

HELIOS Kliniken
oder Moment ist Medizin

Managing quality within the Helios hospital group – methods, experiences and achievements of a structured quality improvement process

Thomas Mansky

Oct. 12, 2009

HELIOS

HELIOS and it's Quality Management

- HELIOS: One of the largest for profit providers in Germany
- 40 acute care hospitals (+ 20 Rehab)
- 580.000 inpatient cases / year

- Development of new QM methods since 2000
- Administrative data is exported from hospital information systems and quality indicators are derived from coded diagnoses and procedures and demographic data
- 33 medical company goals and about 1.000 indicators for volume and outcome are reported monthly to all chairmen (of the departments)

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Necessity of effective QM

- First data analyses in 2000 (for 1999) showed areas of good performance and various problems (AMI, stroke, pneumonia)
- First process analyses in departments with critical outcome numbers showed large potential for improvement
- Standardized improvement processes were set up and resulted in major improvement of medical outcome

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Surgical indicators

- Volume and in-hospital mortality for most important procedures
- Examples:
 - In-hospital mortality for colorectal surgery, esophagectomy, pancreatotomy, gastrectomy, nephrectomy, heart surgery, spine surgery, carotid procedures etc.
 - Death around procedures, where it's not expected: Cholecystectomy, Hip / Knee replacement, Hysterectomy etc.
 - Use of minimal invasive procedures and share of conversion from endoscopic to open surgery

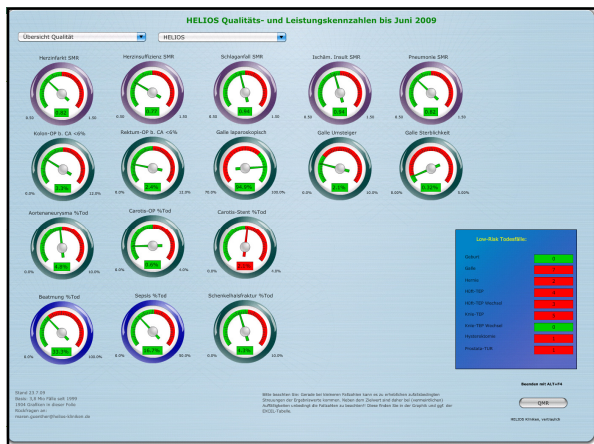
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Medical indicators

- Mortality for AMI, heart failure, stroke, pneumonia, septicemia
- Mortality in long term ventilation patients

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		Chirurgie	HELIOS 2009-10	HELIOS 2009-10	HELIOS 2009-10	Anteil	Anteil	Anteil	Anteil
Erkrankungen des Herzens									
1.1	Herzinfarkt		8,0%	321	4,03%	8,2%	8,3%	7,9%	6,4%
1.2	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, aufgetreten unter Einwirkung)	SI	10,3%		11,1%	11,0%	10,2%	10,3%	9,0%
1.3	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, erwartet über 15%)	SI	2,6%	4	10,3%	0,0%	0,0%	0,0%	0,0%
1.4	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 4,5%)	SI	4,1%	161	2,48%	0,0%	0,0%	0,0%	1,9%
1.5	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 5,0%)	SI	0,6%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.6	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.7	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.8	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.9	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.10	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.11	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.12	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.13	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.14	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.15	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.16	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.17	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.18	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.19	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.20	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.21	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.22	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.23	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.24	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.25	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.26	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.27	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.28	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.29	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.30	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.31	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.32	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.33	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.34	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.35	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.36	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.37	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.38	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.39	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.40	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.41	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.42	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.43	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.44	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.45	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.46	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.47	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.48	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.49	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.50	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.51	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.52	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.53	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.54	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.55	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.56	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.57	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.58	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.59	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.60	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.61	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.62	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.63	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.64	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.65	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.66	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.67	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.68	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.69	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.70	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.71	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.72	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.73	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.74	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.75	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.76	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.77	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.78	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.79	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.80	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.81	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.82	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.83	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.84	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.85	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.86	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.87	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.88	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.89	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1.90	Herzinfarkt (Herzinfarkt (Alter >19, Anteil Todesfälle, unter 20,5%)	SI	19,1%	73	30,1%	0,7%	0,7%	0,7%	0,7%
1									



