Annual Report 2018

of the Certified Lung Cancer Centres

Audit year 2017 / Indicator year 2016

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Table of Contents

General information

Quallity indicators of the guidelines (GL QI):

In the table of contents and in the respective headings the indicators, which correspond to the quality indicators of the evidence-based guidelines are specifically identified. The quality indicators identified in this way are based on the strong recommendations of the guidelines and were derived from the guidelines groups of the guidelines programme oncology. Further information: www.leitlinienprogramm-onkologie.de

	Indicator definition	All clinical sites 2014	
		Median	Range
Numerator	Primary cases with stages IB-IIIB after surgical therapy that were presented at the tumour conference	73*	28 - 256
Denominator	Primary cases with stages IB-IIIB after surgical therapy	76*	33 - 266
Rate	Target value ≥ 90%	97.30%	59.57% - 100%

Basic data indicator:

The definitions of **numerator**, **population (=denominator)** and **target value** are taken from the Data Sheet.

The **medians** for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.

The values for the numerators, populations and rates of all Centres are given under range.
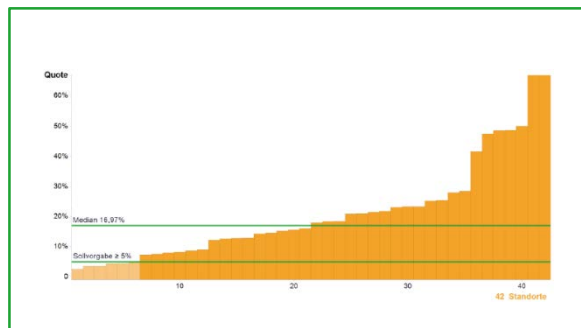
Diagram:

The x-axis indicates the number of Centres, the y-axis gives the values in percent or number (e.g. primary cases). The target value is depicted as a horizontal green line. The median, which is also depicted as a green horizontal line, divides the entire group into two equal halves.

General information

	2011	2012	2013	2014
Max	39,90%	85,57%	65,77%	60,22%
95. Perzentil	27,96%	58,83%	45,22%	45,85%
75. Perzentil	18,15%	17,67%	19,54%	33,51%
Median	11,18%	12,19%	12,98%	17,00%
25. Perzentil	8,11%	8,68%	10,49%	9,89%
5. Perzentil	2,51%	2,94%	3,47%	3,18%
Min	0,82%	0,00%	0,00%	1,06%
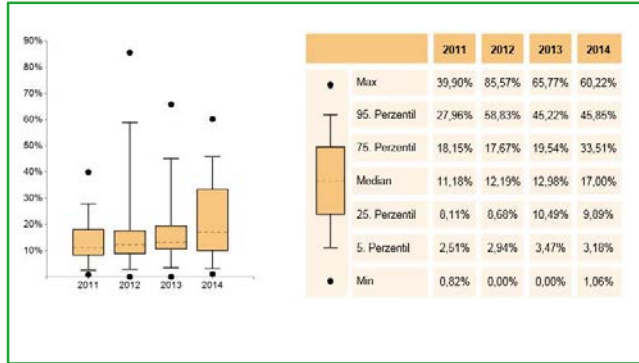
Cohort development:

The **cohort development** in the years **2012, 2013, 2014, 2015** and **2016** is presented in a box plot diagram.
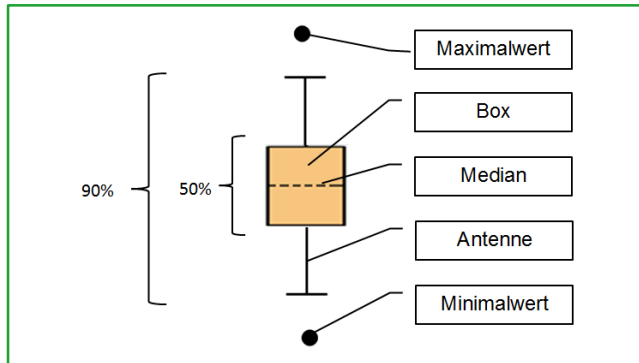
Box plot:

A box plot consists of a **box with median**, **whiskers** and **outliers**. 50 percent of the Centres are within the box. The median divides the entire available cohort into two halves with an equal number of Centres. The whiskers and the box encompass a 90th percentile area/range. The extreme values are depicted here as dots.

Status of the certification system for Lung Cancer Centres 2015

	31.12.2017	31.12.2016	31.12.2015	31.12.2014	31.12.2013
Ongoing procedures	3	5	2	2	0
Certified Centres	49	45	42	38	38
Certified clinical sites	63	53	49	44	42
Lung Cancer Centres 1 clinical site	39	37	35	32	34
2 clinical sites	7	8	7	6	4
3 clinical sites	2	0	0	0	0
4 clinical sites	1	0	0	0	0

General information

	31.12.2017	31.12.2016	31.12.2015	31.12.2014	31.12.2013
Centres included in the Annual Report	46	42	41	37	35
Equivalent to	93.9%	93.3%	97.6%	97.4%	92.1%
Primary cases total*	18483	17343	16362	14623	13483
Primary cases per Centre (mean)*	401.8	412.9	399.1	395.2	385.2
Primary cases per Centre (median)*	344	351	348	329	344

* The figures refer to all certified Centres.

This Annual Report looks at the Lung Cancer Centres in the Certification System of the German Cancer Society. The indicator sheet is the basis for the diagrams.

The Annual Report contains the data of 46 of the 49 Lung Cancer Centres. 3 Lung Cancer Centres, certified for the first time in 2017, are not included (data depiction of a full calendar year is not mandatory for initial certifications). www.oncomap.de provides an updated overview of all certified centres.

The indicators published here refer to the indicator year 2016. They are the assessment basis for the audits conducted in 2017.

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Tumour documentation systems in the Centre's clinical sites

GTDS: 18 (39,13%)

CREDOS: 2 (4,35%)

KIS-Erweiterung: 3 (6,52%)

Alcedis MED: 2 (4,35%)

Ondis: 3 (6,52%)

c37.CancerCenter: 2 (4,35%)

ONKOSTAR: 2 (4,35%)

ODSeasy / ODSeasy Net: 4 (8,70%)

Andere: 4 (8,70%)

ORBIS-ODOK: 3 (6,52%)

Eigenentwicklung (MS Excel, MS Access etc.): 3 (6,52%)
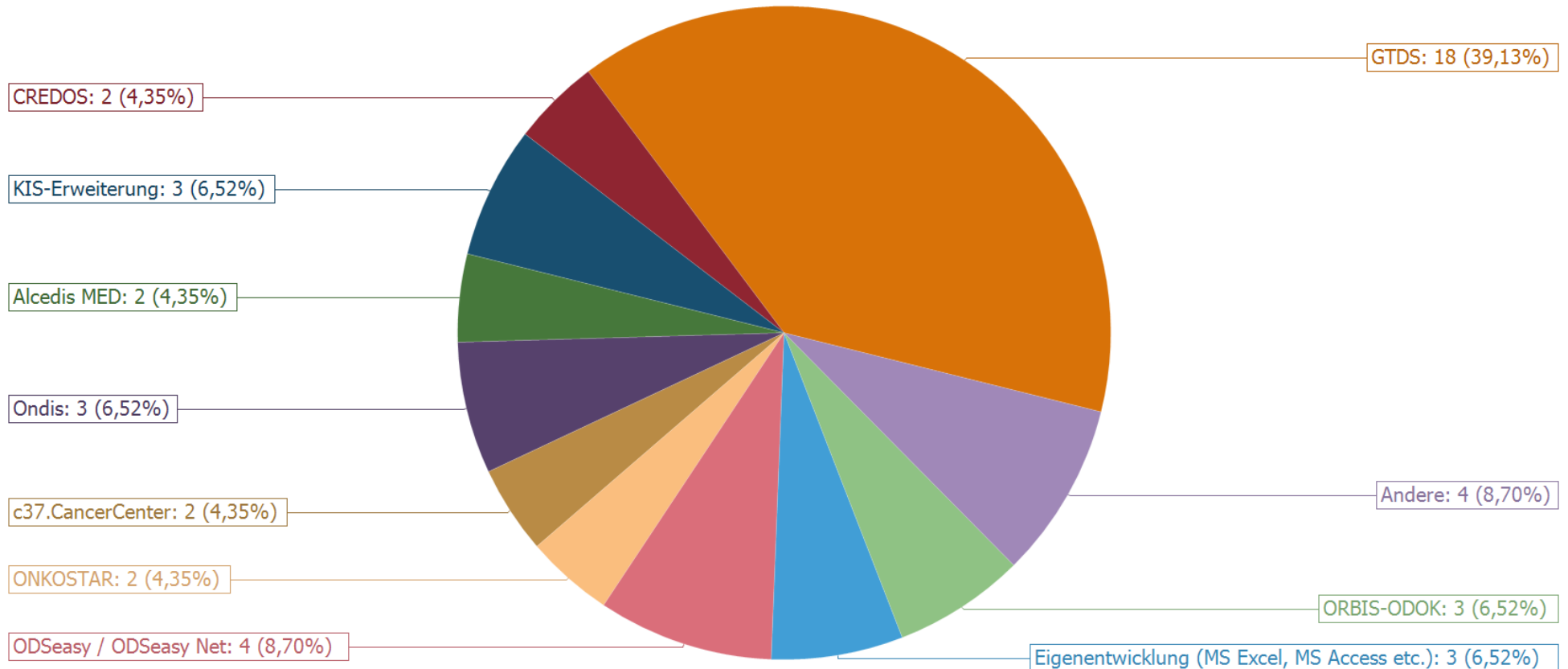
Legend:	
Other	Systems only used at one clinical site

The details on the tumour documentation system were taken from the EXCEL annex to the Data Sheet (spreadsheet basic data). It is not possible to depict several systems. In many cases support is provided by the cancer registers or there may be a direct connection to the cancer register via a specific tumour documentation system.

Basic data – Stage distribution primary cases lung carcinoma

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Primary cases total

IIIB; 10,24%
IIIA; 14,41%
IIB; 5,53%
IIA; 5,58%
IB; 7,14%
IA; 13,62%
IV; 43,48%
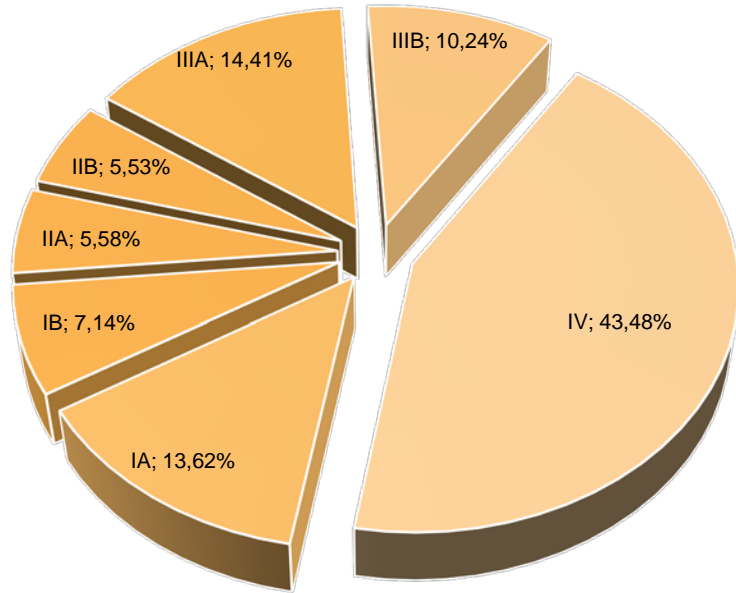
Surgical / non-surgical primary cases

	IA	IB	IIA	IIB	IIIA	IIIB	IV
Non-surgical primary cases	25,43%	23,48%	23,67%	30,40%	53,17%	90,59%	95,62%
Surgically primary cases	74,57%	76,52%	76,33%	69,60%	46,83%	9,41%	4,38%

