

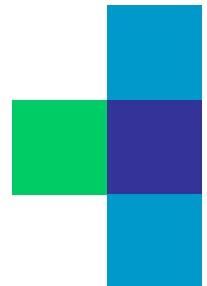
# Cost (effectiveness) analysis of certified breast centers in Germany

2nd International Conference of Breast Disease Centers  
Paris, 9<sup>th</sup> of February 2012

Michael Patrick Lux

2<sup>nd</sup> International Congress  
of Breast Disease Centers 2012

**Universitätsklinikum  
Erlangen**



## Disease and death cases in Germany

	Disease rate		Death cases	5 y. Prevalence
Cancer total	197,600	98,492		700,000
Breast cancer	57,970	17,286		242,000

	5-y-Survival Risk of disease		Mortality risk
Cancer total 61-62%	38.2% (1:3)		20.3% (1:5)
Breast Cancer	83-87%	10.9% (1:9)	3.5% (1:29)

Krebs in Deutschland (2005/6)

published in 2010

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Gynäkologisches Universitäts-Krebszentrum Franken (GKF)

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Levels of centers  
in the oncological Health Care System

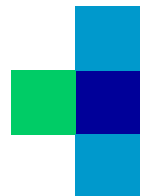
Organ Cancer Center



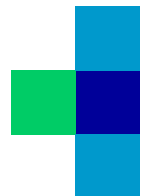
Onkological Center



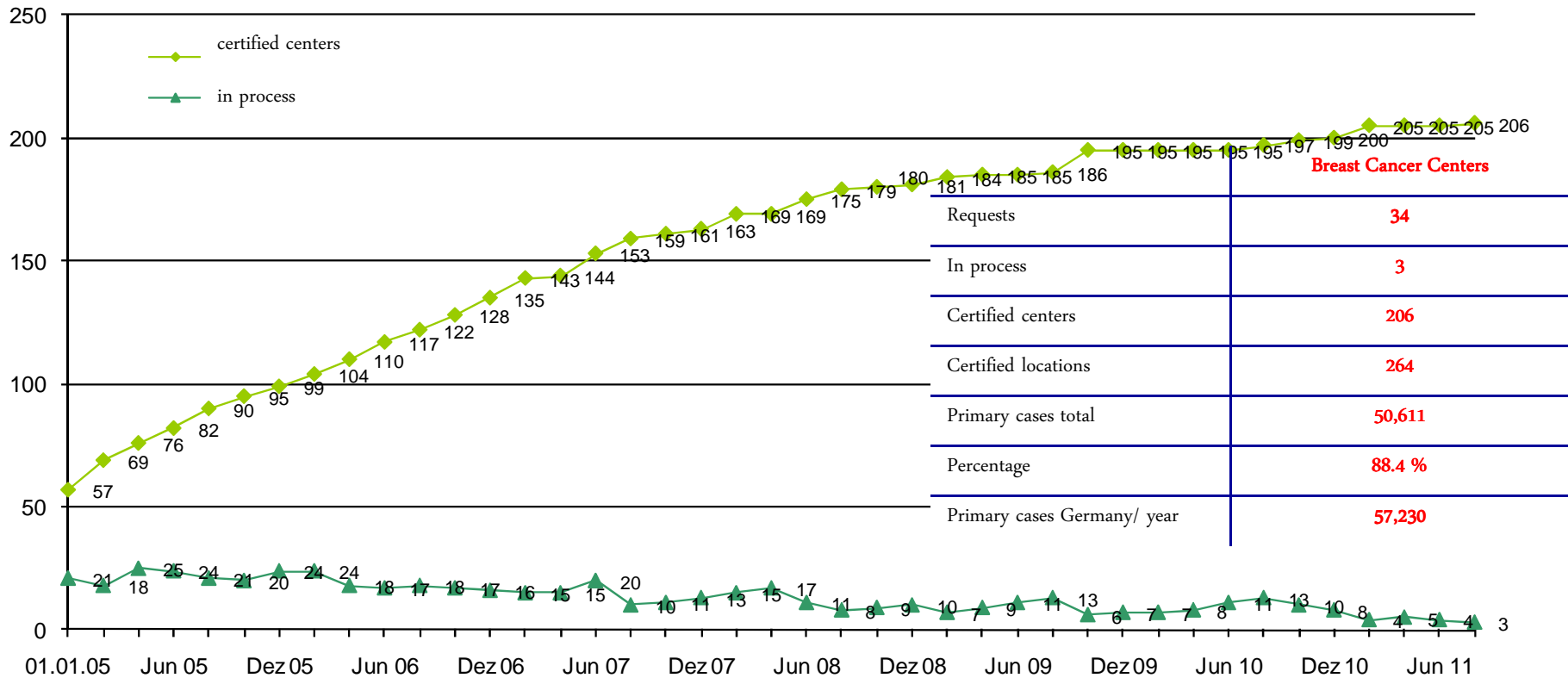
Comprehensive Cancer Center (CCC)



# Certification of Organ Cancer Centers by the German Cancer Society (since 2003)



# Development of certified breast cancer centers in Germany

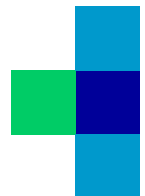


Onkoziert, 2011



# Why do we need cost-benefit-analysis of certified centers?

- How are the structures in certified centers?
  - Is interdisciplinarity given?
  - Are diagnostics and therapies performed according to guidelines?
- What is the benefit of certified centers?
- What are the costs of certified centers?
- Are these costs covered?
- How is the financial support assured in future?
  - support by the National Cancer Plan,
  - support by our patients,
  - support by data concerning the outcome quality.



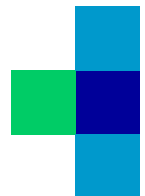
# What is the benefit of certified centers?

