Qualitätsverbesserung in der Medizin – eine gesundheitsökonomische Betrachtung

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- Stimmt das?
- Kostet gute Qualität mehr Geld als schlechte Qualität?
- Oder spart gute Qualität Geld?

Was kostet schlechte Qualität? In England verurachen 6 Komplikationen* mehr Krankheitslast als HIV/AIDS oder Zervixkarzinome und ihre Versorgung bindet 500.000 Bettentage, 2200 Ärzte und 3600 Pflegepersonal …

Table 3. Disease burden of 6 adverse event types compared to chronic conditions in England

Disease	Annual burden per 100,000 pop/n	Total annual burden across England
All adverse events*	86 DALYs	46,491 DALYs
Multiple sclerosis	80 DALYs	42,400 DALYs
6 adverse event types	**68 DALYs**	**36,000 DALYs**
HIV/AIDS and Tuberculosis	63 DALYs	33,400 DALYs
Cervical cancer	58 DALYs	30,740 DALYs
Interpersonal violence	57 DALYs	30,200 DALYs

Source: Hauck et al (2017), *IHME (2015)

Table 5. Annual impact of 6 adverse events in a typical English Hospital

	Bed days lost	Cost of bed days lost	Admissions foregone	Salaried GPs	Hospital nurses
Across England	495,020	GBP151 million	69,721	2,218	3,574
Avg English Hospital	2,024	GBP 617,000	285	9	15

Source: Hauck et al (2017); OECD.stat

* sepsis; pressure ulcers; inpatient hip fractures due to falls; VTE; central line infections; deaths in low-mortality conditions

OECD (2017)

… mit erheblichen Kostenimplikationen (hier Daten zu verschiedenen Ländern mit verschedenen Methodiken erhoben) I

Table 6. Economic burden due to adverse events in acute care or hospital care (as share of public hospital spending)

Adverse events in hospitals			Share of public hospital spending
Brown, P. (2002)	New Zealand	The results suggest that treating adverse events costs hospitals over $870 million.	32%
Rafter et al., (2016)	Ireland	Adverse events relate to adult inpatient amounted to 194 million€ in 2009	4%
Etchells et al (2012)	Canada	Financial burden of adverse events in Canada in 2009– 2010 was $CAN 1,071,983,610	4.2%
Jackson (2009)	Canada	Administrative data.	14%
Health Policy Analysis, Australia (2013)	Australia	Hospital-associated conditions modelled to range between AUD 634 million and AUD 896 million	12 % – 16.5%
Ehsani etl al (2006)	Australia (Victoria)	Impact of adverse events modelled from hospital administrative data was AUD 6,800 per episode or AUD 460 Million in aggregate.	15.7%
Zsifkovits et al (2016)	Europe	Direct costs for the public care sector ranged from 2.8 billion euros to 84.6 billion euros	0.2%-6% *
Hoonhout L. et al (2009)	Netherlands	Costs estimated at a total of €355 million for all adverse events in hospitals	1.8%

OECD (2017)

… mit erheblichen Kostenimplikationen (hier Daten zu verschiedenen Ländern mit verschedenen Methodiken erhoben) II

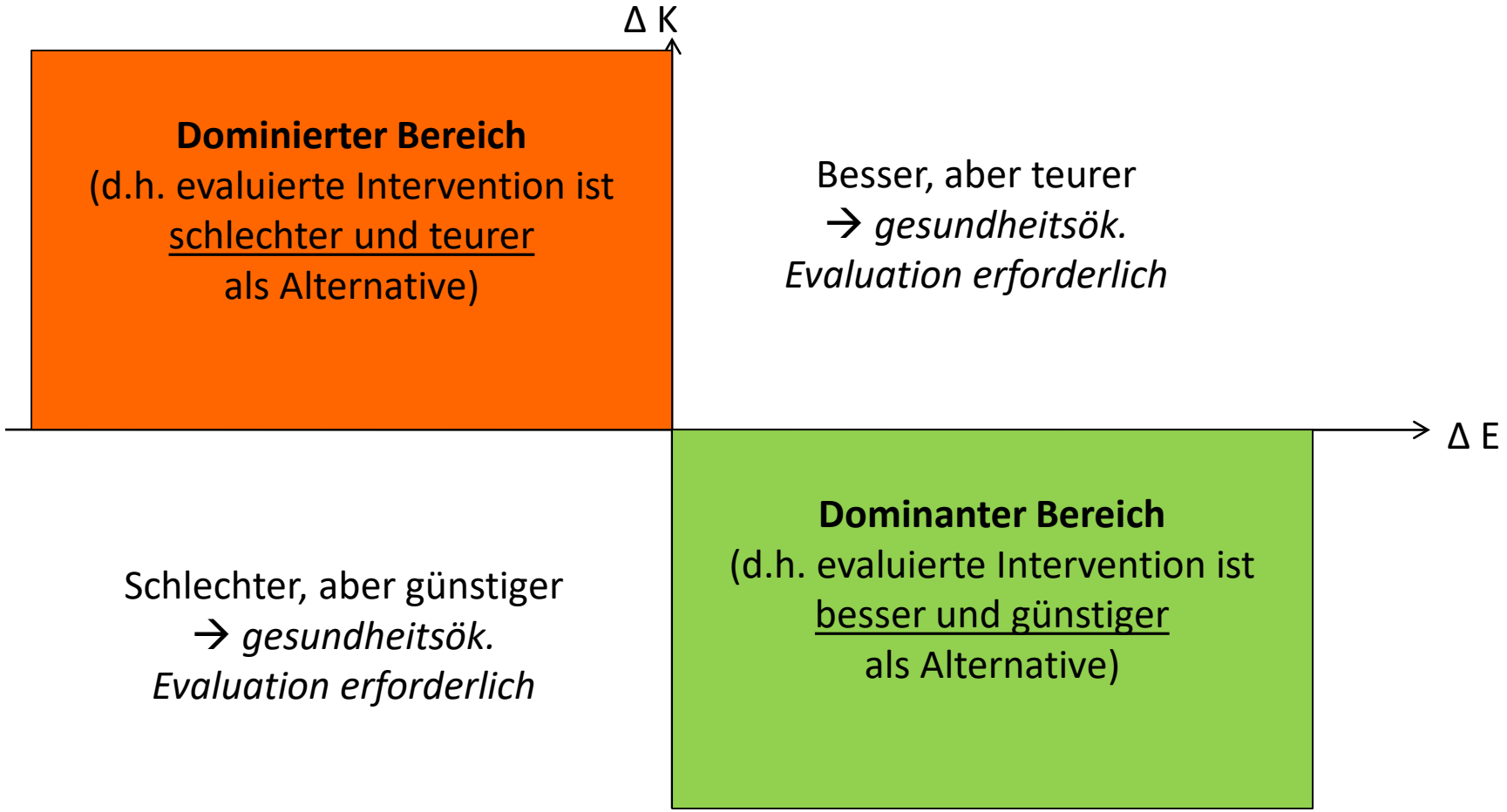
Adverse drug events and medication safety			Share of public hospital budgets
Rottenkobler, D. et al (2012)	Germany	Nationwide extrapolation of adverse drug events occurring in German hospitals resulted in annual total treatment costs of €1.058 billion in 2008.	1.7%
Roughhead L et al (2013)	Australia	$AUS 1.2 billion costs of patient harm due to medication safety in 2011	3.95%
Healthcare-associated infections			
Department of Health (2000)	United Kingdom	Hospital-associated infections are estimated to cost NHS England GBP 1 billion.	2.6%
Vrijens F, et al (2009)	Belgium	Hospital associated infections were estimated to cost in overall excess median cost is 204.3mill€, mean 384.3mill€.	5.95% (3.2%)
Venous thromboembolism (VTE)			
Mahan, C. et al (2011	United States	VTE cost models ranged total cost from USD 5 – 26.5 billion	1% -6%
Barco, S. et al (2016).	EU-28	Total costs ranged from 1.5 – 13.2 billion EUR 2014 PPP	0.4%-3.8%