■ Surgically primary cases   ■ Non-surgical primary cases
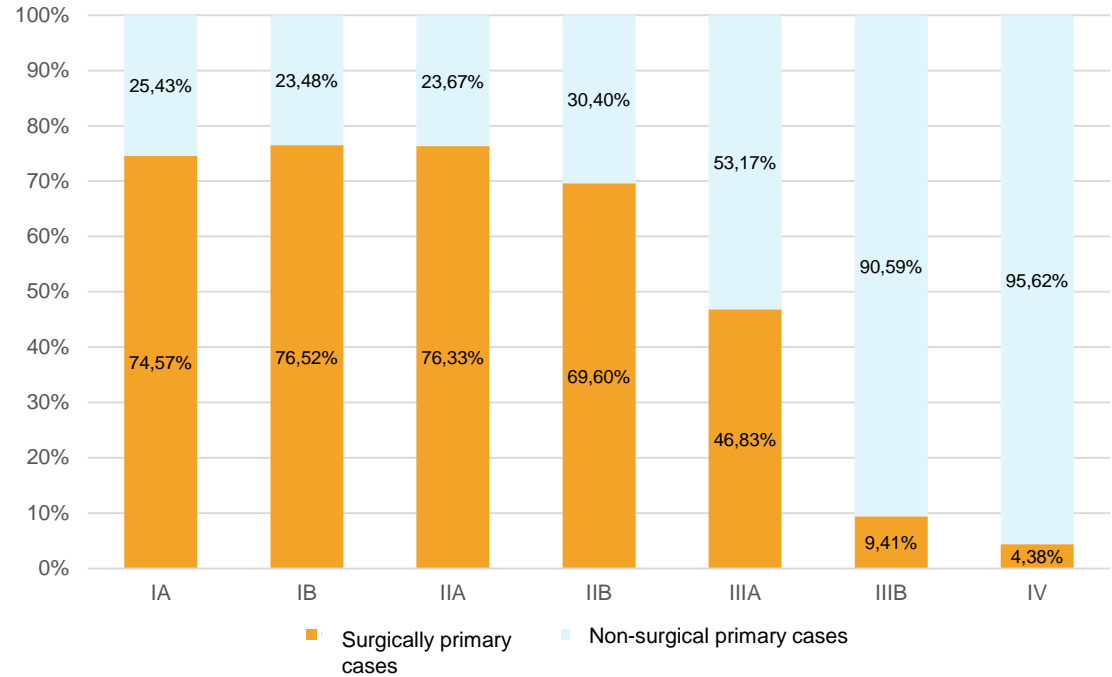
	IA	IB	IIA	IIB	IIIA	IIIB	IV	Total
Surgical primary cases with anatomical lung resection	1,877 (74.57%)	1,010 (76.52%)	787 (76.33%)	712 (69.60%)	1.247 (46.83%)	178 (9.41%)	352 (4.38%)	6,163
Non-surgical primary cases	640 (25.43%)	310 (23.48%)	244 (23.67%)	311 (30.40%)	1,416 (53.17%)	1,714 (90.59%)	7,685 (95.62%)	12,320
Primary cases total	2,517 (13.62%)	1,320 (7.14%)	1,031 (5.58%)	1,023 (5.53%)	2,663 (14.41%)	1,892 (10.24%)	8,037 (43.48%)	18,483

Back to Table of Contents

8

Basic data – Development 2012-2016

Stage distribution primary cases 2012-2016
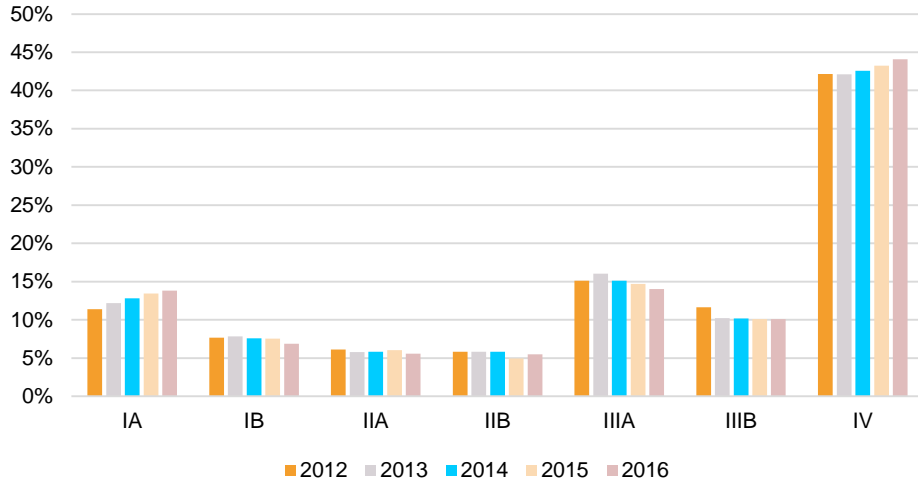
Stage distribution surgical primary cases 2012-2016
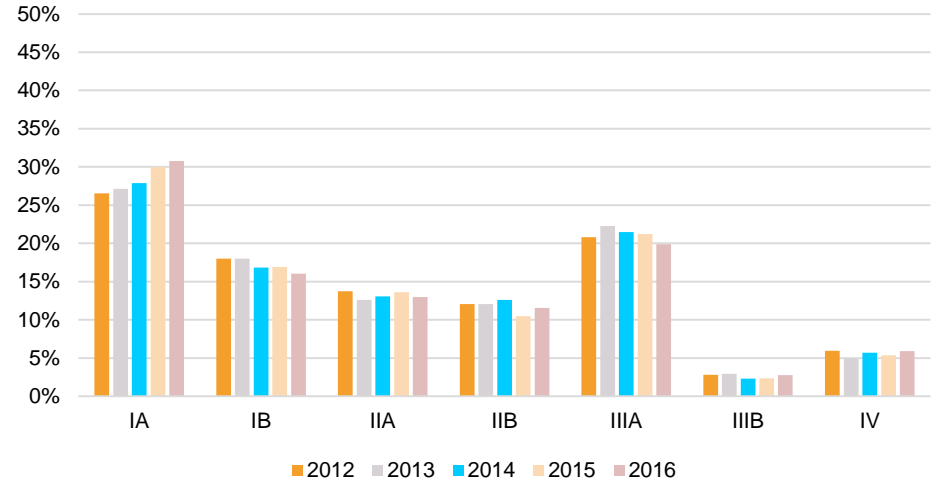
Stage distribution non-surgical primary cases 2012-2016
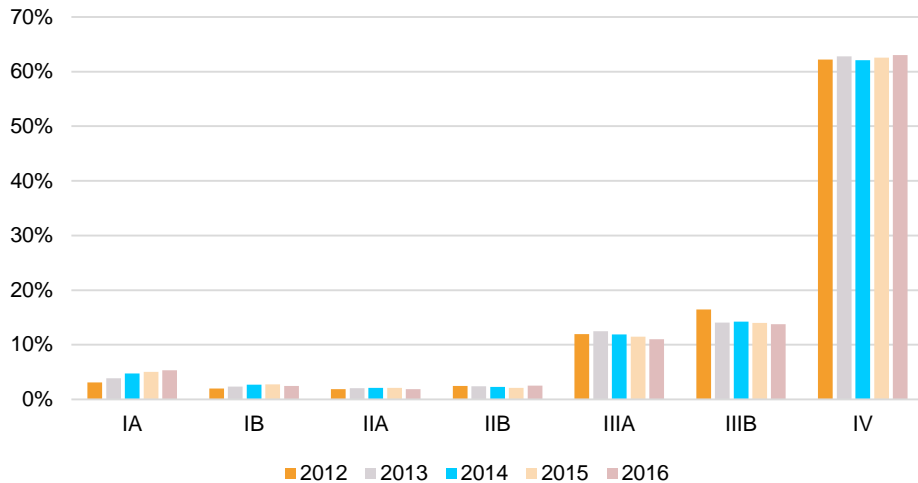
Distribution between surgical and non-surgical primary cases 2012-2016
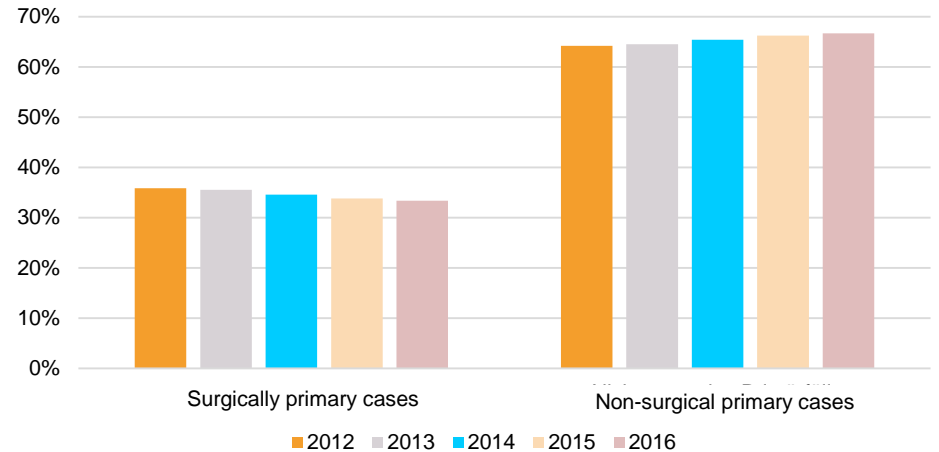
1. Primary cases of the LCCC

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Number

Median 344,00

Sollvorgabe ≥ 200
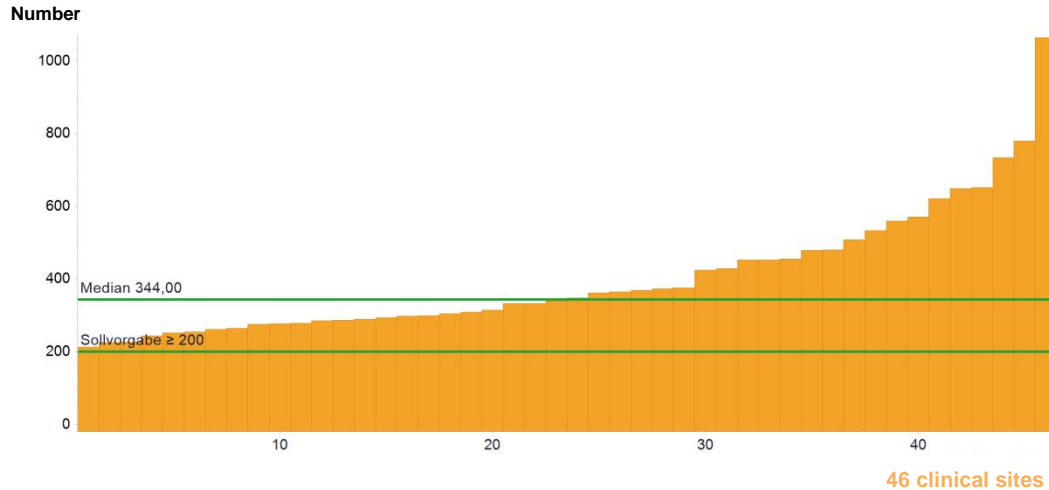
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Total number of primary cases of the LCC (definition primary case: Catalogue of requirements 1.2.1)	344	212 - 1063
	Target value ≥ 200		
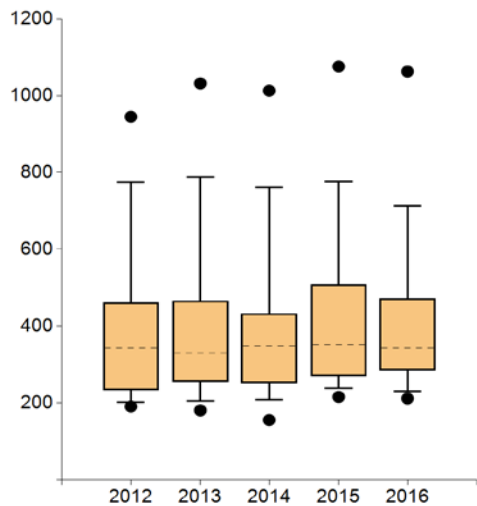
		2012	2013	2014	2015	2016
●	Max	945.00	1032.00	1013.00	1076.00	1063.00
	95th percentile	774.80	787.80	761.00	777.00	713.50
	75th percentile	461.00	465.00	433.00	508.50	472.25
	Median	344.00	329.00	348.00	351.00	344.00
	25th percentile	233.50	255.00	251.00	270.75	285.25
	5th percentile	202.90	205.20	209.00	239.15	231.00
●	Min	191.00	181.00	156.00	216.00	212.00

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100,00%	46	100.00%

Comments:
Again in 2016 all Centres met the target value of at least 200 primary cases. The majority of Centres were able to increase their number of primary cases (25 Centres with an increase, 14 Centres with a decrease). Also the total number of primary cases treated in the Centres increased from 17,343 to 18,483. Of these, 17,981 primary cases were attributed to German clinical sites. Hence, 33.4% of primary cases of lung cancer in Germany were treated in Certified Centres (reference: incident cases of lung cancer in 2014: 53,762, www.krebsdaten.de [Access on: 06.03.2018]).