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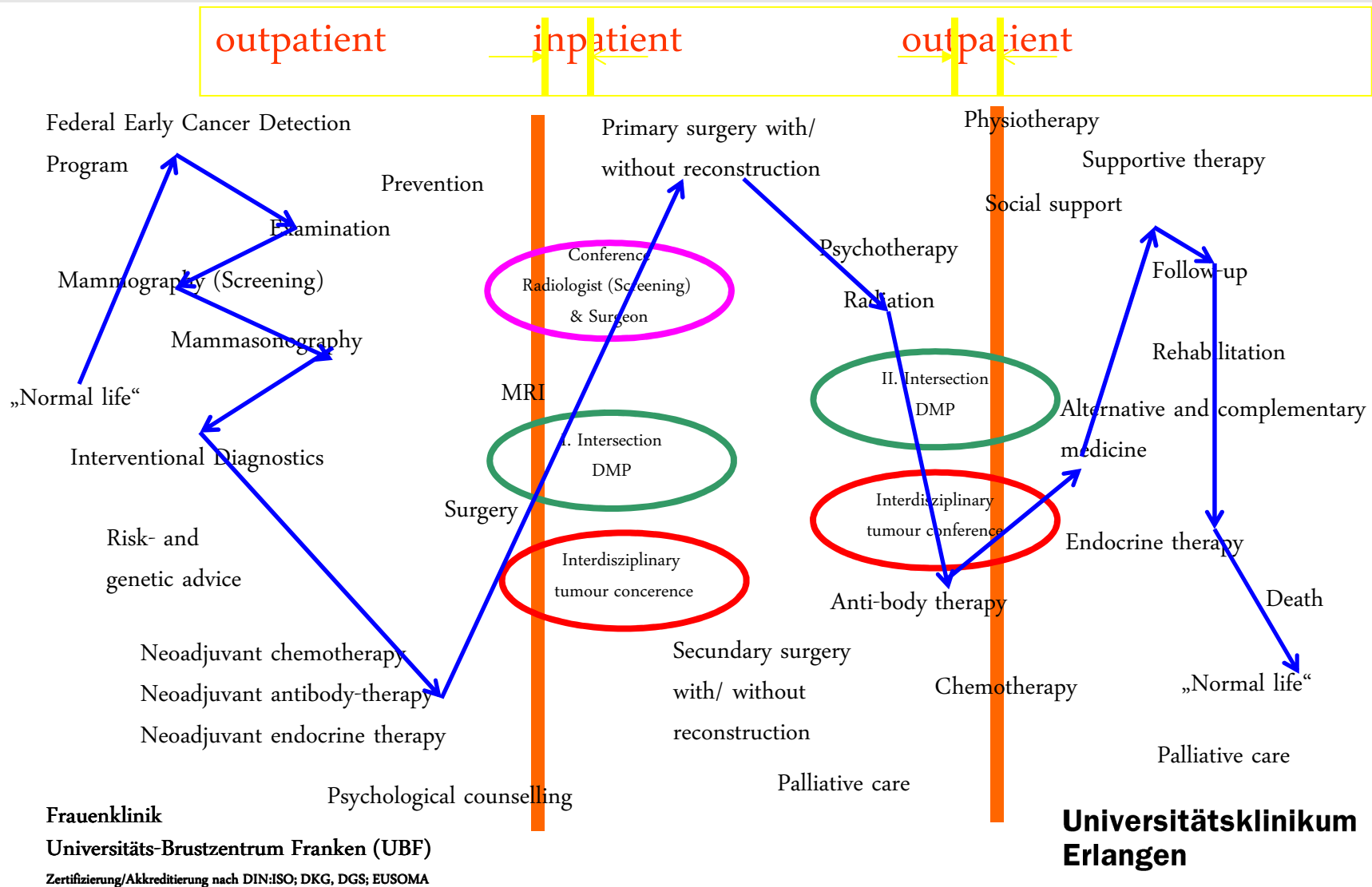
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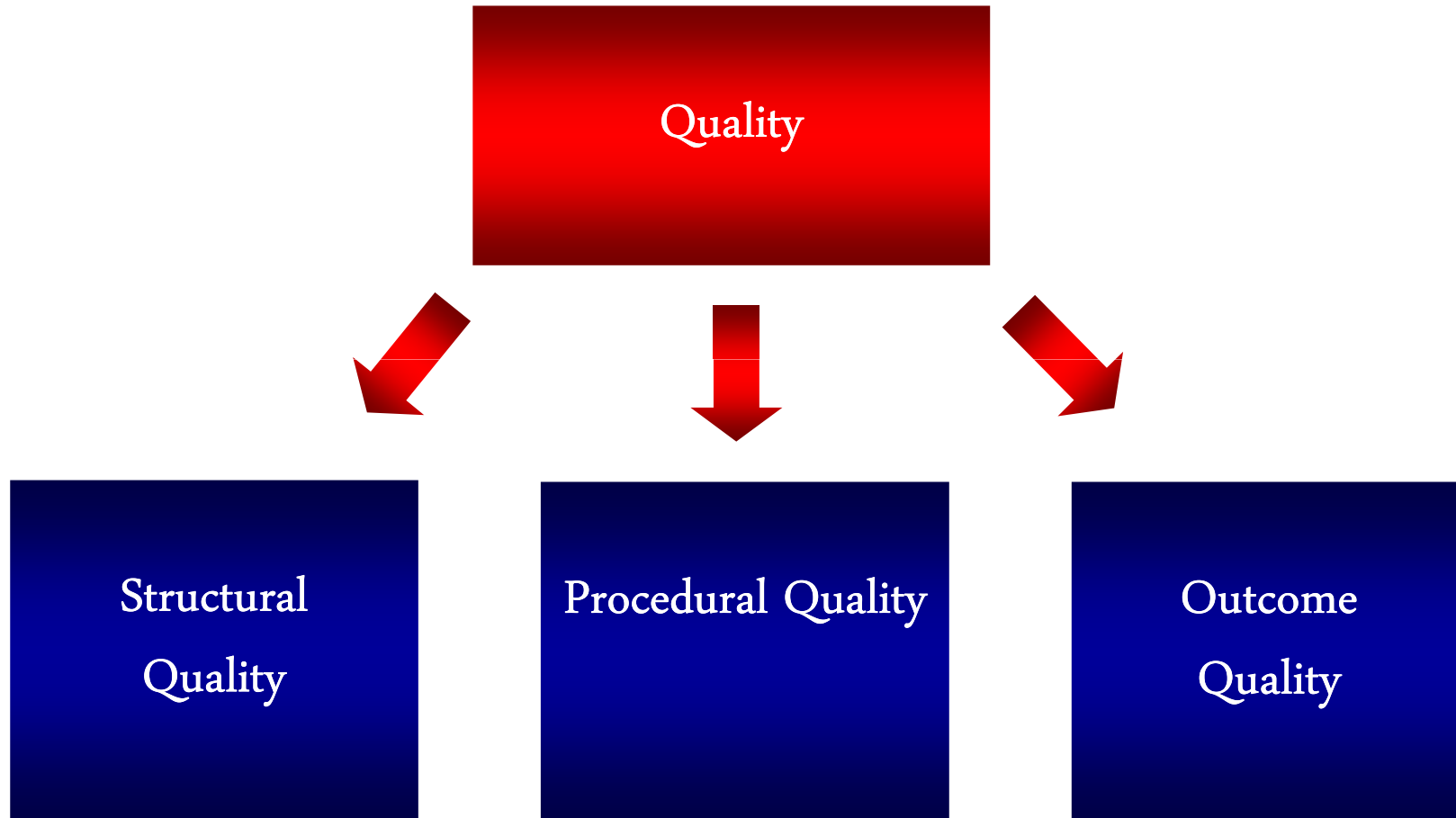
# Interdisciplinary, interprofessional therapy recommendation leads to high intersectoral quality...?





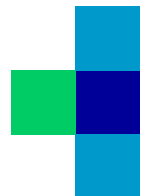
Better quality by specialised structures?

