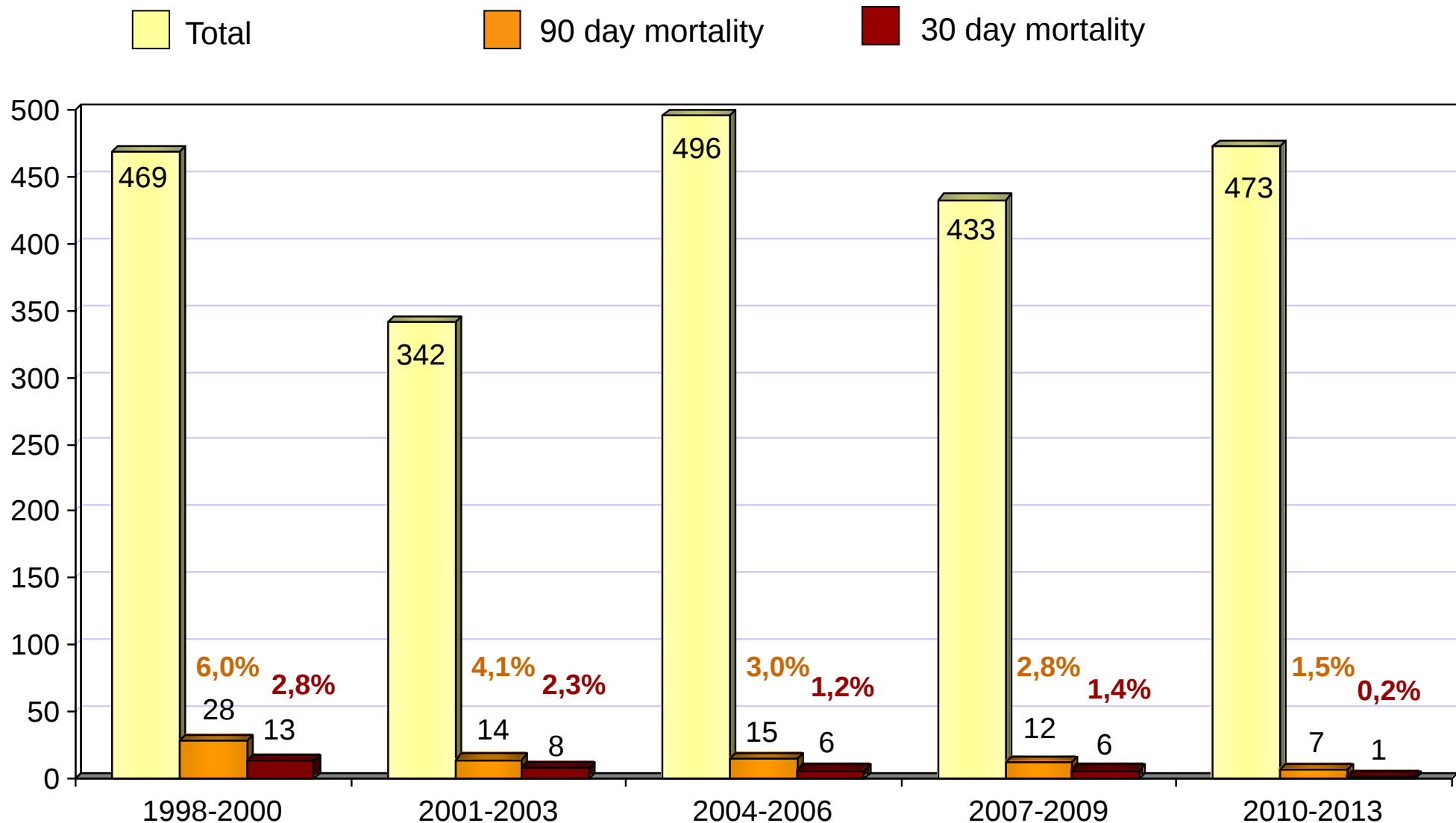
Results IV

- Induction chemotherapy: 7 patients

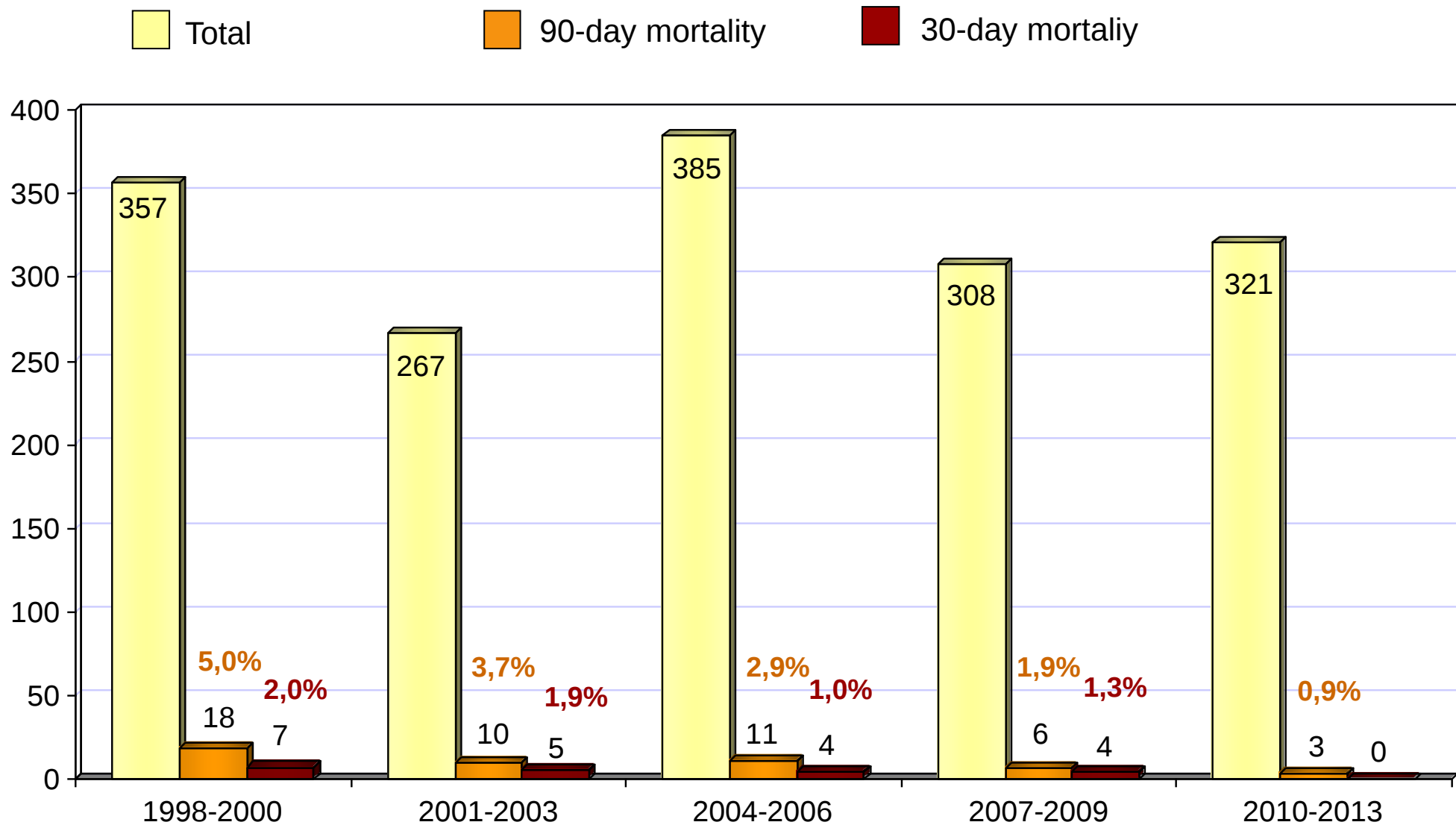
Tab 3. Mortality

	30-day mortality in % (n)	90-day mortality in % (n)
Segmentectomy	0	1.9 (2)
Lobectomy	1.2 (20)	2.9 (48)
Sleeve lobectomy	2.5 (8)	4.8 (15)
Pneumonectomy	0	2.3 (1)
Extended resections	4.2 (6)	7 (10)
Overall	1.5 (34)	3.4 (76)