Sollvorgabe = target value

2a. Pretherapeutic tumour conference

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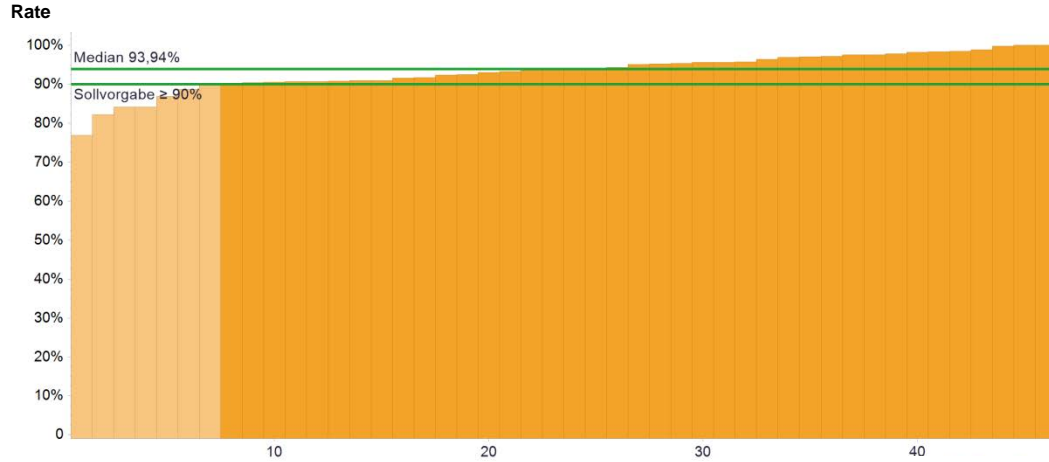
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Primary cases presented in the pretherapeutic conference	324*	192 - 943
Denominator	Primary cases of the LCCC (= indicator 1)	344*	212 - 1063
Rate	Target value ≥ 90%	93.94%	76.90% - 100%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
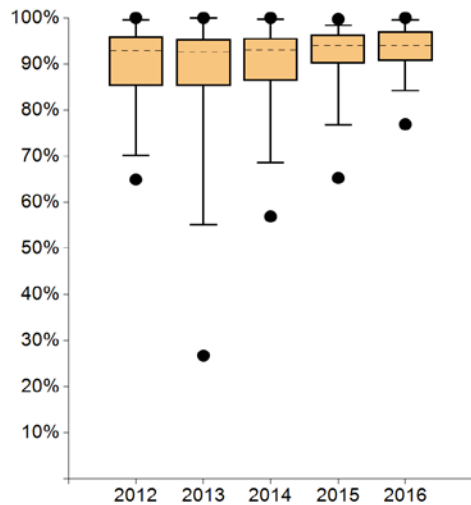
		2012	2013	2014	2015	2016
●	Max	100%	100%	100%	99.72%	100%
	95th percentile	99.60%	100%	99.68%	98.39%	99.48%
	75th percentile	95.94%	95.36%	95.61%	96.39%	97.04%
	Median	92.94%	92.53%	93.08%	94.03%	93.94%
	25th percentile	85.32%	85.24%	86.27%	90.15%	90.69%
	5th percentile	70.14%	55.09%	68.58%	76.73%	84.15%
●	Min	64.92%	26.75%	56.90%	65.25%	76.90%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	39	84.78%

Comments:
The indicator for pretherapeutic tumour conference was very well implemented by the Centres. With the same median of the indicator the 5th and 25th percentiles continued to increase compared with the previous years. The majority of Centres were able to increase their rate. The reasons frequently given by the Centres that did not meet the target value were emergency surgery or diagnostic surgery in conjunction with unclear nodules. They indicated as improvement measures the introduction of a second weekly tumour conference and more consistent presentation of suspicious cases in the tumour conference.

Sollvorgabe = target value

11

2b. Presentation of new recurrence or remote metastasis in the tumour conference

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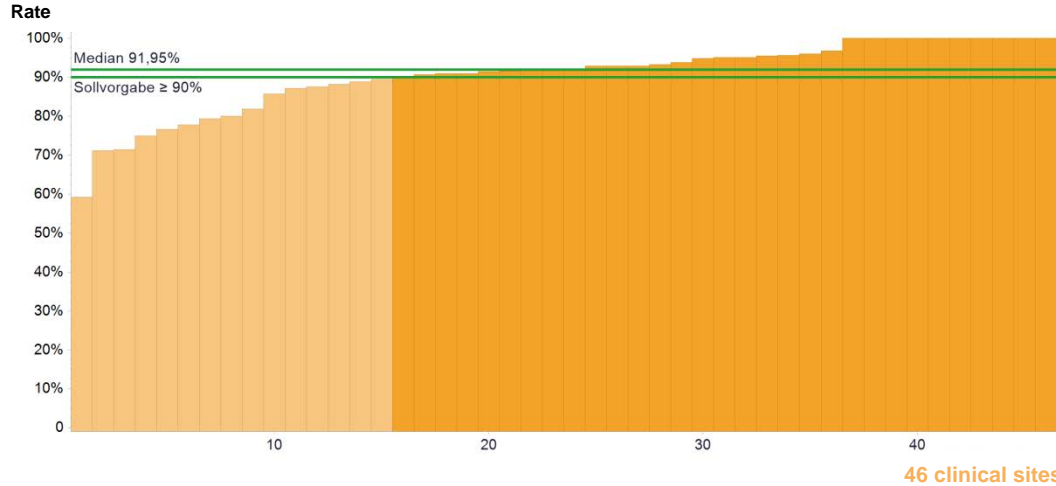
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Patients with new recurrence and/or remote metastasis after previous curative treatment who were presented in the tumour conference	25.5*	4 - 160
Denominator	Patients with new recurrence and/or remote metastasis after previous curative treatment	29.5*	5 - 160
Rate	Target value ≥ 90%	91.95%	59.26% - 100%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
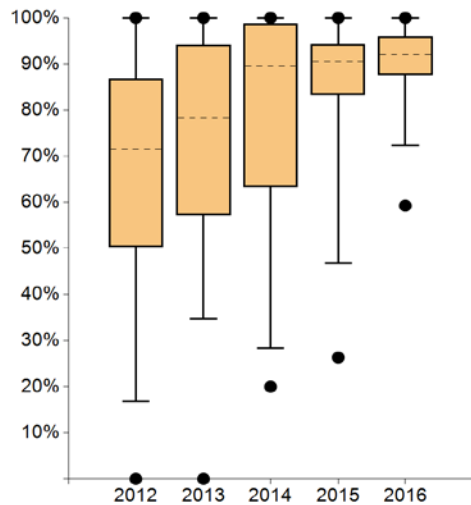
		2012	2013	2014	2015	2016
●	Max	100%	100%	100%	100%	100%
	95th percentile	100%	100%	100%	100%	100%
	75th percentile	86.68%	94.07%	98.71%	94.20%	95.91%
	Median	71.50%	78.24%	89.45%	90.59%	91.95%
	25th percentile	50.37%	57.14%	63.24%	83.33%	87.69%
	5th percentile	16.87%	34.68%	28.35%	46.72%	72.32%
●	Min	0.00%	0.00%	20.00%	26.32%	59.26%

| Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	31	67.39%

Comments:
The indicator was very well implemented. The median increased over the years. The number of Centres that met the target value was slightly higher than the previous year (2015: 59.5%). The reasons given by the Centres that missed the target value were external diagnosis and further treatment of the patients or treatment in other specialty units. The Centre with the lowest rate also had the third worst value the previous year. To improve the rate there are plans for quality circles and a new registration procedure for the tumour conference.

Sollvorgabe = target value

12

3. Tumour conference after surgical therapy of primary cases stages IB-IIIB
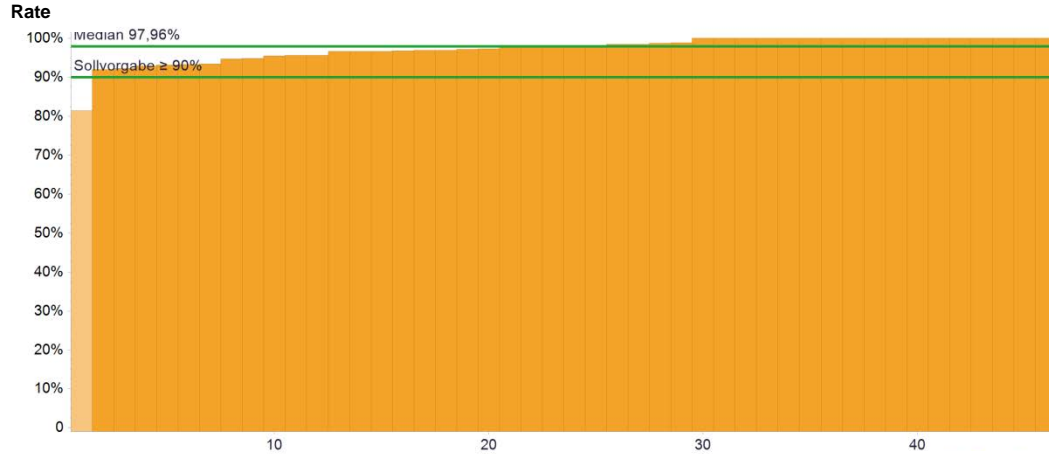
Rate

Median 97,96%

Sollvorgabe ≥ 90%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Primary cases with stages IB-IIIB after surgical therapy that were presented at the tumour conference	70*	35 - 202
Denominator	Primary cases with stages IB-IIIB after surgical therapy	71*	35 - 248
Rate	Target value ≥ 90%	97.96%	81.45% - 100%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
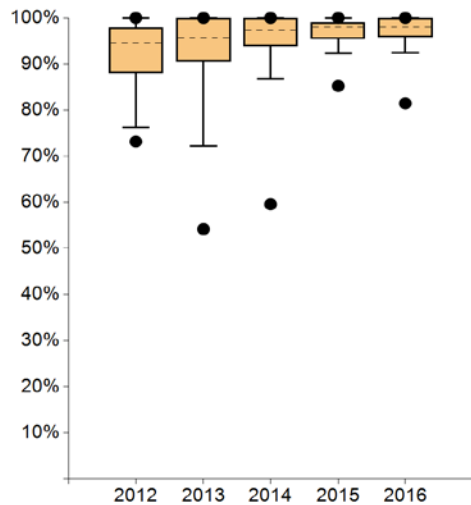

		2012	**2013**	**2014**	**2015**	**2016**
●	Max	100%	100%	100%	100%	100%
	95th percentile	100%	100%	100%	100%	100%
	75th percentile	97.86%	100%	100%	99.04%	100%
	Median	94.49%	95.71%	97.30%	97.99%	97.96%
	25th percentile	88.01%	90.56%	93.86%	95.39%	95.86%
	5th percentile	76.29%	72.16%	86.75%	92.27%	92.39%
●	Min	73.16%	54.17%	59.57%	85.23%	81.45%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	45	97.83%

Comments:
The procedure for post-operative case presentation in the tumour conference of patients with stages IB-IIIB in the Centres continued to be implemented very well. Only one Centre did not meet the target value. The reason given was the cases that were not eligible for adjuvant therapy because of the tumour histology or comorbidity. The failure to meet the target value was discussed in the audit and improvement measures introduced (*inter alia* staff training).

Sollvorgabe = target value

13

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4. Psycho-oncological care

Rate

Begründungspflicht > 60%

Median 37,37%

Begründungspflicht < 10%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Patients who received psycho-oncological care in an inpatient or outpatient setting (duration of consultation ≥ 25 min)	145.5*	38 - 663
Denominator	Primary cases of the LCC (= indicator 1) + patients with a new recurrence and/or remote metastasis after previous curative treatment	377*	249 - 1180
Rate	Explanation mandatory** <10% and >60%	37.37%	12.42% - 77.60%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
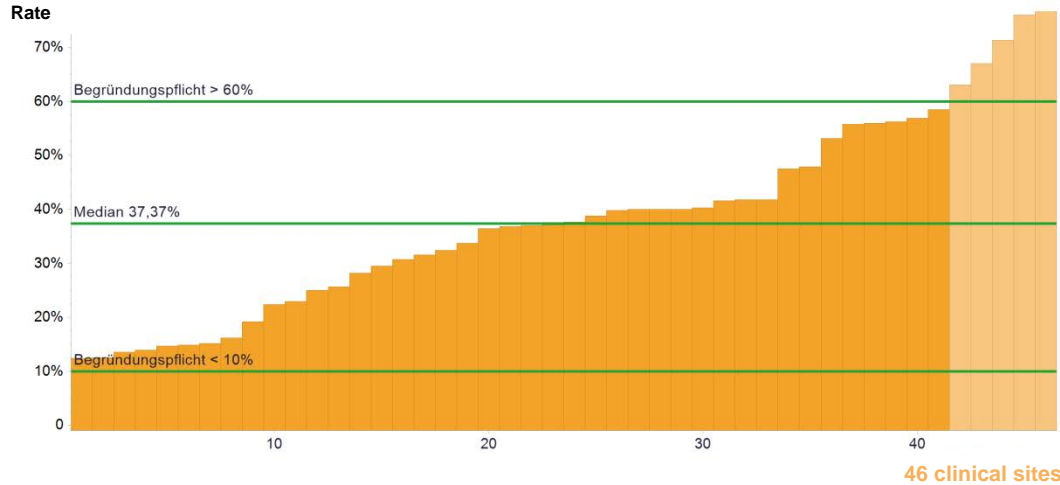** If value is outside the plausablilty corridor. centres have to give an explanation.
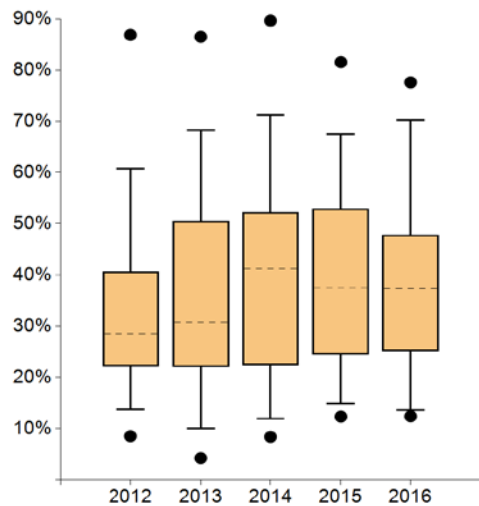
		2012	2013	2014	2015	2016
●	Max	86.86%	86.49%	89.64%	81.54%	77.60%
	95th percentile	60.80%	68.30%	71.22%	67.41%	70.21%
	75th percentile	40.64%	50.58%	52.22%	52.91%	47.76%
	Median	28.47%	30.81%	41.24%	37.41%	37.37%
	25th percentile	22.17%	22.04%	22.41%	24.47%	25.12%
	5th percentile	13.72%	10.00%	12.00%	14.90%	13.65%
●	Min	8.54%	4.25%	8.40%	12.35%	12.42%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	41	89.13%

Comments:
The median of the indicator of psycho-oncological counselling was unchanged compared with the previous year. No Centre was below the rate requiring a statement of reasons of 10%. Out of the 10 Centres with the lowest psycho-oncological counselling rate in 2015, 7 were able to improve their rate in 2016.