Dimensions of quality



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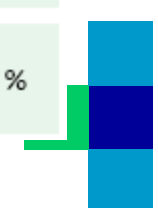


# Structural and procedural quality by certified centers – benchmark report o

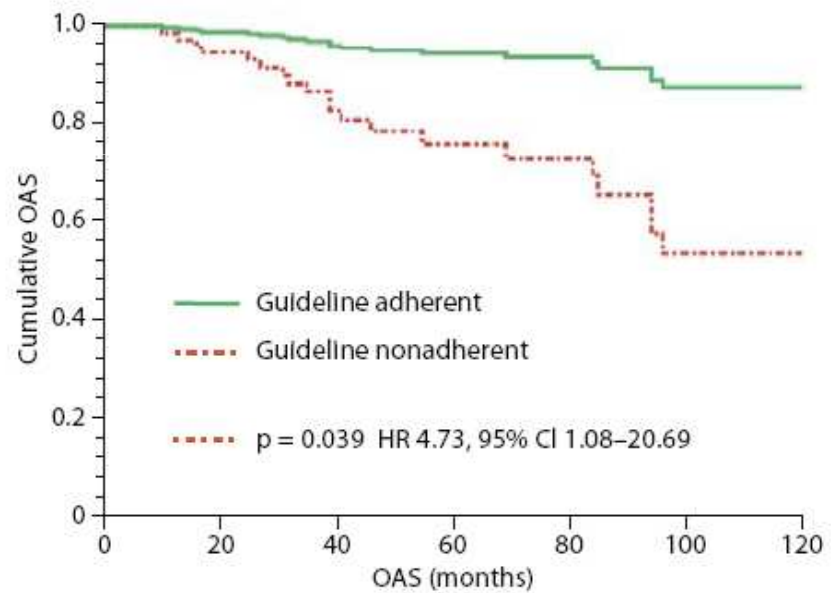
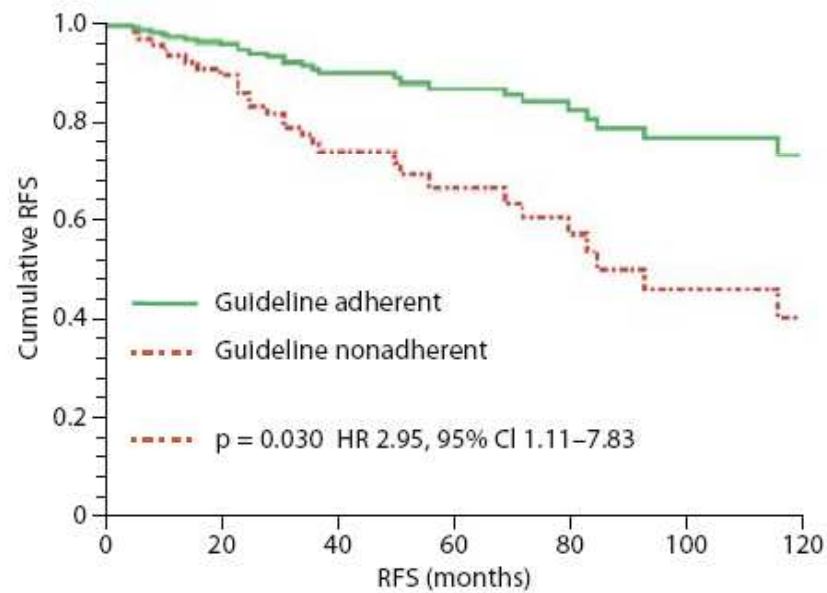


Nr.	Kennzahl	Nr.	Kennzahl	Anzahl / Zähler		Quote		
				FAB-Z048	Mittel	Soll-vorgabe	FAB-Z048	Mittel
		14	Platzierung präoperative Drahtmarkierung	320	68,9	≥ 95 %	96,1 %	95,4 %
1	Postoperative Fallbesprechungen	16	Primärfälle Mammakarzinom	533	198,4	> 150 %	-----	-----
2	Prätherapeutische Fallbesprechungen	17	Brusterhaltendes Vorgehen bei pT1	238	77,0	> 70 %	83,2 %	86,1 %
3	Strahlentherapie nach BET bei inv. Mammakarzinom	18	Ablatio mammae als Ersteingriff	129	41,4	< 30 %	26,8 %	22,2 %
4	Strahlentherapie nach BET bei DCIS	19	pTis bei Ersteingriff	68	21,1	> 10 %	14,1 %	10,7 %
5	Strahlentherapie nach Mastektomie bei inv. Mammakarzinom	20	Bestimmung Nodalstatus bei invasivem Mammakarzinom	418	158,8	> 95 %	99,5 %	96,1 %
6	Chemotherapie bei Rez. negativem Befund	21	Alleinige Sentinellymphknoten-Entfernung (SLNE) bei pT1 u. pN0	215	61,6	≥ 75 %	100 %	88,2 %
7	Chemotherapie bei Rez. pos. und nodalpos. Befund	22	Intraoperative Präparateradio-/sonographie	477	68,2	> 95 %	99,0 %	95,7 %
8	Hormontherapie bei Rez. positivem Befund			293	134,1	> 95 %	97,0 %	94,6 %

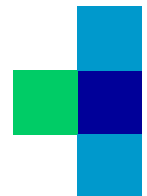
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# Structural and procedural quality by the S3-guideline breast cancer



Wöckel et al., Onkologie, 2010



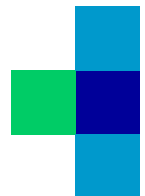
# What are the costs of certified centers? - inpatient setting -

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# Ist ein Brustzentrum finanzierbar? – Berechnung einzelner Leistungen am Beispiel des Universitäts-Brustzentrums Franken (UBF)

Can we afford a Breast Center? – Calculation of individual services  
based on the example of the University Breast Center Franconia (UBF)

## Autoren

S. Wagner<sup>2</sup>, M. R. Bani<sup>1</sup>, P. A. Fasching<sup>1</sup>, M. G. Schrauder<sup>1</sup>, C. R. Löhberg<sup>1</sup>, M. W. Beckmann<sup>1</sup>, M. P. Lux<sup>1</sup>

## Institute

<sup>1</sup> Frauenklinik, Universitätsklinikum Erlangen, Universitäts-Brustzentrum Franken (UBF)

<sup>2</sup> Kaufmännische Direktion, Universitätsklinikum Erlangen

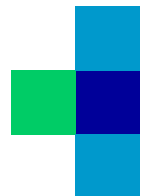
Cost category	Primary certification 2004	Re- certification 2005	Re- certification 2006-2009	Re- certification 2010-2012
Personal costs	56,627.40 €	31,667.40 €	26,687.40 €	28,033.50 €
Material costs	49,030.25 €	20,157.72 €	14,354.71 €	5,000.00 €
Total costs/ year	105,657.65 €	51,825.12 €	41,042.11 €	33,033.50 €
<b>Total Costs</b>	<b>420,715.71 €</b>			