OECD (2017)

WÄRE DIE VERMEIDUNG DER KOMPLIKATIONEN KOSTENGÜNSTIGER?

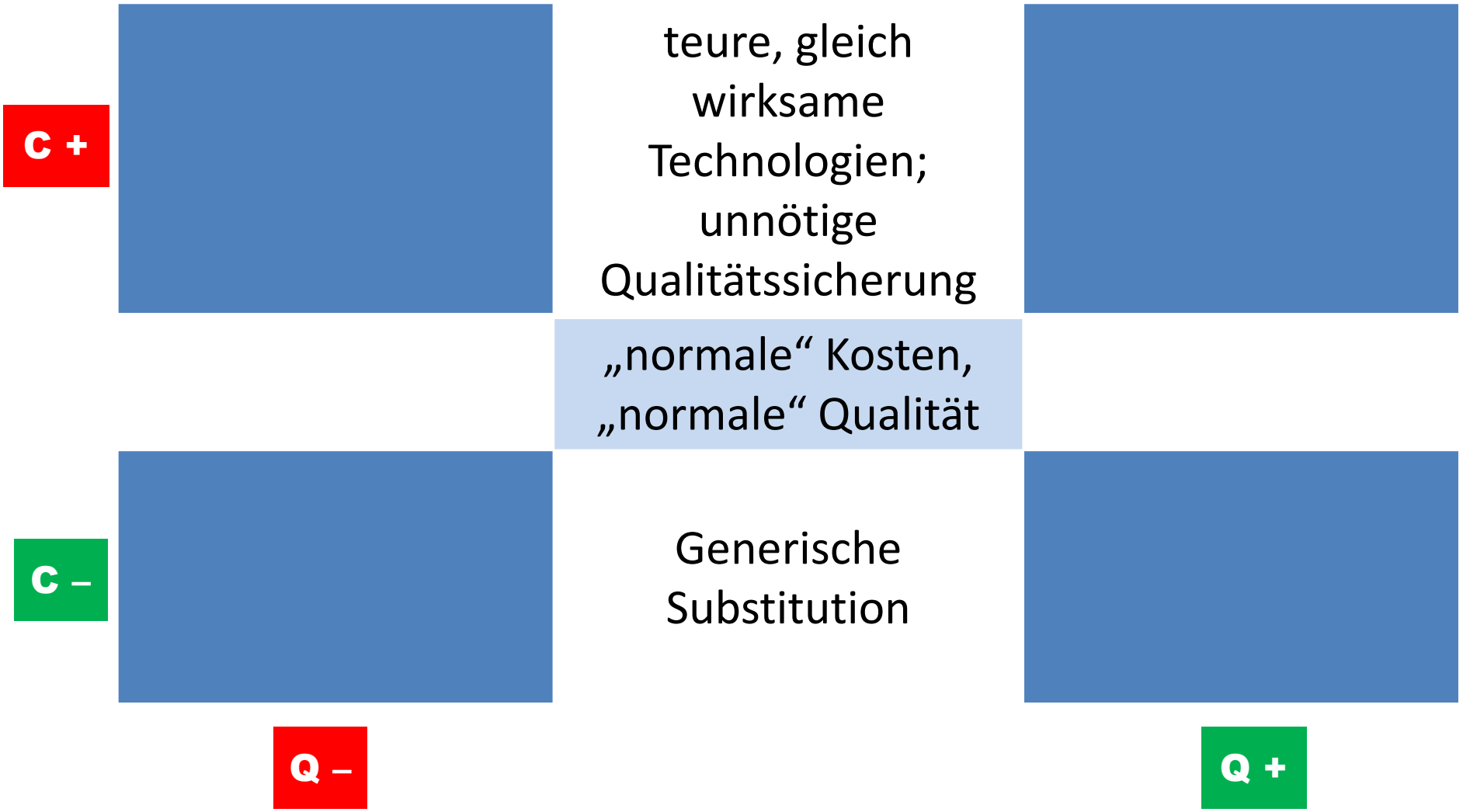
Übertragen wir die Grundüberlegung zur gesundheitsökonomischen Evaluation mittels inkrementellem Kosten-Effektivitäts-Verhältnis auf unsere Fragen

$$IKER = \frac{\Delta\, Kosten}{\Delta\, Effekte}$$



Je nachdem, in welchem Quadranten das Ergebnis liegt, ist die Behandlung ökonomisch vorteilhaft (ökonomisch ≠ kostengünstig)