Begründungspflicht = mandatory statement of reasons

5. Counselling social services
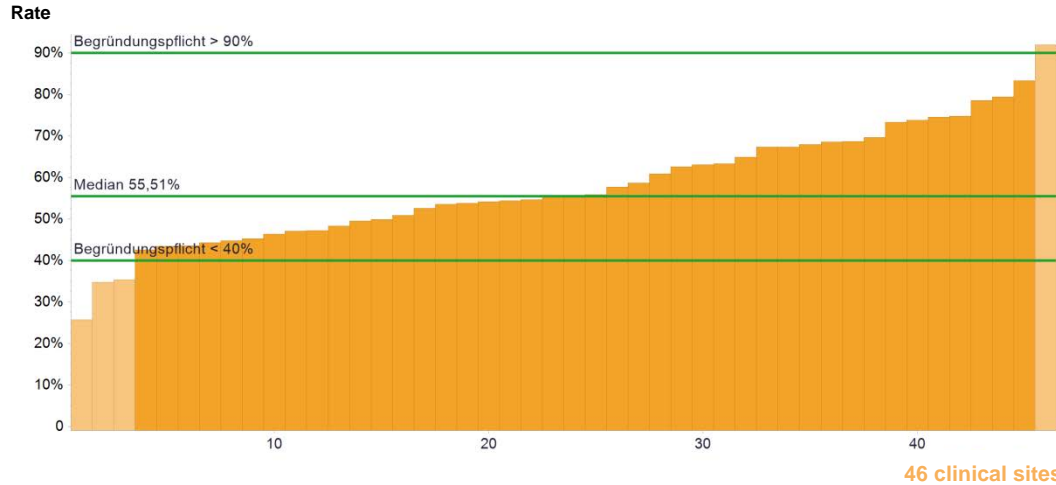
Rate

Begründungspflicht > 90%

Median 55,51%

Begründungspflicht < 40%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Patients who received counselling by the social services in an inpatient or outpatient setting	220.5*	91 - 865
Denominator	Primary cases of the LCC (= indicator 1) + patients with a new recurrence and/or remote metastasis after previous curative treatment	377*	249 - 1180
Rate	Explanation mandatory** <40% and >90%	55.51%	25.71% - 92.00%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
** If value is outside the plausablilty corridor. centres have to give an explanation.
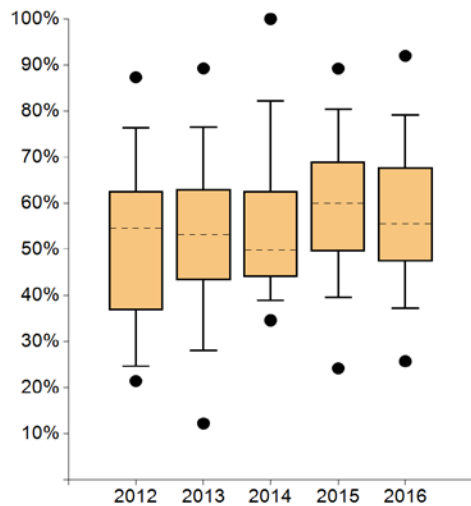

		2012	**2013**	**2014**	**2015**	**2016**
●	Max	87.31%	89.27%	100%	89.23%	92.00%
	95th percentile	76.33%	76.48%	82.24%	80.41%	79.15%
	75th percentile	62.63%	63.02%	62.61%	68.99%	67.73%
	Median	54.52%	53.23%	49.75%	59.93%	55.51%
	25th percentile	36.85%	43.33%	43.97%	49.48%	47.47%
	5th percentile	24.64%	28.16%	38.90%	39.60%	37.17%
●	Min	21.45%	12.26%	34.61%	24.21%	25.71%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	42	91.30%

Comments:
The median of social services counselling fell compared with 2015. 3 Centres were obliged to give reasons because of the low counselling rates. Of them one was located in a German-speaking country outside Germany (social services counselling is mainly organised there in an outpatient setting). Out of the two German Centres with a low rate, one indicated that the hospital had undergone internal restructuring. The auditors pointed out the need to top up staff in the social services.

Begründungspflicht = mandatory statement of reasons

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6. Study participation
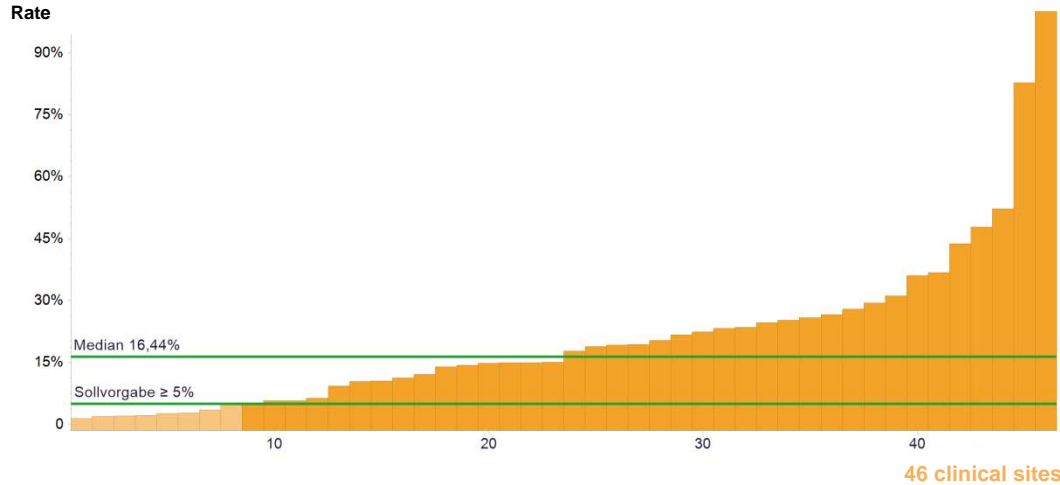
	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Patients included in a study	57*	5 - 1110
Denominator	Primary cases of the LCC (= indicator 1)	344*	212 - 1063
Rate	Target value ≥ 5%	16.44%	1.47% - 104.42%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
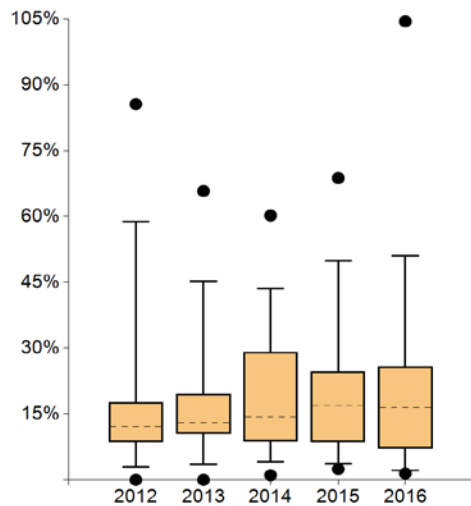
		2012	2013	2014	2015	2016
●	Max	85.57%	65.77%	60.22%	68.73%	104.42%
	95th percentile	58.83%	45.22%	43.50%	49.93%	51.09%
	75th percentile	17.67%	19.54%	29.06%	24.69%	25.72%
	Median	12.19%	12.98%	14.40%	16.97%	16.44%
	25th percentile	8.68%	10.49%	8.80%	8.69%	7.12%
	5th percentile	2.94%	3.47%	4.09%	3.63%	2.10%
●	Min	0.00%	0.00%	1.06%	2.43%	1.47%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	38	82.61%

Comments:
The indicator of study participation was almost unchanged compared with the previous year. Compared with 2015 slightly more Centres failed to meet the target value of 5% in 2016 (2015: 6, 2016: 8). The reasons given by the Centres for the low study rate were that studies had been completed or that, despite a higher screening rate, patients were not suitable for study participation. Furthermore, they stated they were planning to launch further studies. In some cases the auditors could already observe a good development of the indicator for 2017.

Sollvorgabe = target value

Back to Table of Contents

7. Flexible bronchoscopy

Number
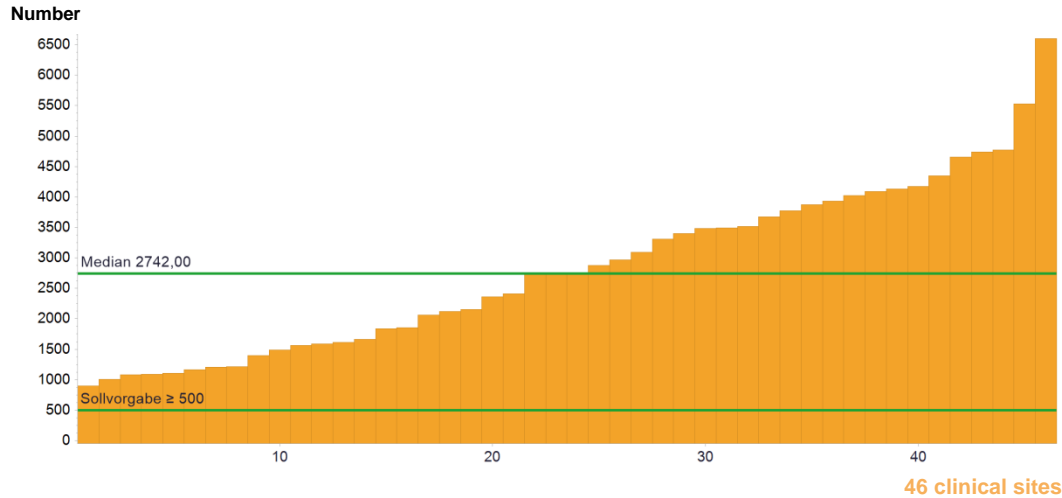
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Flexible bronchoscopies for each service provider	2742	896 - 6597
	Target value ≥ 500		
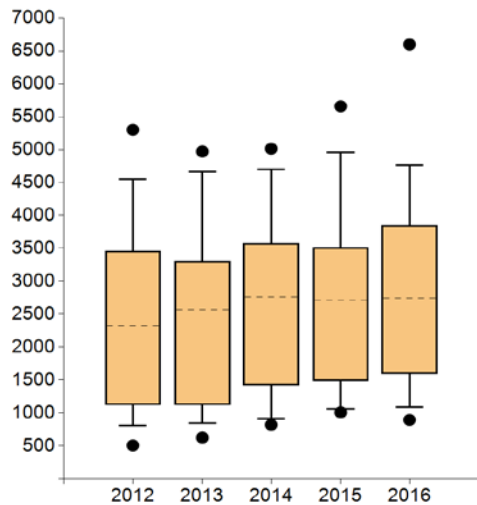
		2012	2013	2014	2015	2016
●	Max	5300.00	4971.00	5014.00	5657.00	6597.00
	95th percentile	4551.30	4660.00	4701.00	4953.85	4761.00
	75th percentile	3456.00	3304.00	3581.00	3515.00	3846.50
	Median	2327.00	2567.00	2764.00	2705.50	2742.00
	25th percentile	1122.50	1128.00	1421.00	1482.50	1592.50
	5th percentile	812.10	843.20	912.00	1060.75	1083.00
●	Min	508.00	625.00	822.00	1009.00	896.00

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	46	100.00%

Comments:
As in the previous year all Centres met the target value for the proof of expertise when conducting flexible bronchoscopies.