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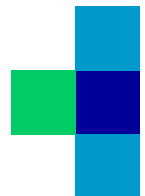
## Cost of certification and quality management

### ■ Personal costs:

- Primary certification 0.5 physician (BAT IIa), 0.5 nurse (KR V) and 0.5 clinic manager (BAT Vb) for six months 37,425.00 €
- Preparation of the re-certification (two months) 12,475.00 €
- Quality management team meetings every month for 2 hours with 15 persons (nurses, physicians, clinic managers) and implementation of measures (2 hours per person) and document management (6 hours/ month) 19,202.40 €

### ■ Material costs (fees, advices, travel expenses):

- Primary certification (according to DKG and DGS) 49,030.25 €
- Re-certification 13,487.56 €
- EUSOMA accreditation 6,670.16 €



# Ist ein Brustzentrum finanzierbar? – Ein Kalkulationsmodell für das Universitäts- Brustzentrum Franken (UBF)

Can We Afford a Breast Center? –  
A Calculation Model for the University Breast Center Franconia (UBF)

Autoren

S. Wagner<sup>3</sup>, T. Ganslandt<sup>4</sup>, C. M. Keiling<sup>1,2</sup>, D. Jap<sup>5</sup>, P. A. Fasching<sup>1,2</sup>, M. P. Lux<sup>1,2</sup>, M. W. Beckmann<sup>1,2</sup>

## ■ Model:

- Calculation of costs and profit structures of certified breast cancer centers on the basis of the University Breast Center of Franconia,
- view of a single/ isolated unit,
- base rate 3,095.96 €.

## ■ Results:

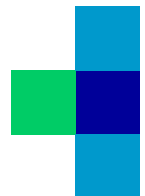
- An increase of payment by **1,288 €** would be necessary for a cost-covering therapy of a patient with a primary breast cancer (calculated for the year 2006).

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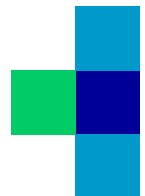
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## InEK calculation – missing representation of several cost factors

- (Re-)certification,
- scientific work (molecular and clinical trials),
- coordination of the center,
- multiple documentation (e.g. BQS, cancer registry, disease management program, MammaSoft, etc.),
- personal costs (e.g. quality management, study nurses, psychooncology),
- interdisciplinary tumour conferences,
- provision of the interdisciplinary structure,
- education, advanced training,
- support for patients and their families.





## Is there a demand for cost-covering work by law?

- A certified breast center is legitimated to receive surcharges by law (§ 5 Abs. 3 KHEntG),
  - especially for efforts which are not directly related to the treatment of a individual patient.
- Regarding this, the board of arbitration Hamburg decided:
  - „a center is a hospital with a special expertise, which shines like a light house in the ocean of hospitals“.

Beckmann et al., GebFra, 2011

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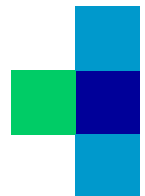
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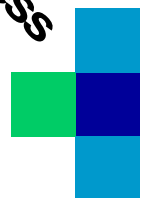
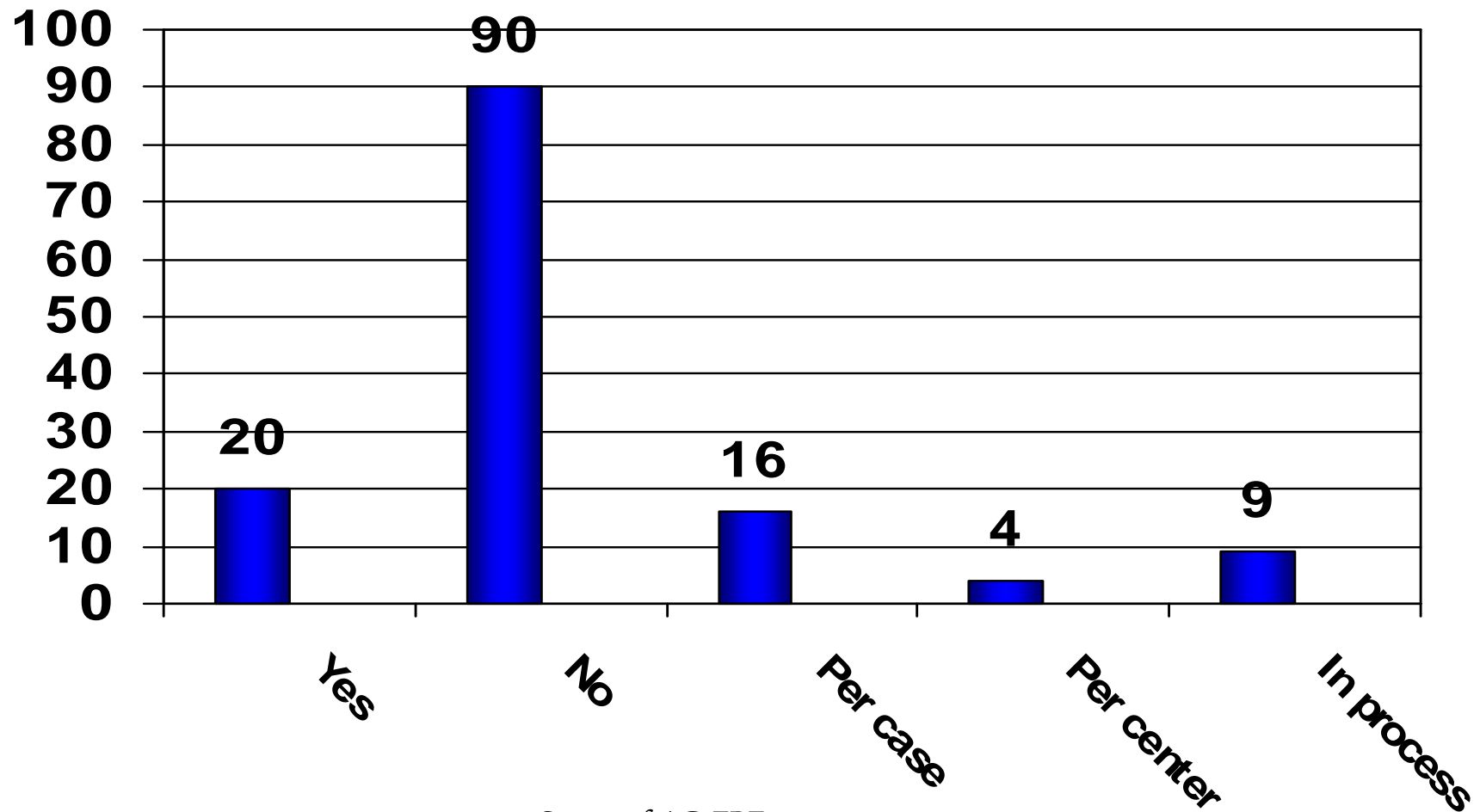
## Criteria for a legitimate claim of surcharges

<b>Special performance for own patients</b>	psychooncological support (inclusive families)	
	special documentation	clinical registry
		clinical trials
<b>Certification</b>	according to the German Cancer Society	
<b>Special performance beyond the hospital</b>	advanced training	for the collaborators of the center
		for cooperation partners
	support for external patients	e.g. discussion in the interdisciplinary tumour conference with special documentation
	quality meetings	



Have surcharges already been paid?