Der Zusammenhang zwischen Kosten und Qualität – zunächst theoretisch



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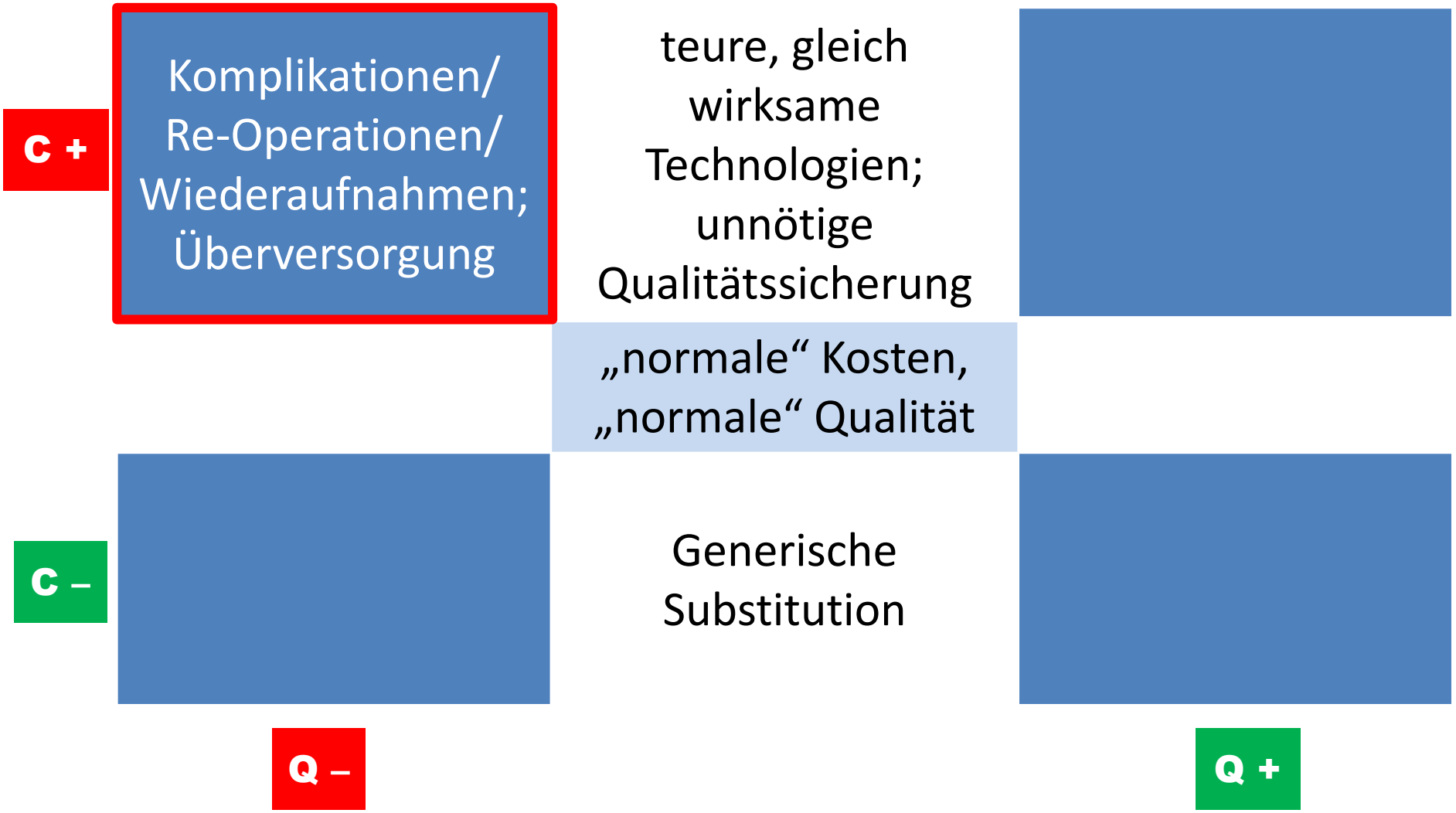