Sollvorgabe = target value

17

8. Interventional bronchoscopy (thermal procedures and stenting)

Number

Median 63,50

Sollvorgabe ≥ 10
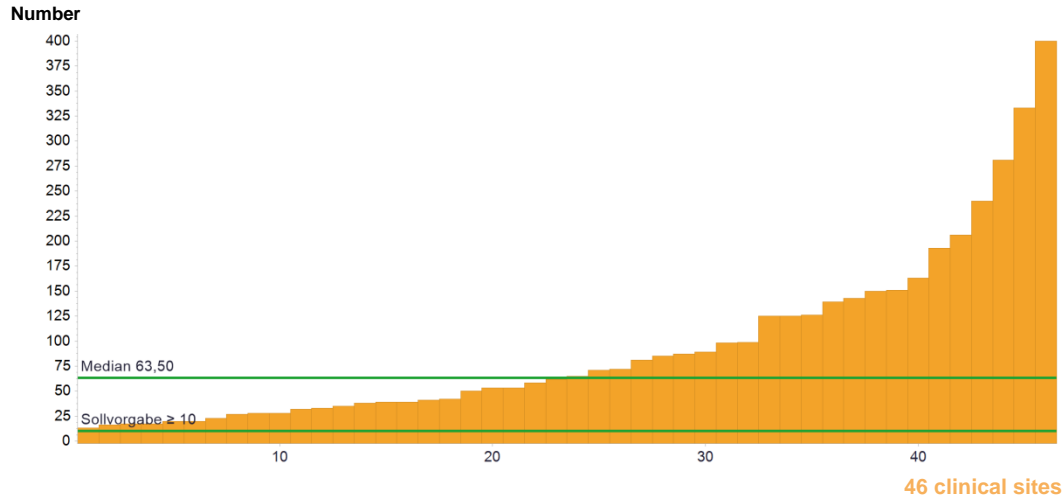
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Interventional surgery (thermal procedures and stenting) for each service provider	63.5	13 - 400
	Target value ≥ 10		
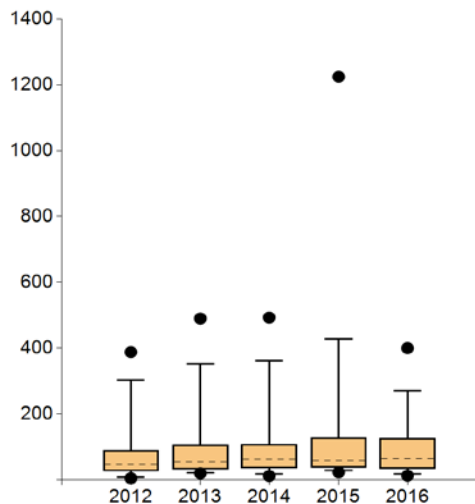
		2012	2013	2014	2015	2016
●	Max	388.00	490.00	493.00	1224.00	400.00
	95th percentile	302.10	352.40	361.00	427.80	270.75
	75th percentile	90.00	106.00	109.00	129.00	125.75
	Median	47.00	55.00	61.00	57.50	63.50
	25th percentile	27.00	32.00	36.00	38.50	33.50
	5th percentile	7.70	20.80	17.00	29.05	17.00
●	Min	5.00	20.00	12.00	23.00	13.00

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	45	97.83%

Comments:
The median of the number of interventional procedures increased compared with 2015. 45 out of 46 Centres reached the target value of at least 10 surgical procedures. The Centre that missed the target value consists of three cooperation partners for pneumology whereby two partners met the target value and one did not (8 interventional procedures). The next audit will focus on all cooperating partners meeting the target value.

Sollvorgabe = target value

18

9a. Lung resections – surgical primary cases

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Number
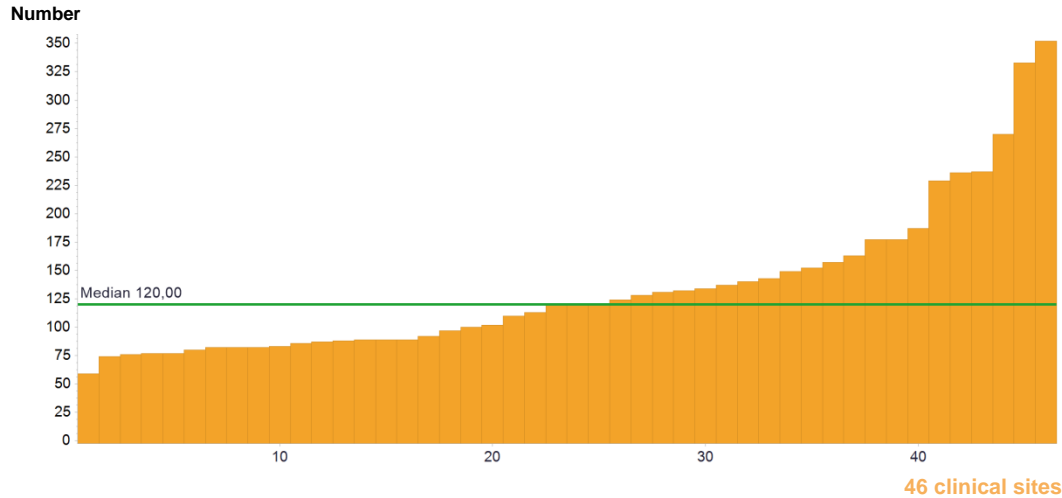
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Surgical primary cases anatomical lung resections	120	59 - 352
	No target value defined		
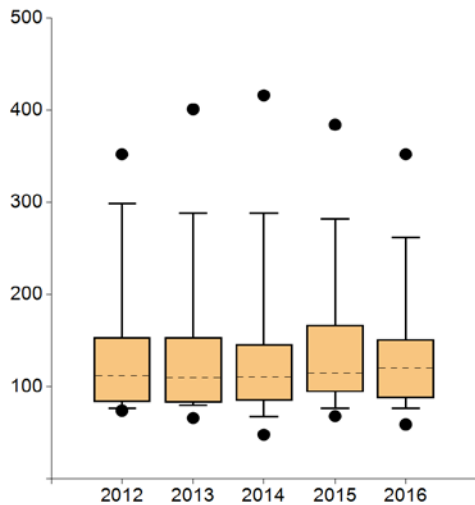
		2012	2013	2014	2015	2016
●	Max	352.00	401.00	416.00	384.00	352.00
	95th percentile	298.60	288.00	288.00	282.15	261.75
	75th percentile	153.50	154.00	146.00	166.75	151.25
	Median	112.00	110.00	111.00	115.00	120.00
	25th percentile	83.50	83.00	85.00	94.00	87.25
	5th percentile	76.40	79.80	68.00	76.05	76.25
●	Min	74.00	66.00	48.00	68.00	59.00

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	-----	-----

Comments:
The median of the number of lung resections in the initial treatment of patients with lung carcinomas continued to increase slightly compared with the previous years. In 2016 6,163 lung resections were performed in the Centres; this means 301 more resections than the previous year (5,862 in 2015).
The Centre with the fewest resections in surgical primary cases also had the lowest number of resections for proof of surgical expertise (Indicator 9b).

Back to Table of Contents

19

9b. Lung resections – surgical expertise

Number
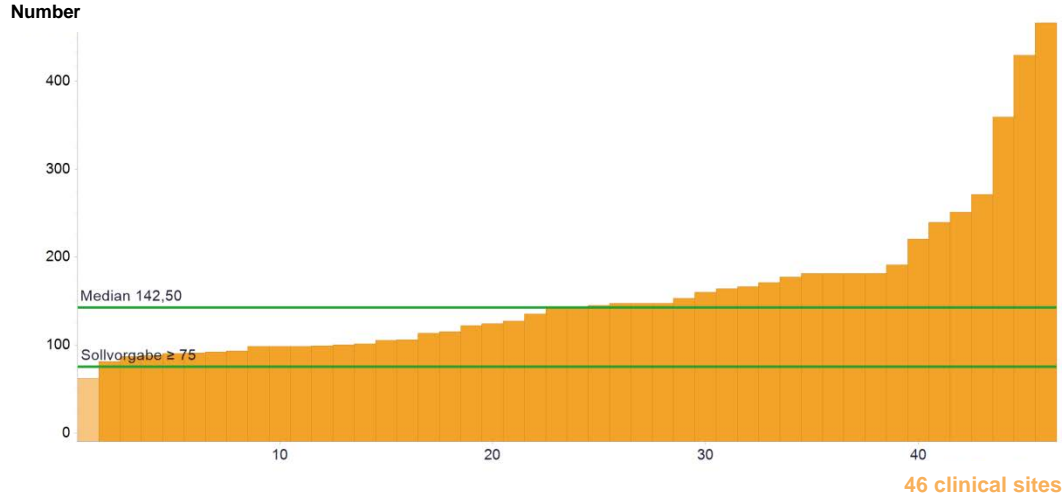
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Number anatomical resections (OPS: 5-323 to 5-328, 6-digits; exclusively with ICD-10 C34	142.5	62 - 466
	Target value ≥ 75		
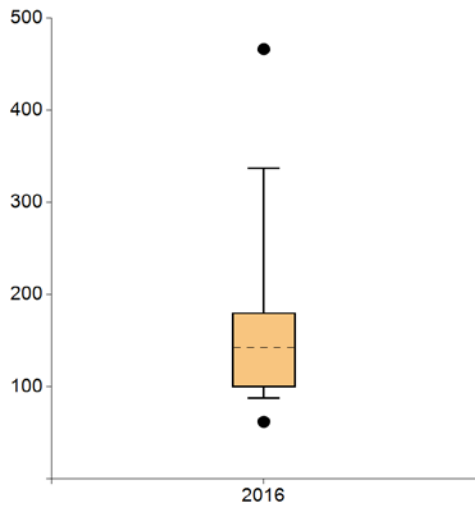
2016

		2012	2013	2014	2015	2016
●	Max	-----	-----	-----	-----	466.00
	95th percentile	-----	-----	-----	-----	337.00
	75th percentile	-----	-----	-----	-----	180.00
	Median	-----	-----	-----	-----	142.50
	25th percentile	-----	-----	-----	-----	99.25
	5th percentile	-----	-----	-----	-----	87.25
●	Min	-----	-----	-----	-----	62.00

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	45	97.83%

Comments:
Since 2016 surgical expertise has been recorded on the basis of the number of anatomical lung resections for all malignant tumours. It is done in addition to recording the resections of malignant primary tumours of the lung (Indicator 9a). The reason for this is that surgical expertise depends on the type of surgical procedure and not on the type of tumour. Compared to Indicator 9a the median is as expected higher . In the case of the Centre that failed to meet the target value, a surveillance audit was conducted in 2017 (proof must be given of reaching the case number in the recertification [every 3 years]).