20 of 110 breast centers (18.2%) receive surcharges



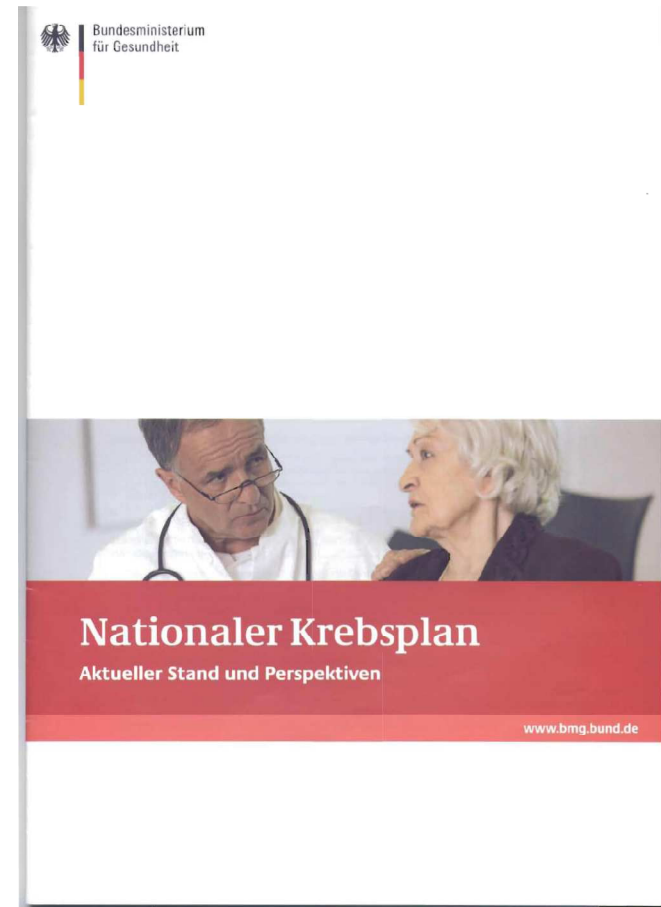
How is the  
financial support assured  
in future?

-  
Support by the  
National Cancer Plan.

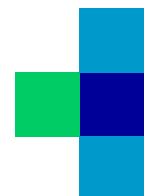
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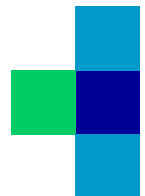


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## Impact on certified breast centers

- Further development of early cancer detection,
- provision of an efficient oncological treatment (main focus on oncological pharmaceutical therapy),
- strengthening of patient orientation,
- further development of oncological care structures,
- therapy according to guidelines,
- quality assurance and documentation.



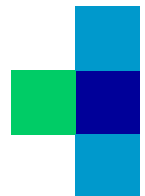
# What are the costs of certified centers? - outpatient setting -