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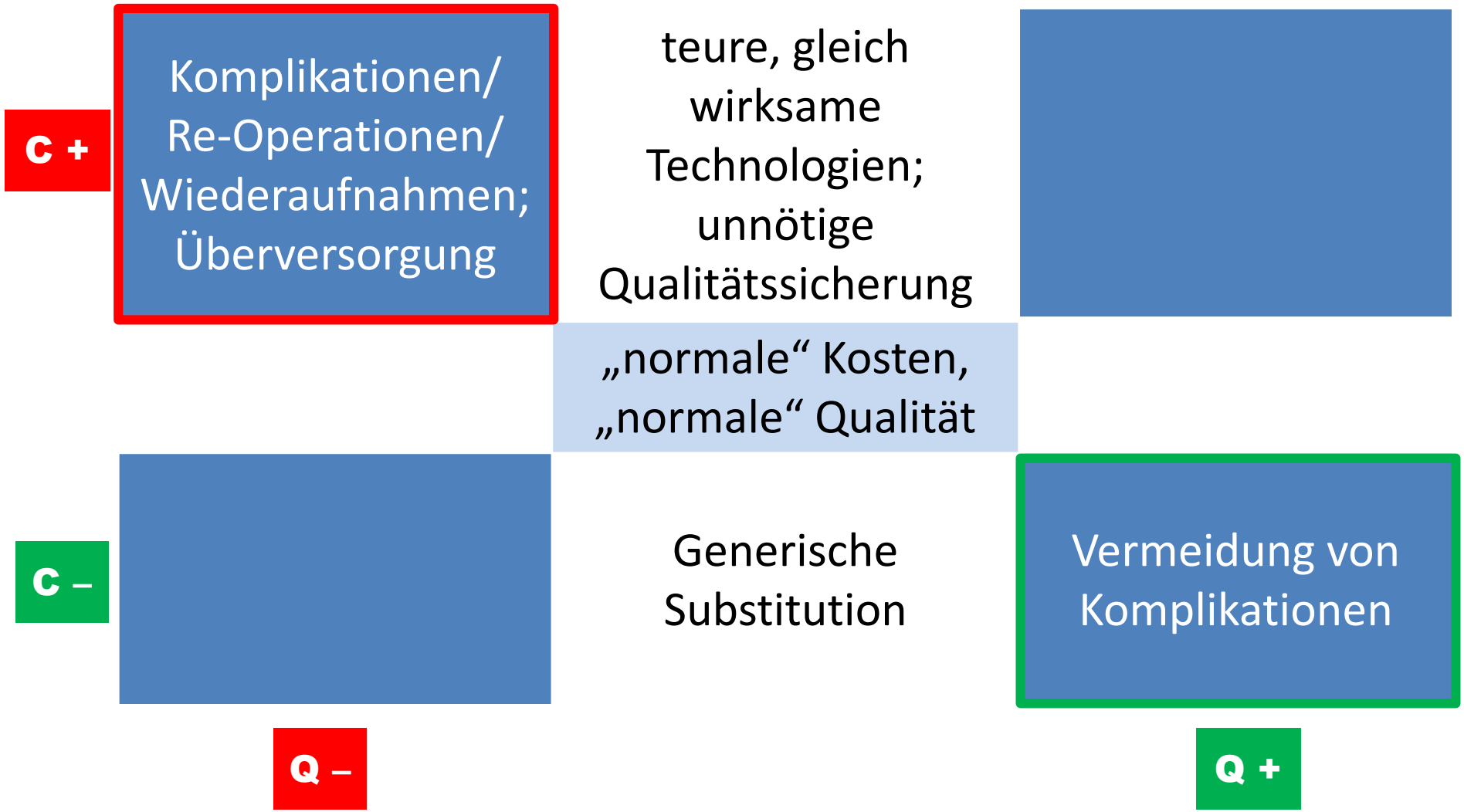
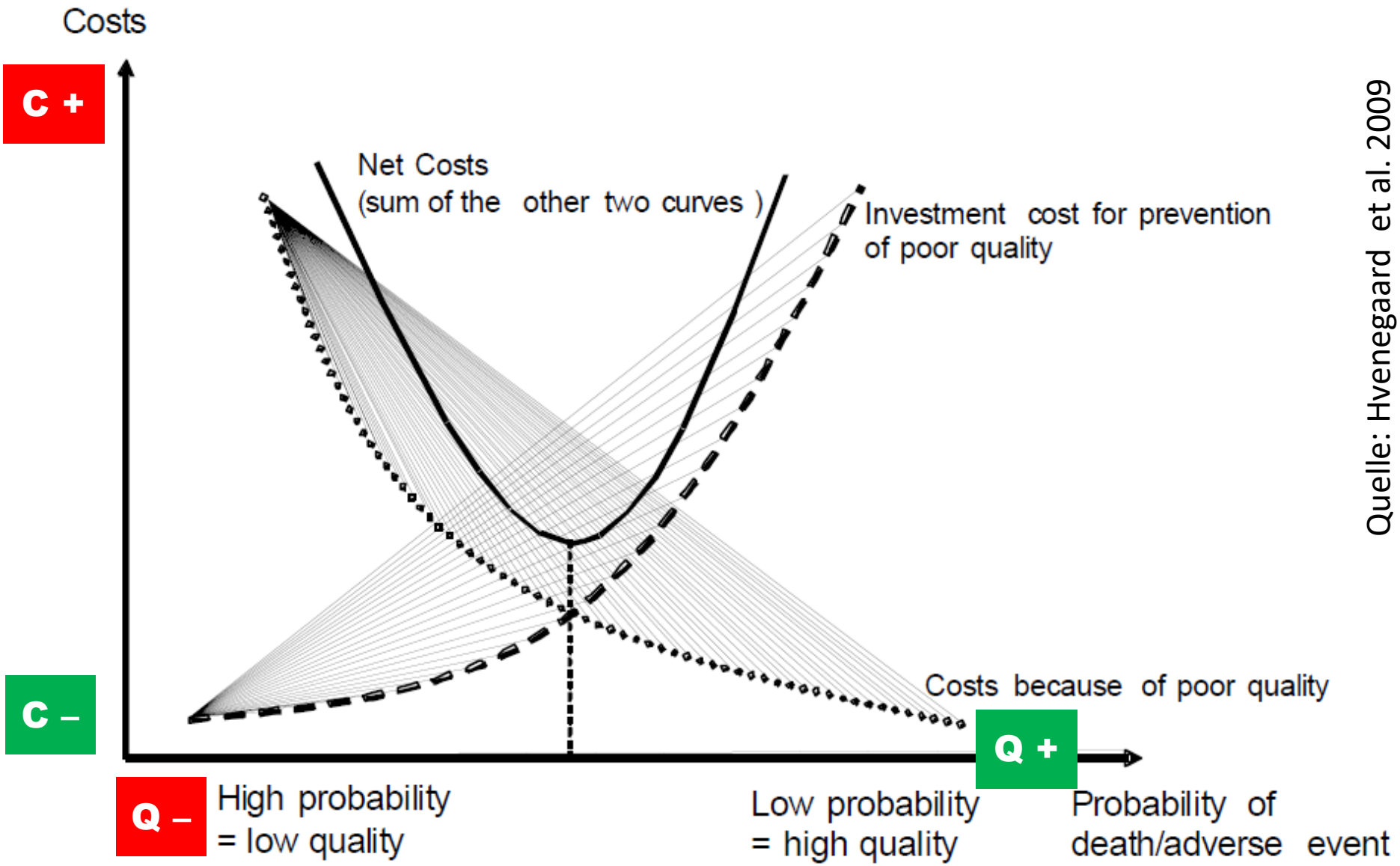