Sollvorgabe = target value

20

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10. Share of pneumonectomies in lung resections
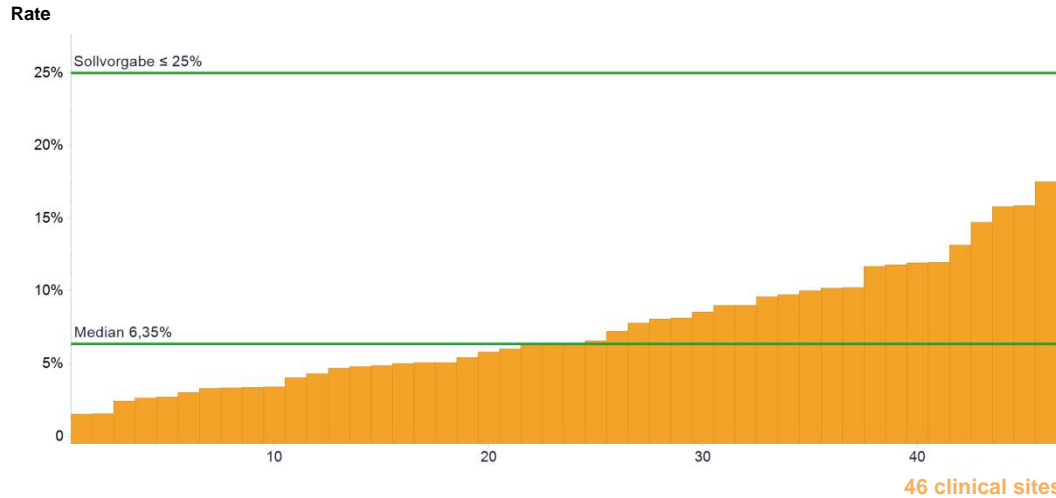
Rate

Sollvorgabe ≤ 25%

Median 6,35%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Primary cases with pneumonectomies	8*	2 - 36
Denominator	Primary cases with lung resection per department (= indicator 9a)	120*	59 - 352
Rate	Target value ≤ 25%	6.35%	1.53% - 17.50%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
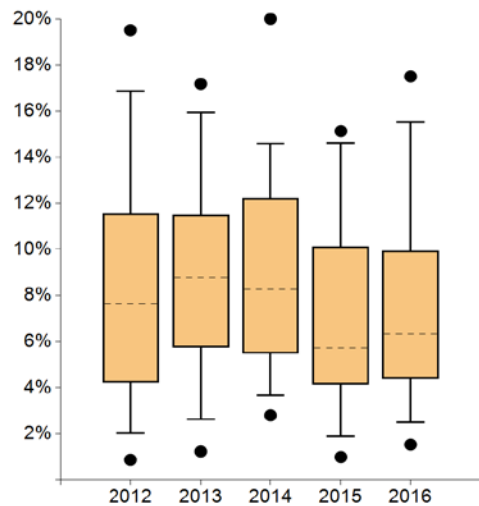
		2012	2013	2014	2015	2016
●	Max	19.51%	17.18%	20.00%	15.13%	17.50%
	95th percentile	16.88%	15.94%	14.58%	14.60%	15.52%
	75th percentile	11.56%	11.49%	12.20%	10.11%	9.94%
	Median	7.64%	8.78%	8.27%	5.73%	6.35%
	25th percentile	4.23%	5.75%	5.48%	4.13%	4.39%
	5th percentile	2.01%	2.63%	3.66%	1.89%	2.49%
●	Min	0.87%	1.23%	2.80%	0.99%	1.53%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	46	100.00%

Comments:
As in the previous year all Centres met the target value regarding the number of pneumectomies in the lung resections performed (≤ 25%). The median of the indicator increased compared to the previous year; the 25th and 75th percentiles remained almost the same. High rates of pneumectomies do not correlate with a low share of angioplasty/bronchioplasty procedures (Indicator 11).

Sollvorgabe = target value

11. Share of bronchoplasty/angioplasty procedures in lung resections
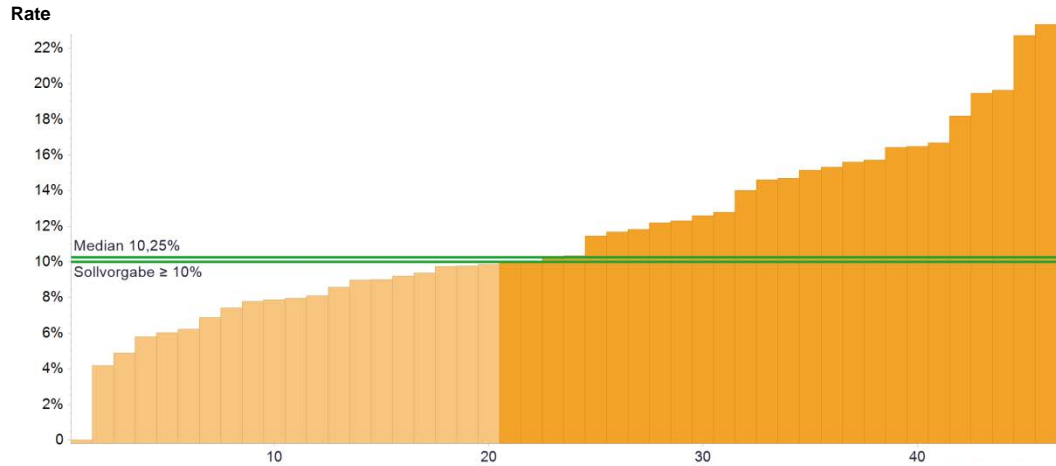
Rate

Median 10,25%
Sollvorgabe ≥ 10%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Primary cases with bronchoplasty/angioplasty procedures	13*	0 - 53
Denominator	Primary cases with lung resection per department (= indicator 9a)	120*	59 - 352
Rate	Target value ≥ 10%	10.25%	0.00% - 23.38%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
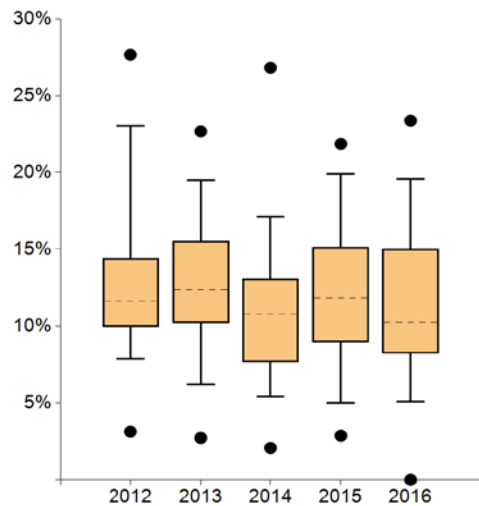

|		2012	2013	2014	2015	2016
●	Max	27.67%	22.68%	26.82%	21.86%	23.38%
	95th percentile	23.02%	19.50%	17.14%	19.89%	19.59%
	75th percentile	14.43%	15.53%	13.08%	15.15%	15.04%
	Median	11.61%	12.35%	10.83%	11.85%	10.25%
	25th percentile	9.96%	10.21%	7.69%	8.96%	8.23%
	5th percentile	7.87%	6.22%	5.41%	5.01%	5.11%
●	Min	3.14%	2.73%	2.08%	2.88%	0.00%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	26	56.52%

Comments:
The median of the indicator fell compared with the previous year. Out of the 13 Centres, that did not meet the target value in 2015, 8 were able to increase their rate and 7 reached the target value in 2016. The reasons given by the Centres with rates below the target value were a small number of central tumours and a high share of early tumour stages. The auditors verified the correctness of the indication and paid particular attention to a low rate of lobectomies and R1 resections. The reason given by the Centre with the 0% value was a complete restructuring of the surgical team that had not been concluded until January 2017.

Sollvorgabe = target value

22

12. 30d lethality after resections
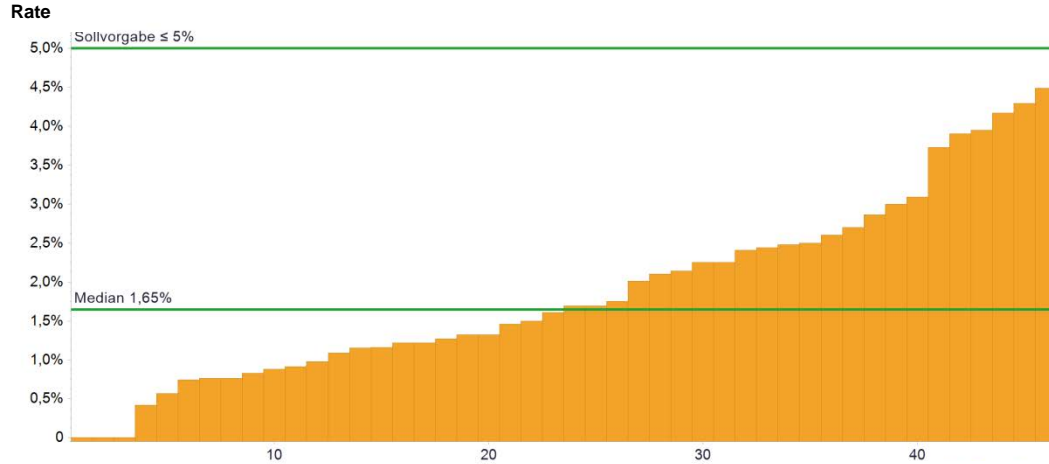
Rate

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Post-operative deceased patients after resection within 30d	2*	0 - 7
Denominator	Primary cases with lung resection per department (= indicator 9a)	120*	59 - 352
Rate	Target value ≤ 5%	1.65%	0.00% - 4.49%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
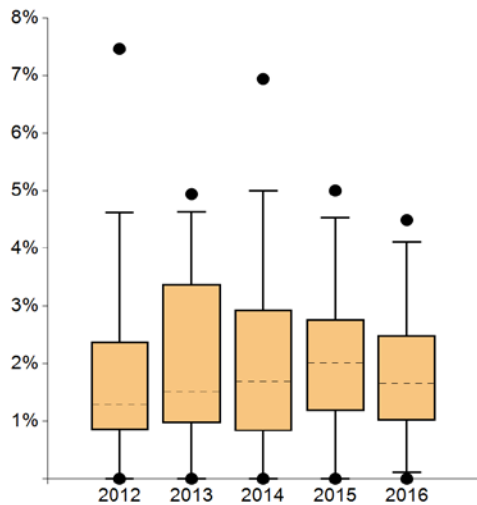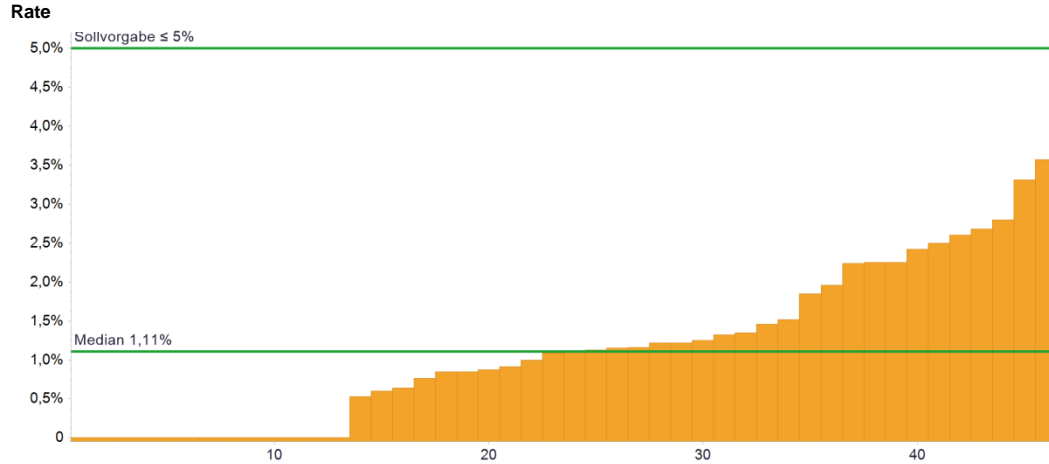

		2012	2013	2014	2015	2016
●	Max	7.46%	4.94%	6.94%	5.00%	4.49%
	95th percentile	4.62%	4.63%	5.00%	4.53%	4.12%
	75th percentile	2.37%	3.38%	2.94%	2.77%	2.50%
	Median	1.29%	1.52%	1.69%	2.02%	1.65%
	25th percentile	0.86%	0.97%	0.83%	1.18%	1.01%
	5th percentile	0.00%	0.00%	0.00%	0.00%	0.11%
●	Min	0.00%	0.00%	0.00%	0.00%	0.00%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	46	100.00%

Comments:
The indicator of post-operative mortality was very well implemented in the Centres. The median fell compared with the previous year. As in 2015, all Centres again met the target value this year, too (post-operative mortality rate maximum 5%). In an evaluation from the clinical cancer registries on the occasion of the Oncology Quality Conference in 2018, the mean 30d lethality was 2.08% (https://dkk.conference2web.com/). The Certified Centres had a mean 30d lethality of 1.86%.

Sollvorgabe = target value

23

13. Post-operative bronchial stump/anastomosis insufficiency

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Rate

Sollvorgabe ≤ 5%

Median 1,11%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Post-operative bronchial stump/anastomosis insufficiency	1*	0 - 5
Denominator	Primary cases with lung resection per department (= indicator 9a)	120*	59 - 352
Rate	Target value ≤ 5%	1.11%	0.00% - 3.57%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
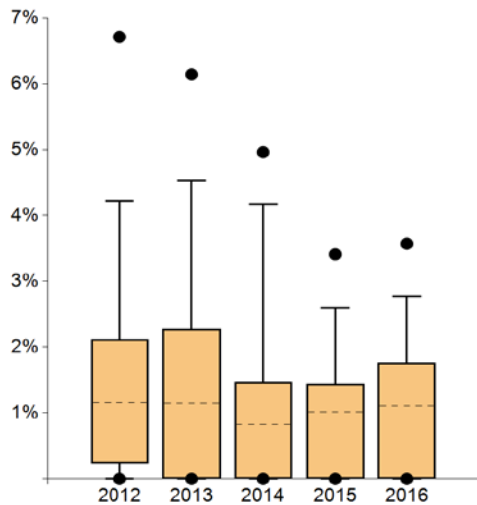
		2012	2013	2014	2015	2016
●	Max	6.71%	6.14%	4.96%	3.41%	3.57%
	95th percentile	4.22%	4.53%	4.17%	2.59%	2.77%
	75th percentile	2.12%	2.27%	1.47%	1.44%	1.77%
	Median	1.16%	1.15%	0.83%	1.01%	1.11%
	25th percentile	0.24%	0.00%	0.00%	0.00%	0.00%
	5th percentile	0.00%	0.00%	0.00%	0.00%	0.00%
●	Min	0.00%	0.00%	0.00%	0.00%	0.00%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	46	100.00%

Comments:
The median of the indicator on post-operative bronchial stump/anastomosis insufficiencies increased slightly over the years (from 2014 to 2016). As in the previous year all Centres did, however, meet the target value (≤ 5%).