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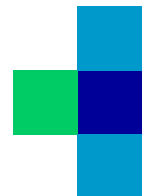
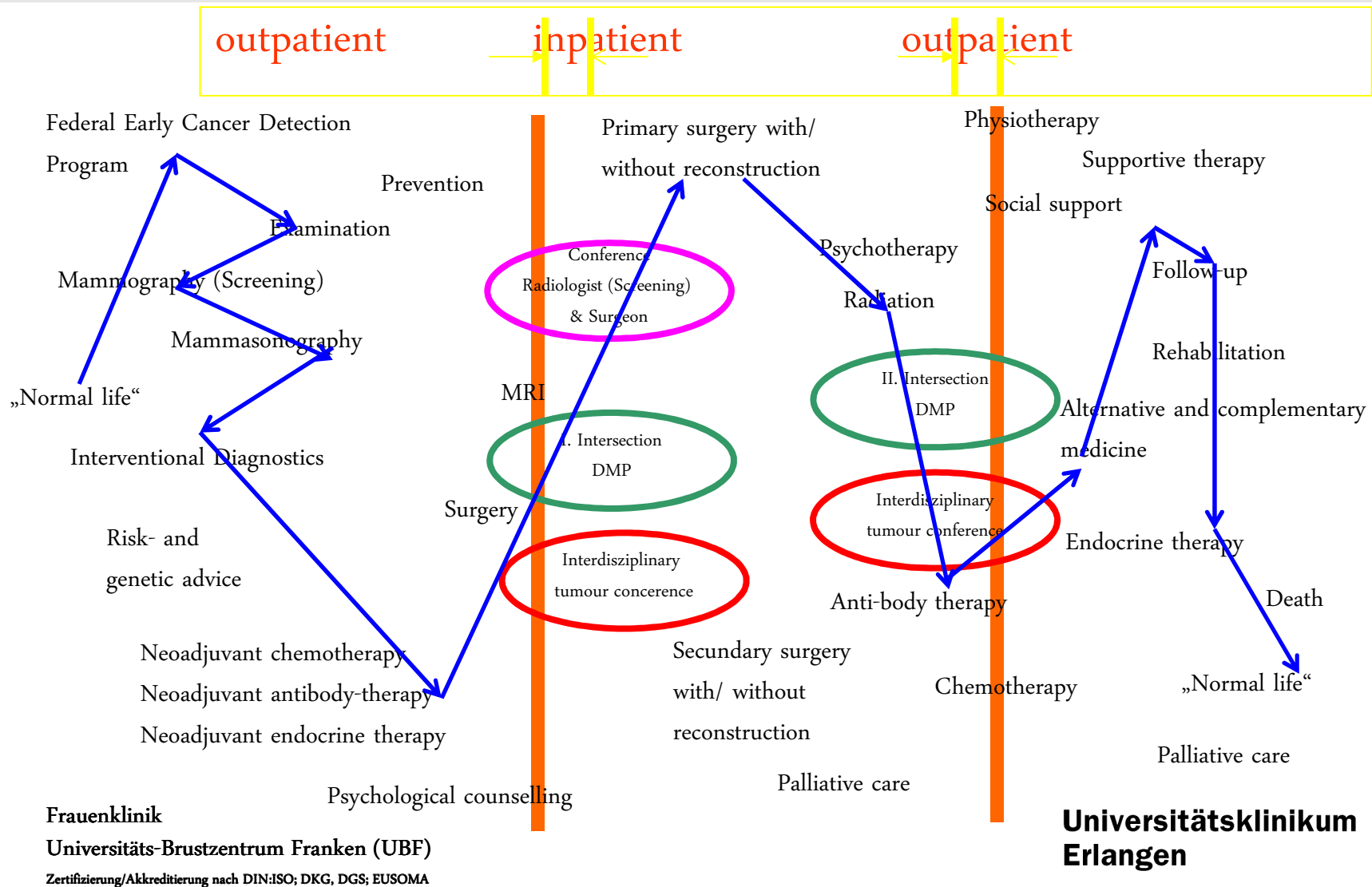
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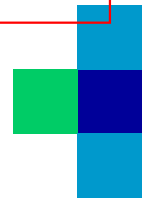
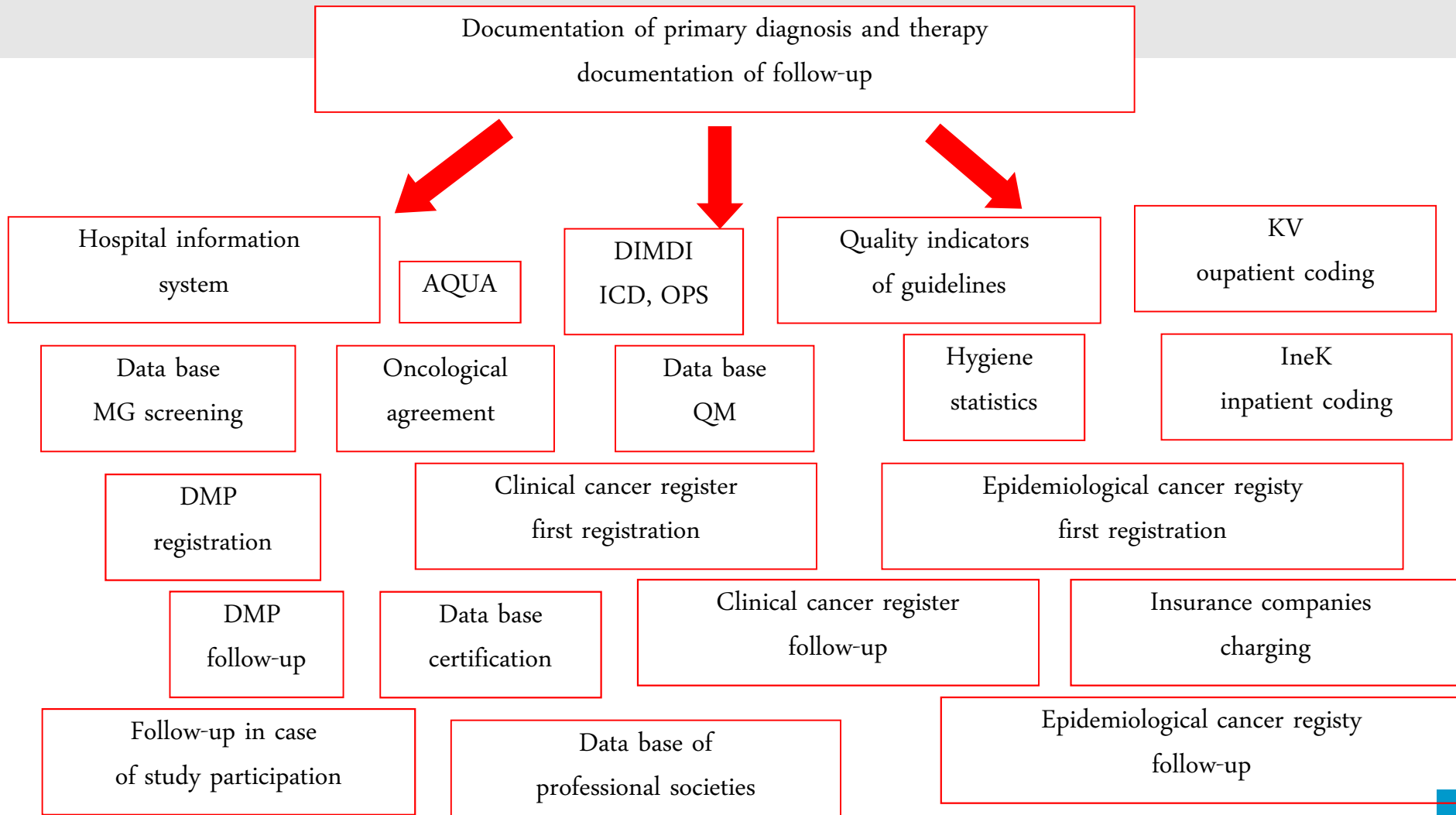
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# Interdisciplinary, interprofessional therapy recommendation leads to high intersectoral quality...?



# Problem of quality insurance and documentation





## Documentation effort according to sectors

Sector

outpatient

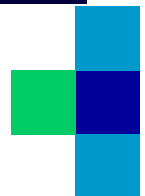
Several different systems  
in several medical care settings;  
a complete calculation of costs of  
a primary breast cancer case is actual impossible!

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# Documentation points of time – Overall groups

Gefördert durch:



aufgrund eines Beschlusses  
des Deutschen Bundestages

	Number of variables	Percentage
Primary diagnosis and therapy plan	66	14.1
Primary neoadjuvant therapy and secondary surgery	100	21.4
Primary surgery and adjuvant therapy	93	19.9
Modules therapy options	144	30.8
Follow-up, further care, quality assurance and further documentation	64	13.7
<b>Total</b>	<b>467</b>	<b>100.0</b>



**Example Erlangen:** primary breast cancer, diagnosis by screening, neoadjuvant chemotherapy, secondary surgery, postoperative radiation (clinical trial), 10-y-follow-up & quality assurance\*

Gefördert durch:



Bundesministerium  
für Gesundheit

aufgrund eines Beschlusses  
des Deutschen Bundestages

	Multiplicator	Documentation point of time	Documentation costs
Diagnosis within mammography screening	1 x	184 min.	131.37 €
Primary neoadjuvant chemotherapy (FEC-Doc, per cycle)	6 x (except education = 1x)	540 min.	493.51 €
Sekundary surgery (BCS)	1 x	455 min.	282.11 €
Postoperative therapy plan	1 x	14 min.	11.51 €
Radiation (incl. participation in a clinical trial)	30 x (except education = 1x )	1,680 min.	1,045.46 €
Follow-Up	15 x	815 min.	504.06 €
Psychooncology	1 x	86 min.	63.18 €
Quality assurance/ quality management	1 x	257 min.	117.17 €
<b>Total</b>		<b>4,031 min.</b>	<b>2,648.37 €</b>

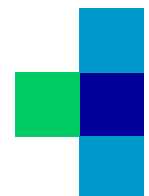
\* validation study in progress

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How is the financial support assured in future?

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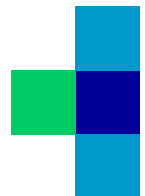
Support by our patients.