Der Zusammenhang zwischen Kosten und Qualität – zunächst theoretisch

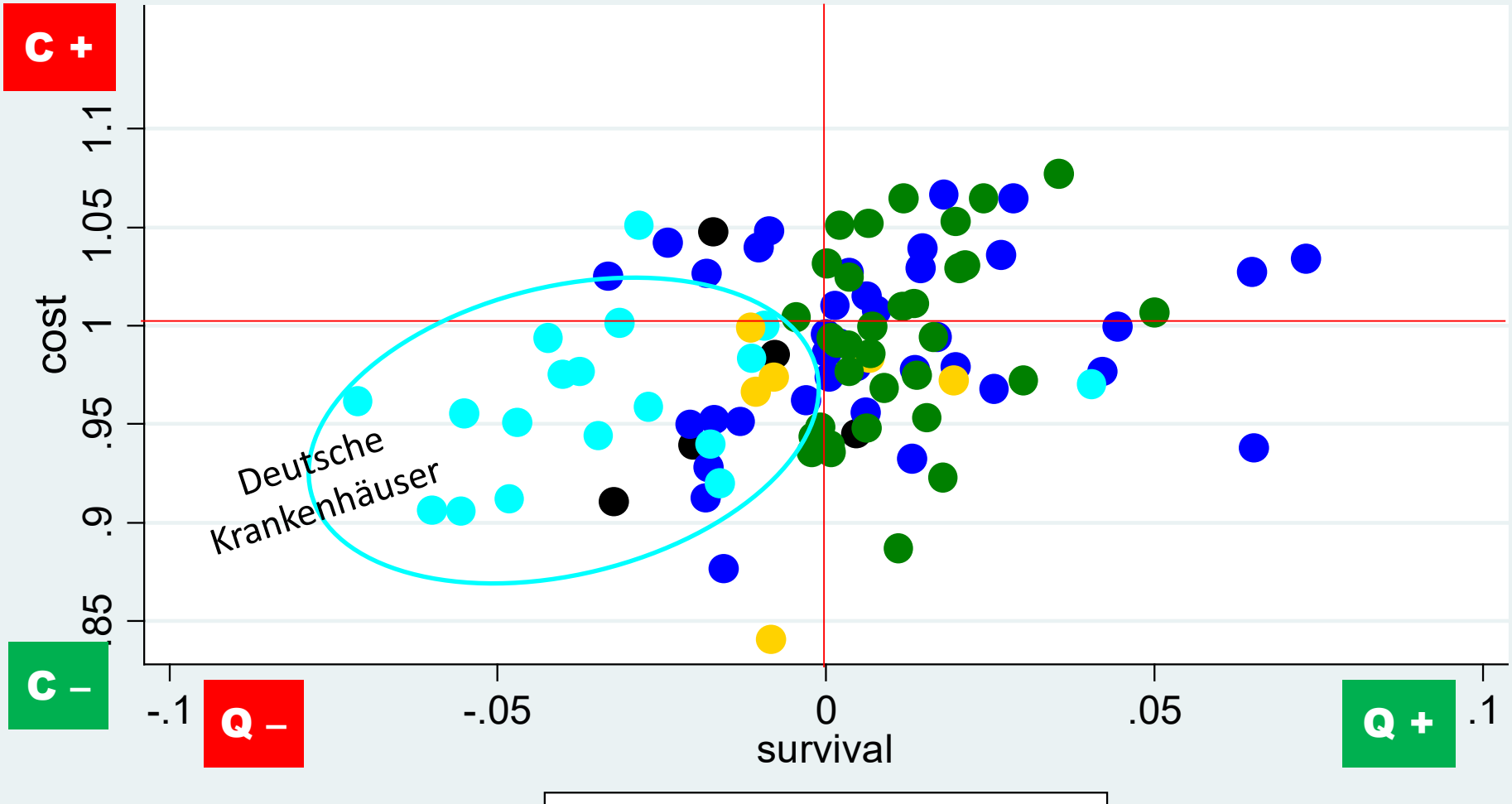
C +	Komplikationen/ Re-Operationen/ Wiederaufnahmen; Überversorgung	teure, gleich wirksame Technologien; unnötige Qualitätssicherung	Neue, effektivere Technologien; wirksame qualitätssichernde Maßnahmen
		„normale“ Kosten, „normale“ Qualität	
C –	Unterversorgung beim einzelnen Patienten/ auf Bevölkerungsebene	Generische Substitution	Vermeidung von Komplikationen
	Q –		Q +