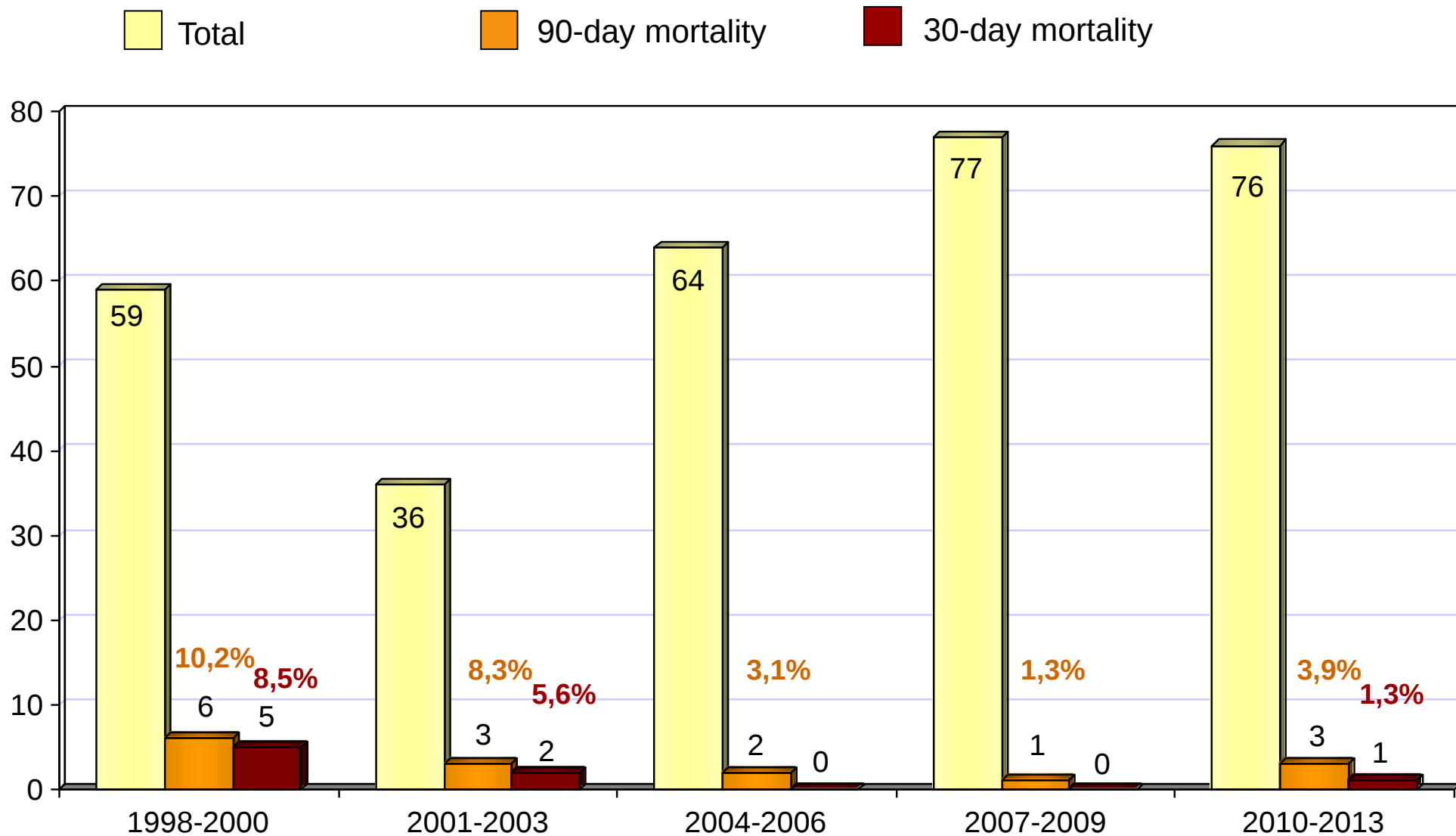
All major lung cancer resections over time periods