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# Personal importance of therapy in a certified center

Lux MP et al.,  
Geburtsh Frauenheilk, 2009

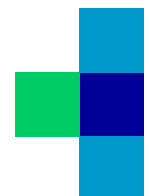
Relevance	Gynecology/ Oncology		Obstetrics		p-value	HR (95% CI)
	N	%	N	%		
1	288	67.9	80	29.0	<0.001	6.820 (3.093-15.037)
2	83	19.6	72	26.1		
3	29	6.8	56	20.3		
4	8	1.9	14	5.1		
5	8	1.9	22	8.0		
6	0	0.0	1	0.4		
7	0	0.0	4	1.4		
8	3	0.7	10	3.6		
9	1	0.2	3	1.1		
10	4	0.9	14	5.1		

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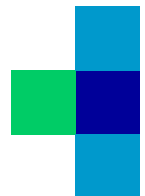
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# Reasons for recommendation of patients

Lux MP et al.,  
Arch Gynecol Obstet, 2011

	Gynecology/ Oncology		Obstetrics		p-value	OR (95% CI)
	n	%	n	%		
Quality of therapy	524	<b>81.6</b>	531	62.3	<b>&lt;0.001</b>	<b>2.693 (2.112-3.434)</b>
Interdisciplinarity	275	<b>42.8</b>	317	37.2	<b>0.026</b>	<b>1.267 (1.028-1.562)</b>
Organisation	161	34.3	152	38.5	0.206	0.836 (0.633-1.104)
Friendliness	334	69.9	380	85.0	<0.001	0.409 (0.295-0.566)
Accommodation	149	25.4	484	69.0	<0.001	0.153 (0.119-0.195)
University	117	19.0	112	14.4	0.020	1.401 (1.055-1.861)
Existing center	217	<b>34.3</b>	197	22.6	<b>&lt;0.001</b>	<b>1.785 (1.420-2.242)</b>
Certification	283	<b>43.5</b>	148	16.4	<b>&lt;0.001</b>	<b>3.939 (3.115-4.981)</b>
Information	84	12.9	101	11.2	0.293	1.180 (0.866-1.607)
Proximity	218	33.5	505	55.9	<0.001	0.399 (0.323-0.491)
Service	89	13.7	217	24.0	<0.001	0.502 (0.383-0.657)



Should a hospital receive a surcharge if it is a certified center? In case of yes, how much?

Lux et al.,  
Senologie,  
2012

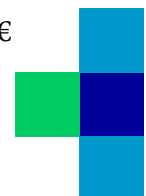
	Additional surcharge					Amount surcharge	
	n	yes	no	not sure	p	n	Mean
Total	1,945	69.7%	7.2%	23.1%	-	1,061	538.56 €
Obstetrics	694	63.7%	9.1%	27.2%	< 0.001	375	474.67 €
Mastology	432	<b>77.3%</b>	5.3%	17.4%		244	<b>643.65 €</b>
Gynaecology/ Oncology	163	72.4%	5.5%	22.1%		97	532.47 €
Endometriosis	142	78.2%	7.0%	14.8%		92	563.59 €
Desire for children	53	62.3%	3.8%	34.0%		28	387.50 €
Further	439	68.6%	7.7%	23.7%		214	553.79 €

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How is the financial support assured in future?

-

Support by data concerning the outcome  
quality.