Figure 1: The theoretical relationship between costs and quality



Quelle: Hvenegaard et al. 2009

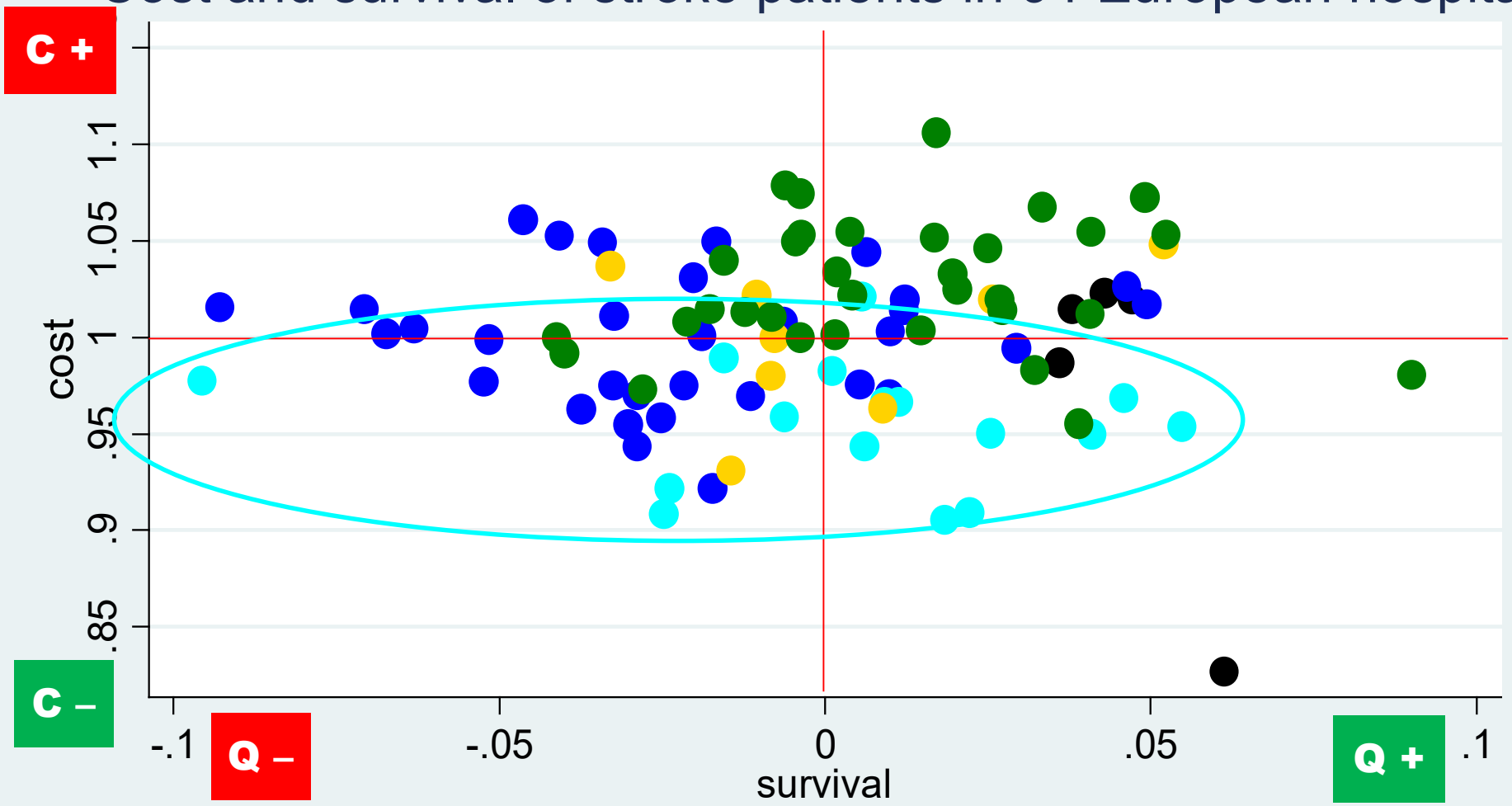
Cost and survival of AMI patients in 100 European hospitals