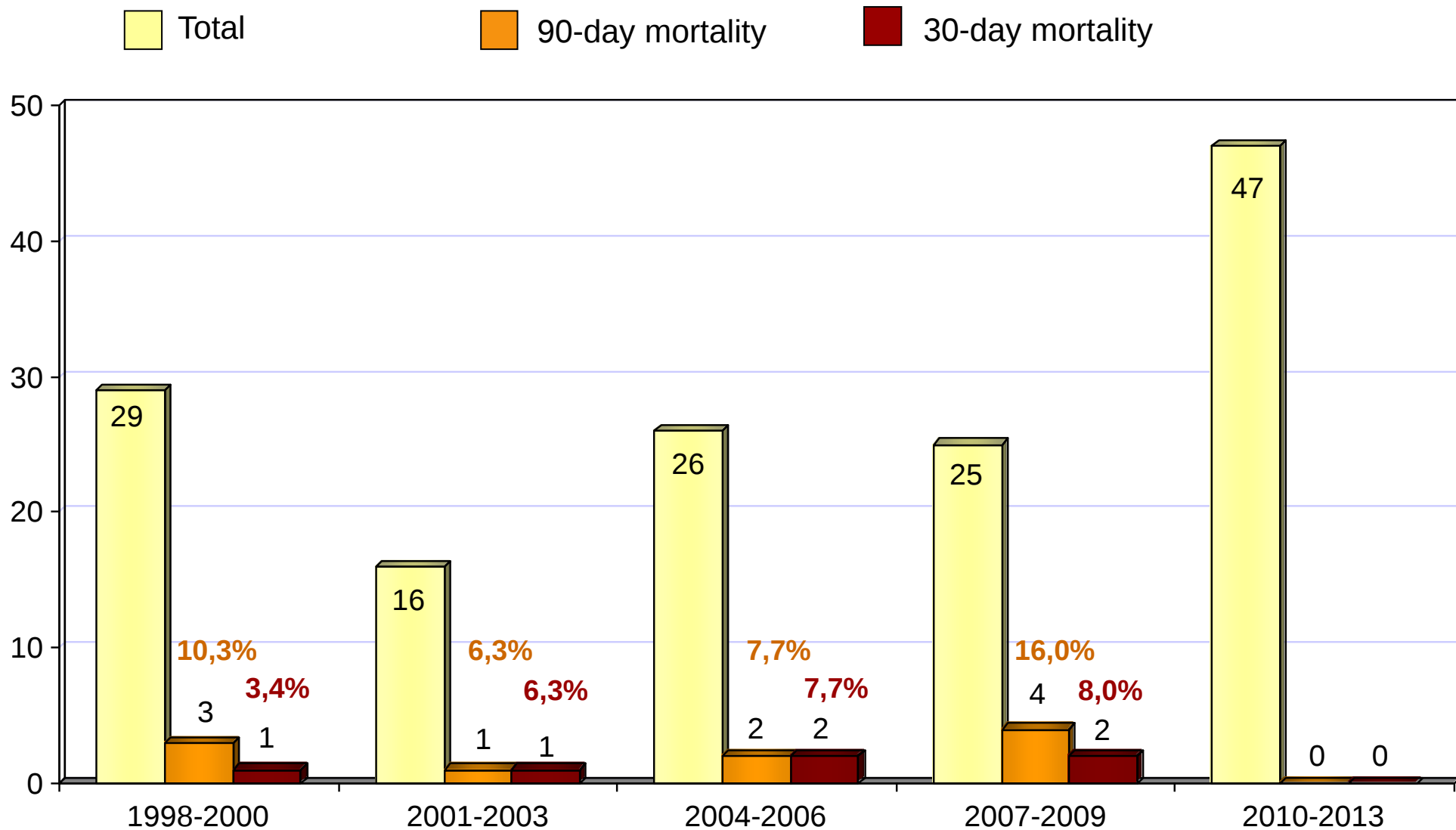
Lobectomy



Sleeve lobectomy



Extended resections



Conclusion

- The 90-day mortality is tripled compared to 30-day mortality after major pulmonary resection
- Higher operative risks in patients with extended resections
- Decreasing mortality over time period for all major resections
- Preoperative work-up of cardiopulmonary function allows good risk assessment
- Very low overall mortality