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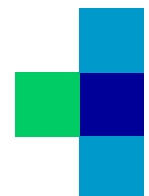
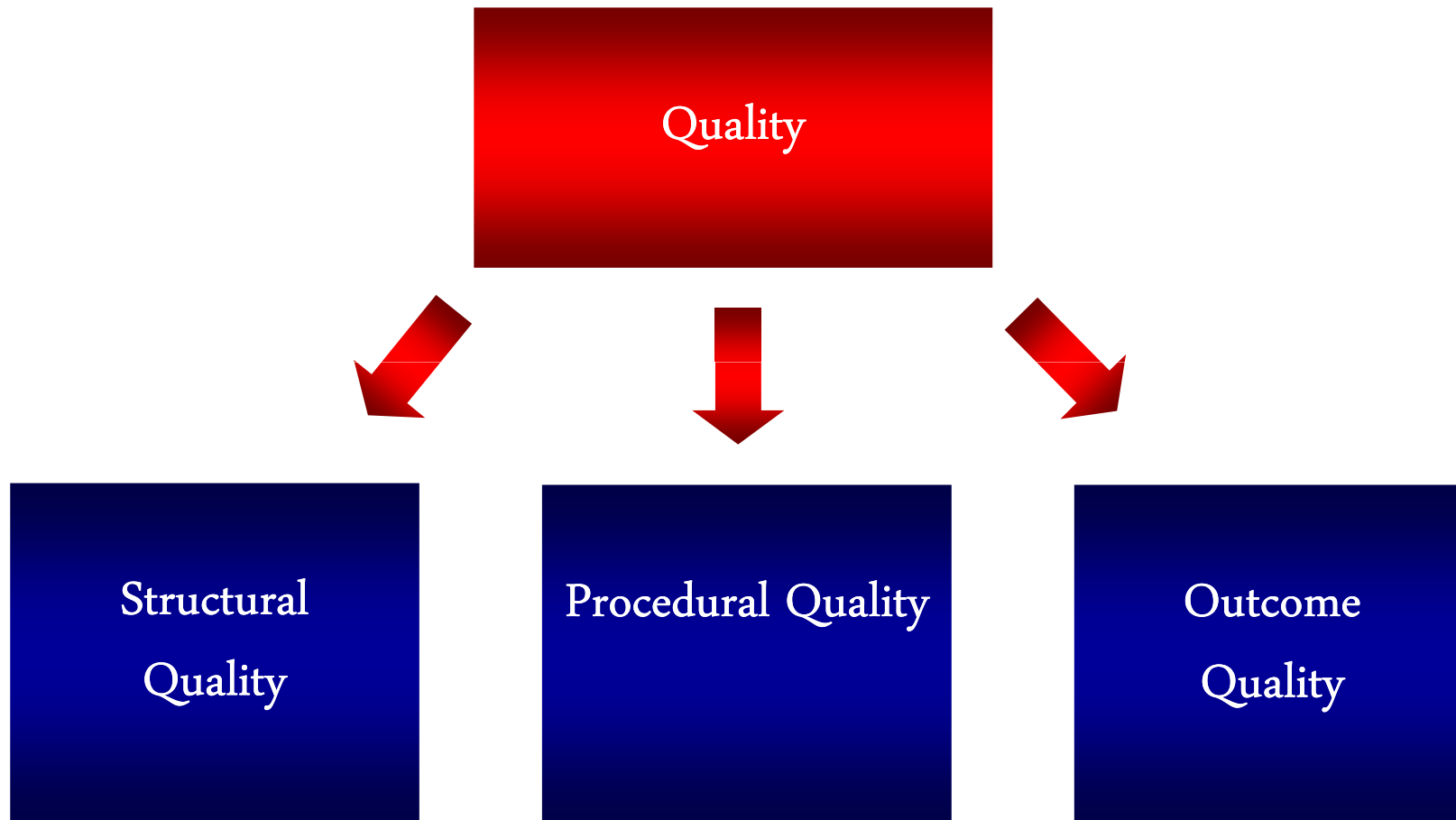
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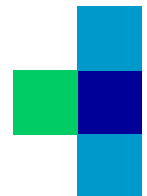
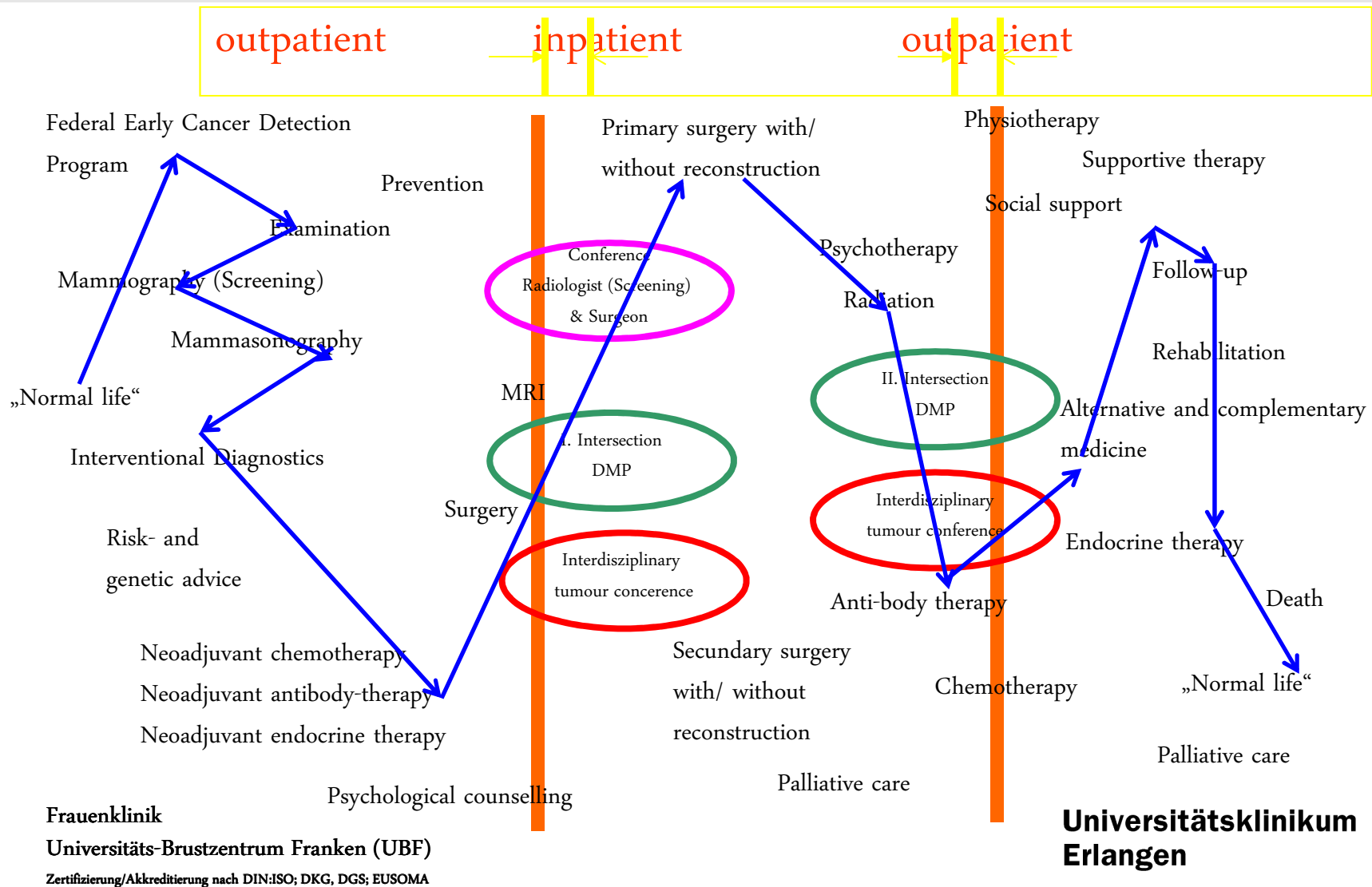
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# Dimensions of Quality



# Interdisciplinary, interprofessional therapy recommendation leads to high intersectoral quality...?



## Quality assured health care in certified breast centers and improvement of the prognosis of breast cancer patients.

Matthias W. Beckmann\* (1,4); Cosima Brucker\* (2); Volker Hanf\* (3); Claudia Rauh (1); Mayada R. Bani (1); Stefanie Knob (3); Sabrina Petsch (4); Stefan Schick (4); Peter A. Fasching (1,5), Arndt Hartmann (6); Michael P. Lux (1); Lothar Häberle Onkologie 2011

### ■ Patients with breast cancer

- diagnosis between June 2004 and March 2008,
- 3,940 patients,
- 21 care units (3 with and 18 without certification),
  - 1,988 patients of certified centers (Erlangen, Nürnberg, Fürth),
  - 1,952 patients of non-certified structures.

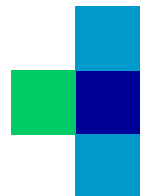
### ■ Documentation and analysis by the clinical cancer registry.

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		All Patients	CBC Patients	Non CBC Patients	p-value
Age (years)		61.8 ( $\pm$ 13.2)	60.6 ( $\pm$ 12.6)	62.9 ( $\pm$ 13.7)	< 0.00001
pT	pT1	2002 (52.0%)	1094 (55.6%)	908 (48.1%)	< 0.00001
	pT2	1509 (39.2%)	733 (37.3%)	776 (41.1%)	
	pT3	150 (3.9%)	68 (3.5%)	82 (4.3%)	
	pT4	192 (5.0%)	71 (3.6%)	121 (6.4%)	
pN	neg.	2429 (63.7%)	1258 (63.9%)	1171 (63.4%)	0.79
	pos.	1387 (36.3%)	712 (36.1%)	675 (36.6%)	
Grading	1	285 (7.2 %)	199 (10.0%)	86 (4.4%)	< 0.00001
	2	1678 (42.6%)	955 (48.0%)	723 (37.0%)	
	3	1977 (50.2%)	834 (42.0%)	1143 (58.6%)	

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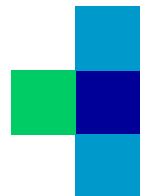
Cost-effectiveness of certified  
breast cancer centers can be assumed!

...but just from the point of view of the health care system  
and not of the breast cancer centers, because they reach a  
better outcome without being  
cost-covered.



## Conclusion

- We experience the age of centers with certification and quality assurance.
- Specialisation leads to a high expertise which guarantees the best care for our patients.
- Actual, „the money does not follow the quality“.
- But we have approaches to demand surcharges according to the performance of certified centers – **especially on the basis of the outcome quality!**



## Questions and discussion



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