Sollvorgabe = target value

Back to Table of Contents

24

14. Revision surgeries

Rate
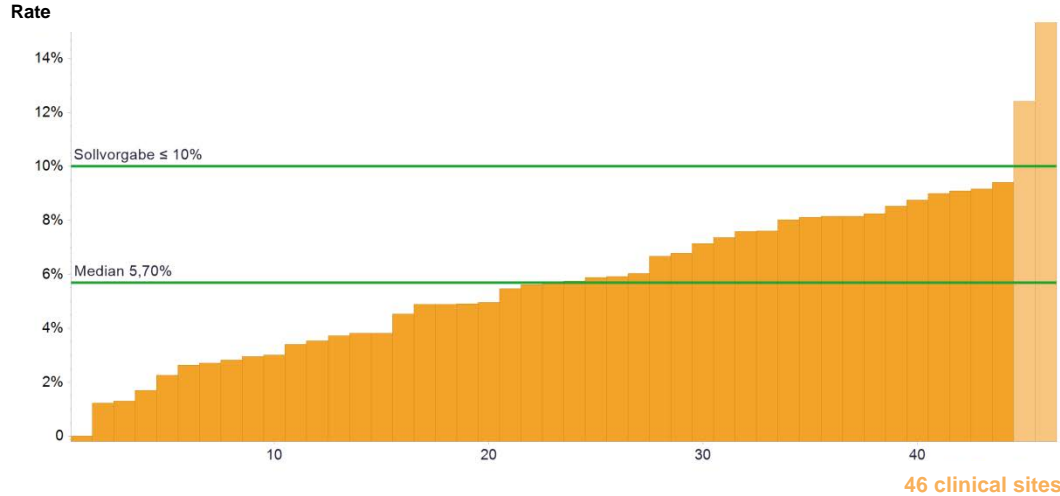
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Revision surgeries resulting from perioperative complications	7*	0 - 30
Denominator	Primary cases with lung resection per department (= indicator 9a)	120*	59 - 352
Rate	Target value ≤ 10%	5.70%	0.00% - 15.58%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
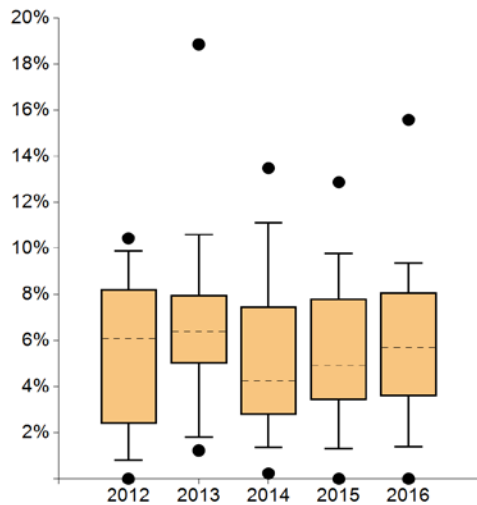

		2012	2013	2014	2015	2016
●	Max	10.44%	18.85%	13.48%	12.87%	15.58%
	95th percentile	9.89%	10.59%	11.11%	9.78%	9.34%
	75th percentile	8.20%	7.98%	7.46%	7.82%	8.09%
	Median	6.09%	6.38%	4.24%	4.93%	5.70%
	25th percentile	2.40%	5.00%	2.80%	3.43%	3.59%
	5th percentile	0.81%	1.81%	1.37%	1.31%	1.40%
●	Min	0.00%	1.23%	0.24%	0.00%	0.00%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	44	95.65%

Comments:
The median of the indicator for the revision rate increased compared with the previous two years. Nonetheless, the Centres met the target value well. Two Centres failed to meet the target value. In both Centres the auditors conducted individual case analyses. One of the Centres had a high revision rate the previous year, too, which was mainly caused by revision surgeries because of prolonged drainage treatment in conjunction with persistent fistula volume. In the audit attention was drawn to the need to introduce improvement measures.

Sollvorgabe = target value

25

15. Local R0 resections in stages IA/B and IIA/B

Rate

Median 98,29%

Sollvorgabe ≥ 95%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Primary cases with local R0 resections in stages IA/B and IIA/B after conclusion of surgical therapy	88.5*	47 - 238
Denominator	Operated primary cases patients in stages IA/B and IIA/B	90.5*	47 - 240
Rate	Target value ≥ 95%	98.29%	91.94% - 100%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
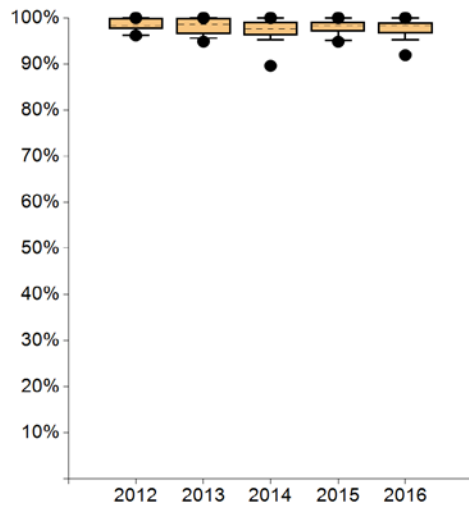

		2012	**2013**	**2014**	**2015**	**2016**
●	Max	100%	100%	100%	100%	100%
	95th percentile	100%	100%	100%	100%	100%
	75th percentile	100%	100%	99.12%	99.20%	99.01%
	Median	98.38%	98.59%	97.59%	98.29%	98.29%
	25th percentile	97.50%	96.55%	96.20%	97.06%	96.64%
	5th percentile	96.28%	95.61%	95.14%	95.04%	95.15%
●	Min	96.15%	94.87%	89.61%	94.85%	91.94%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	44	95.65%

Comments:
The indicator continued to be well implemented in the Centres. Almost all Centres reached the target value for the R0 resection rate for lung carcinomas in stages IA/B and IIA/B. The reasons given by the two Centres for not meeting the target value are, inter alia, a discrepancy between frozen sections and final diagnosis or the difficult anatomical circumstances. During the audits individual cases were analysed and retraced by the auditors.
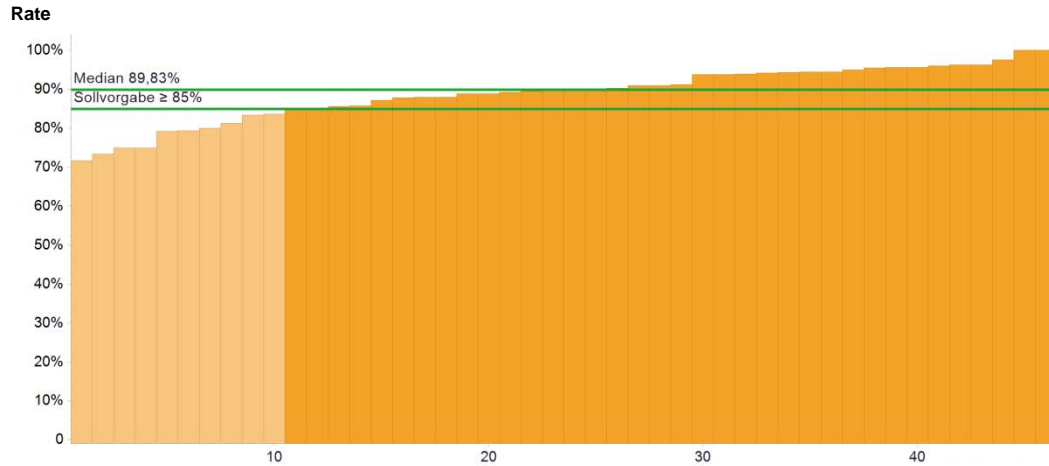
Sollvorgabe = target value

16. Local R0 resections in stages IIIA/B

Rate

Median 89,83%
Sollvorgabe ≥ 85%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Primary cases with local R0 resections in stages IIIA/B after conclusion of surgical therapy	23*	6 - 89
Denominator	Operated primary cases in stages IIIA/B	25*	7 - 104
Rate	Target value ≥ 85%	89.83%	71.70% - 100%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
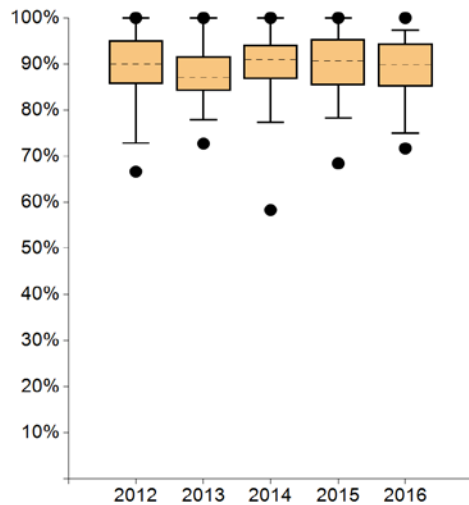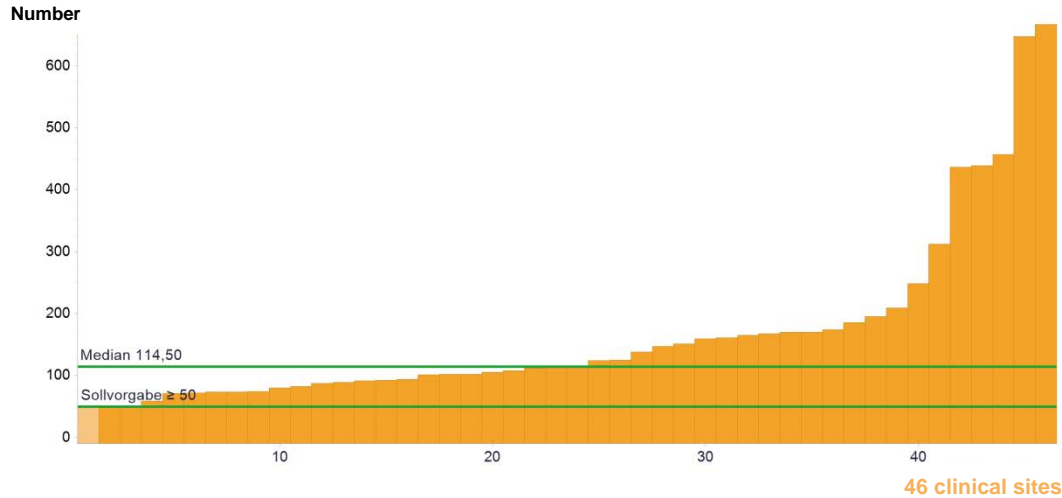

		2012	2013	2014	2015	2016
●	Max	100%	100%	100%	100%	100%
	95th percentile	100%	100%	100%	99.94%	97.29%
	75th percentile	95.00%	91.67%	94.12%	95.32%	94.40%
	Median	90.00%	87.04%	90.91%	90.70%	89.83%
	25th percentile	85.71%	84.21%	86.67%	85.37%	85.15%
	5th percentile	72.78%	77.89%	77.34%	78.26%	75.00%
●	Min	66.66%	72.73%	58.33%	68.42%	71.70%

| Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	36	78.26%

Comments:
The median of the indicator remained more or less the same compared with the previous year. The share of Centres that met the target value increased slightly (2015: 76.2%). 9 out of the 10 Centres that failed to meet the target value in 2015, were able to increase their rate. The reasons given by the Centres that missed the target value in 2016 were erroneous frozen section diagnosis or difficult anatomic circumstances. The improvement measures indicated are: Alignment of frozen section procedures and wider preoperative diagnosis.