Euro DRG

MiG 2002–2012 Management im Gesundheitswesen

Cost and survival of stroke patients in 94 European hospitals

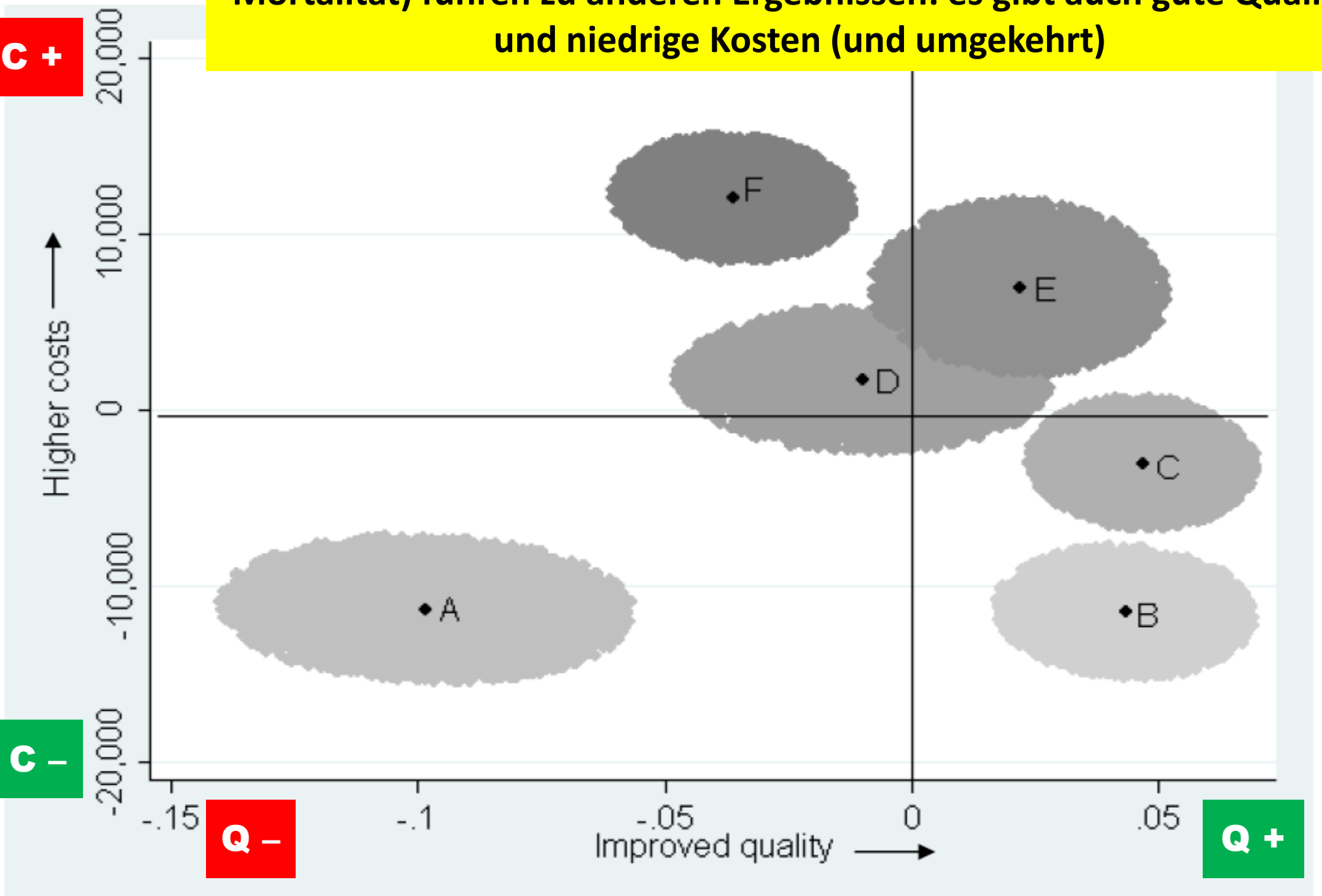


Euro DRG

2002-2012
MiG
Management im Gesundheitswesen

Figure 3: Difference between observed and expected cost (DKK) per patient, and difference between expected and observed risk of suffering wound complications per patient and 95% confidence regions, by department

… aber andere Qualitätsparameter (hier Wundinfektionen statt Mortalität) führen zu anderen Ergebnissen: es gibt auch gute Qualität und niedrige Kosten (und umgekehrt)



Quelle: Hvenegaard et al. 2009

Wie sieht es mit der Kosteneffektivität von spezifischen Interventionen zur Vermeidung von Komplikationen aus? In kurz: es kommt darauf an … gut gemeint ist nicht immer gut!

SAFETY TARGET	INTERVENTION	COMPARATOR	INCREMENTAL COST EFFECTIVENESS RATIO
Catheter-associated bloodstream infection (111), ((115))	Chlorhexidine gluconate skin preparation	Poviodine skin preparation	Dominant; economically attractive
	Keystone ICU Patient Safety program [2]	Usual care	Dominant; economically attractive
Potential adverse drug events (103)	Pharmacist medical reconciliation	Standard care	Dominant; economically attractive
Retained surgical foreign body prevention (116)	Standard surgical count	No count	$1,500 to avoid one retained surgical sponge; probably economically attractive
Retained surgical foreign body prevention (116)	Bar-code-identified surgical sponges	Standard surgical count	$95,000 to avoid one retained surgical sponge; uncertain economic attractiveness
Transfusion-related adverse events (109)	Erythropoietin	Standard care	US$4,700,000 (CAN$6,816,309) to avoid one transfusion related event; economically unattractive

Die vielleicht beeindruckendste und bahnbrechendste Studie zu einer Mehrkomponenten-Intervention zur Verbesserung der Patientensicherheit auf ICUs

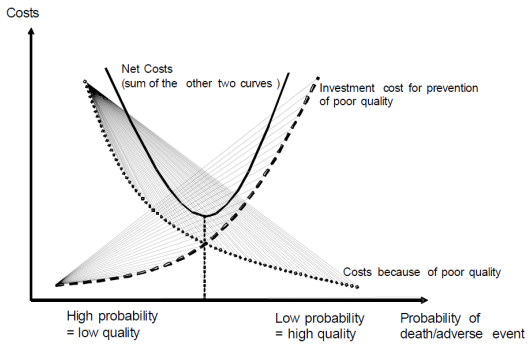
The business case for quality: Economic analysis of the michigan keystone patient safety program in ICUs

Hugh R. Waters, Roy Korn, Elizabeth Ann Colantuoni, Sean Berenholtz, Christine A. Goeschel, Dale Needham, Julius Cuong Pham, Allison Lipitz-Snyderman, Sam R. Watson, Patricia Posa, Peter J. Pronovost

Bloomberg School of Public Health, School of Medicine

Research output: Contribution to journal › Article

Figure 1: The theoretical relationship between costs and quality



Abstract

Health care-associated infections affect an estimated 5% of hospitalized patients and represent one of the leading causes of illness and death in the United States. This study calculates the costs and benefits of a patient safety program in intensive care units in 6 hospitals that were part of the Michigan Keystone ICU Patient Safety Program. On average, 29.9 catheter-related bloodstream infections and 18.0 cases of ventilator-associated pneumonia were averted per hospital on an annual basis. The average cost of the intervention is $3375 per infection averted, measured in 2007 dollars. The cost of the intervention is substantially less than estimates of the additional health care costs associated with these infections, which range from $12 208 to $56 167 per infection episode. These results do not take into account the additional effect of the Michigan Keystone program in terms of reducing cases of sepsis or its effects in terms of preventing mortality, improving teamwork, and reducing nurse turnover.