Sollvorgabe = target value

17. Thoracic radiotherapy

Number

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Thoracic radiotherapy (not just referring to primary cases)	114.5	49 - 688
	Target value ≥ 50		
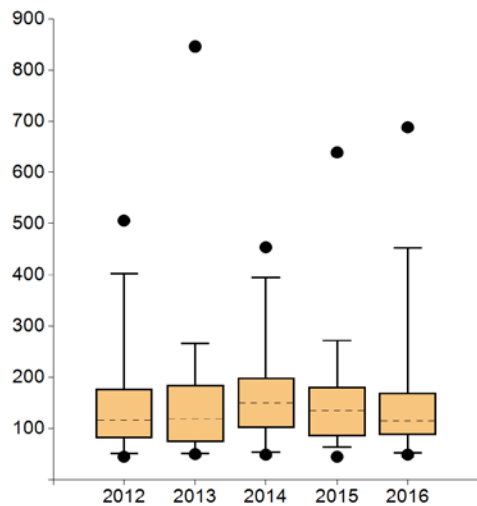
		2012	2013	2014	2015	2016
●	Max	506.00	846.00	454.00	639.00	688.00
	95th percentile	403.25	265.40	394.00	271.85	452.50
	75th percentile	178.25	185.00	199.00	181.75	170.00
	Median	115.50	118.00	151.00	135.00	114.50
	25th percentile	81.00	74.00	102.00	85.25	87.50
	5th percentile	52.00	52.00	54.00	63.15	52.25
●	Min	45.00	50.00	49.00	45.00	49.00

| Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	41	89.13%

Comments:
The median of thoracic radiotherapy fell compared with the previous year. Overall the target value was well met in the Centres. 5 Centres did not meet the target value whereby in 4 Centres several cooperations were listed for the radiotherapy and only some of the listed partners missed the target value (2 Centres: 1/2, 1 Centre 1/3, 1 Centre: 3/4). In the above graph these Centres are not described as conspicuous I as the irradiations are presented cumulatively for all Centre partners. In these 5 Centres the next audit will focus on meeting the target value.

Sollvorgabe = target value

18. Pathology reports

Number
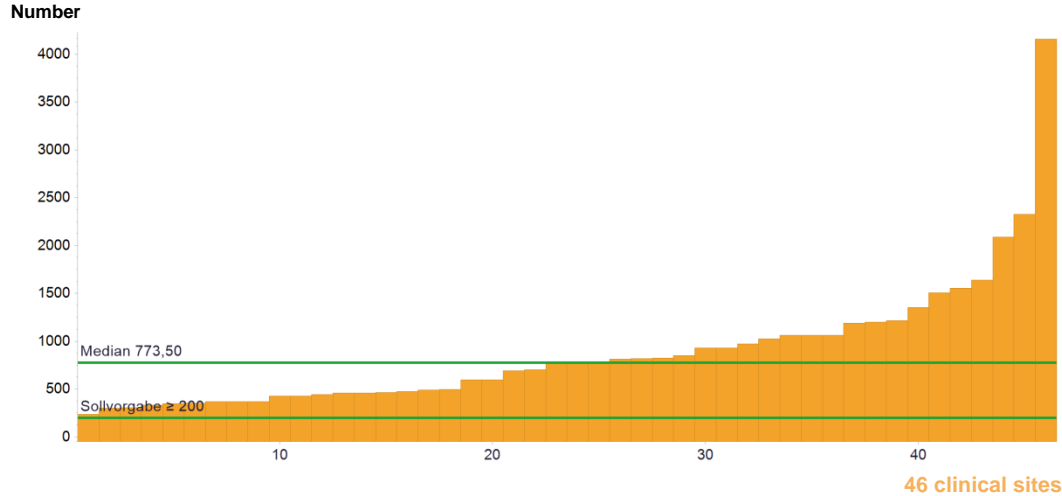
46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Number	Assessed malignant lung cases	773.5	235 - 4158
	Target value ≥ 200		
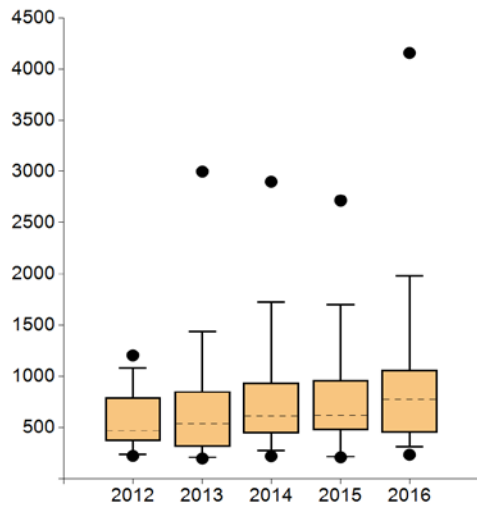
		2012	2013	2014	2015	2016
●	Max	1206.00	3000.00	2900.00	2718.00	4158.00
	95th percentile	1081.85	1440.00	1724.00	1698.60	1976.75
	75th percentile	792.25	854.00	936.00	958.00	1061.00
	Median	470.00	536.00	613.00	620.50	773.50
	25th percentile	369.00	314.00	445.00	475.50	447.00
	5th percentile	238.30	213.40	275.00	217.55	313.00
●	Min	224.00	200.00	221.00	211.00	235.00

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	46	100.00%

Comments:
The median of pathological reports increased compared with the previous year. When looking at the Centres that were included in the annual report 2015 and also 2016, the total number of pathological reports increased from 32,172 (2015) to 37,462 (2016).
As in previous years all Centres met the target value.

Sollvorgabe = target value

Back to Table of Contents

29

19. Adjuvant cisplatin-containing chemotherapy stages II-IIIA1/2 (GL QI 3)

Rate
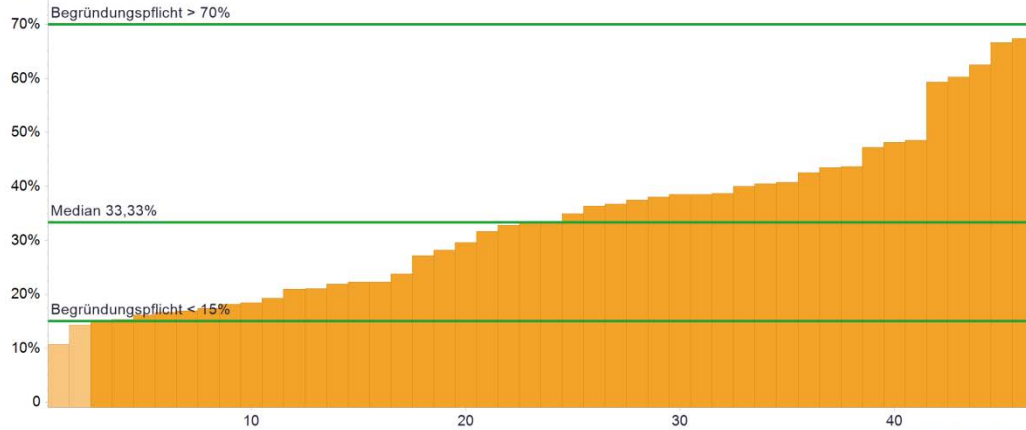
Begründungspflicht > 70%

Median 33,33%

Begründungspflicht < 15%

46 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Cisplatin-based chemotherapy to treat primary cases of R0 and lymph node resected NSCLCC stages II-IIIA1/2 with ECOG 0/1	12*	2 - 48
Denominator	R0 and lymph node NSCLCC primary cases stage II-IIIA1/2	37*	9 - 148
Rate	Explanation mandatory** <15% and >70%	33.33%	10.71% - 67.39%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
** If value is outside the plausablilty corridor. centres have to give an explanation.
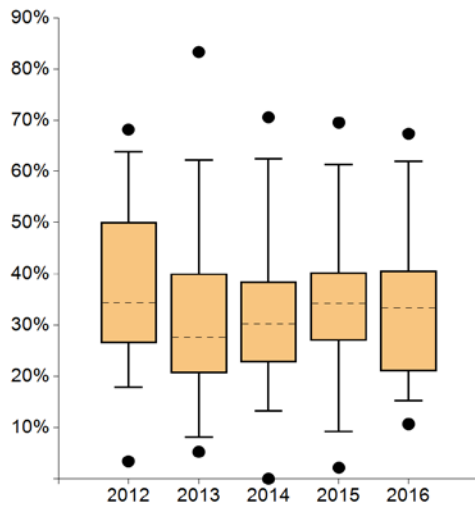
		2012	**2013**	**2014**	**2015**	**2016**
●	Max	68.18%	83.33%	70.59%	69.57%	67.39%
	95th percentile	63.83%	62.23%	62.50%	61.39%	61.94%
	75th percentile	50.00%	40.00%	38.46%	40.32%	40.66%
	Median	34.37%	27.68%	30.23%	34.25%	33.33%
	25th percentile	26.50%	20.69%	22.82%	27.01%	20.96%
	5th percentile	17.91%	8.16%	13.25%	9.19%	15.26%
●	Min	3.44%	5.26%	0.00%	2.17%	10.71%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
46	100.00%	44	95.65%

Comments:
The implementation of the quality indicator of the Guidelines remained almost the same over the course of time. All four Centres which had a rate requiring a statement of reasons of less than 15% in 2015 were able to increase their rate to more than 15% in 2016.
In 2016 two Centres had rates below 15%. The reasons given were that the patients were not suitable for treatment with cisplatin because of comorbidities or that carboplatin was administered instead of cisplatin.

Begründungspflicht = mandatory statement of reasons

20. Combined radio-chemotherapy in stages IIIA4/IIIB (GL QI 4)

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Rate

Begründungspflicht > 70%

Median 41,38%

Begründungspflicht < 15%
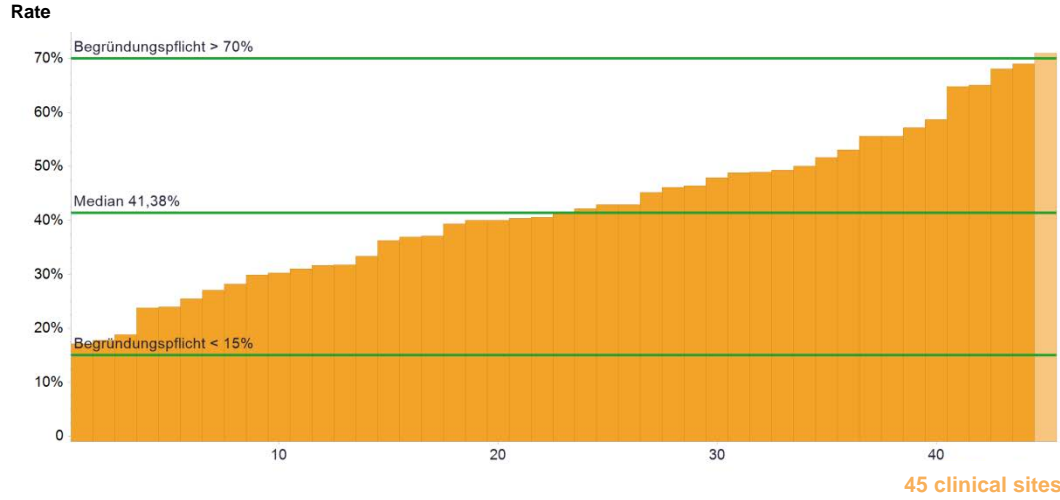
45 clinical sites

	Definition of indicator	All clinical sites 2016	
		Median	**Range**
Numerator	Combined radio-chemotherapies for NSCLCC primary cases stages IIIA4/IIIB with ECOG 0/1	16*	3 - 47
Denominator	NSCLCC primary cases stages IIIA4/IIIB	37*	12 - 146
Rate	Explanation mandatory** <15% and >70%	41.38%	17.12% - 70.97%

*The medians for numerator and population do not refer to an existing Centre but indicate the median of all cohort numerators and the median of all cohort denominators.
** If value is outside the plausablilty corridor. centres have to give an explanation.
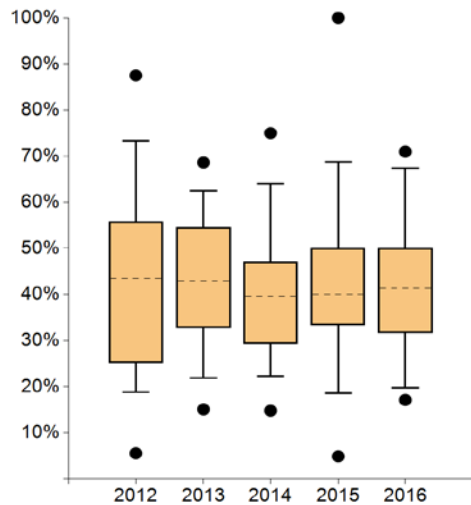
		2012	2013	2014	2015	2016
●	Max	87.50%	68.63%	75.00%	100%	70.97%
	95th percentile	73.31%	62.47%	64.00%	68.72%	67.40%
	75th percentile	55.80%	54.55%	47.06%	50.00%	50.00%
	Median	43.47%	42.86%	39.58%	40.00%	41.38%
	25th percentile	25.12%	32.69%	29.29%	33.33%	31.65%
	5th percentile	18.86%	21.82%	22.22%	18.55%	19.75%
●	Min	5.55%	15.09%	14.81%	4.88%	17.12%

Clinical sites with evaluable data		Clinical sites meeting the target value	
Number	%	Number	%
45	97.83%	44	97.78%

Comments:
The implementation of this quality indicator, too, remained constant over the years.
All Centres included in the annual report had a rate which was above the rate requiring a statement of reasons of 15%.

Begründungspflicht = mandatory statement of reasons

WISSEN AUS ERSTER HAND
(FIRST-HAND KNOWLEDGE)

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