10.1177/1062860611410685

Link to publication in Scopus

Link to citation list in Scopus

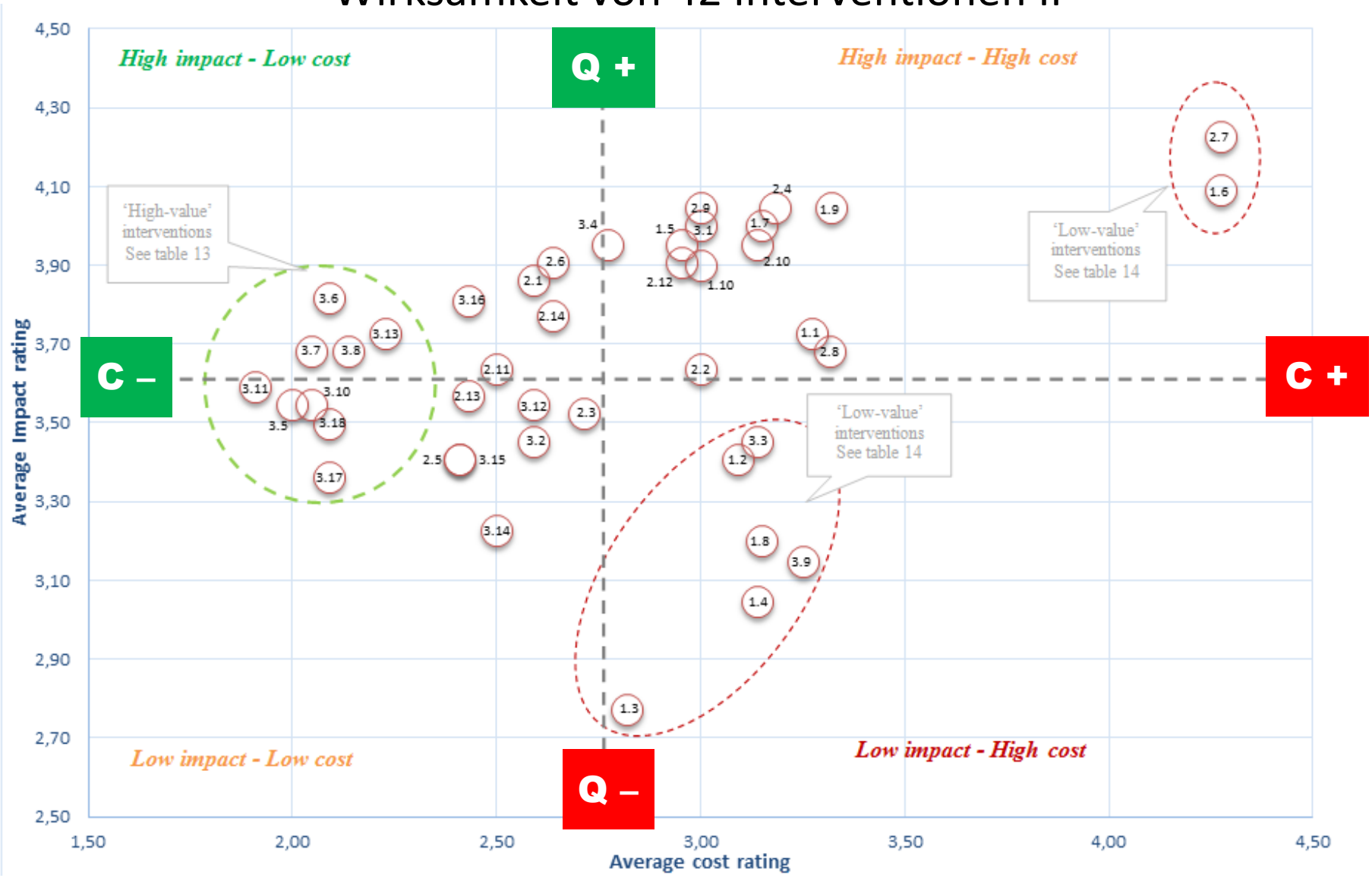
Wir brauchen mehr solche Zahlen zur Kosten-Effektivität von Qualitätsverbesserungen – hier Befragungsdaten zu Kosten und Wirksamkeit von 42 Interventionen I

Table 12. Highest and lowest impact and cost ratings for individual interventions, all respondents (n=23)

Highest impact ratings	Rating	Highest cost ratings	Rating
2.7 Digital technology solutions for safety	4.23	2.7 Digital technology solutions for safety	4.27
1.6 Electronic Health Record (EHR) systems	4.09	1.6 Electronic Health Record (EHR) systems	
1.9 National interventions based on specific safety themes 2.4 Monitoring and feedback of patient safety indicators 2.9 Building a positive safety culture	4.05	1.9 National interventions based on specific safety themes 2.8 Human resources interventions	3.32
		1.1 Safety Standards linked to accreditation / certification	3.27
1.7 No-fault medical negligence legislation 3.1 Medication management / reconciliation	4.00	3.9 Operating room integration and display checklists	3.25
		2.4 Monitoring and feedback of patient safety indicators	3.18
Lowest impact ratings		**Lowest cost ratings**	
1.3 Mandatory reporting of specified adverse events	2.77	3.11 VTE prevention protocols	1.91
1.4 Pay-for performance schemes for patient safety	3.05	3.5 Urinary catheter use and insertion protocols	2.00
3.9 Operating room integration and display checklists	3.15	3.7 Ventilator-associated pneumonia minimisation protocols 3.10 Peri-operative medication protocols	2.05
1.8 System-level public engagement and health literacy initiatives	3.20		
3.14 Falls prevention protocols	3.23	3.18 Patient identification and procedure matching protocols 3.17 Patient hydration and nutrition standards 3.6 Central line catheter insertion protocols	2.09
3.17 Patient hydration and nutrition standards	3.36		

Source: OECD patient safety snapshot survey, 2017

Wir brauchen mehr solche Zahlen zur Kosten-Effektivität von Qualitätsverbesserungen – hier Befragungsdaten zu Kosten und Wirksamkeit von 42 Interventionen II



Schlussfolgerungen

- Kosten und Qualität sind zwei Seiten einer Medaille und sollten (immer) zusammen betrachtet werden
- Schlechte Qualität kostet unnötiges Geld …
- Aber nicht jede Intervention zu ihrer Verbesserung ist kosten-effektiv → wir brauchen mehr Studien, um die kosten-effektiven (oftmals sogar kosten-sparenden) Interventionen einsetzen zu können