Management actions / reactions

- Subpar results in 'high risk' procedures lead to a local peer review
- Two physicians from other hospitals review preselected case records
- They analyze errors, weaknesses and deviations from guidelines over the whole treatment process
- Improvements are recommended
- Local chairman of the dept. and CEO are responsible for implementation

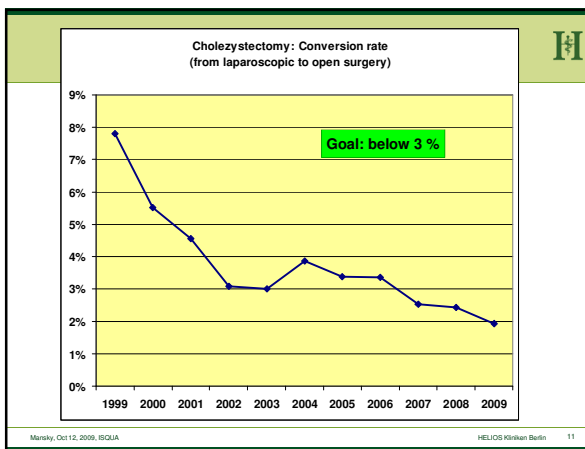
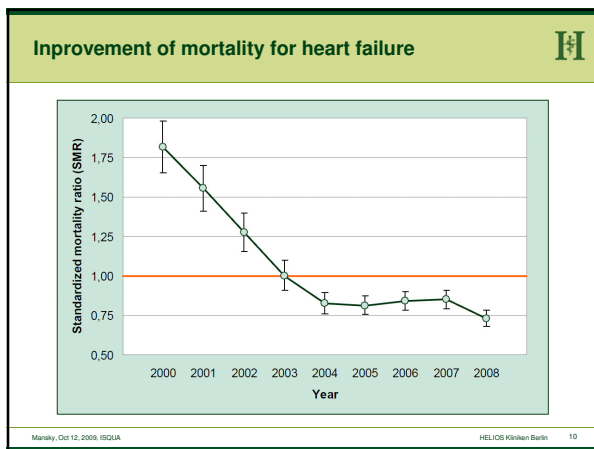
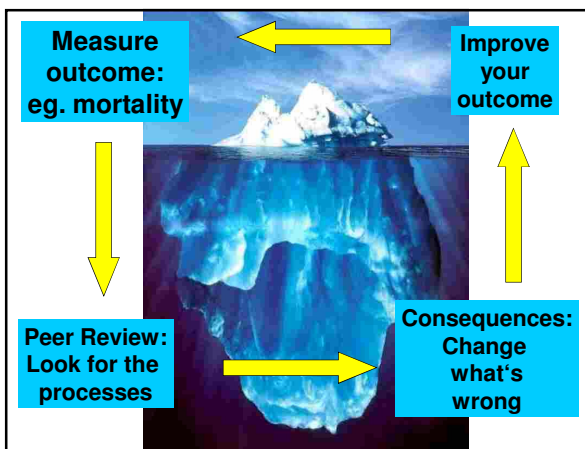
- Also structural changes may be discussed: i.e. giving up low volume procedures (or increase volume, if possible)

'Low risk' procedures

- Procedures which usually are expected to have a mortality risk of << 1%
- Example: knee replacement 1 fatality per 701 cases

- Central review of cases
- Has revealed problems in perioperative management
- Procedure may be low risk, however patient may be high risk
- Management of cardiac and/or pulmonary risks is not sufficient
- 'Awareness' for complications can be improved (i.e. septicemia)

- Reaction: Introduction of pre- / peri- / postoperative checklists
- Recognize risks, Improve complete perioperative management process (risk adopted management)



HELIOS hospital Aue: stroke - problem

- Mortality for stroke was around 20% in Aue (German average 10.4%)
- Case numbers were decreasing
- In the beginning of 2004 we reacted:
- A medical management and strategy meeting was held with the chairs of all departments (not only for this issue)
 - First findings: Stroke patients were treated randomly by four departments (2 internal, 1 anaesthesia, 1 psychiatry/neurology)
 - No one was or felt really responsible for this disease
- In parallel a peer review was initiated
 - Findings: Stroke treatment was not up to date, guidelines not followed, major systematic deficiencies in treatment processes

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HELIOS hospital Aue: stroke – changes

- Step 1: One department was made responsible for treating stroke patients and reorganizing treatment processes
- Step 2: After discussions, it was decided to split the former psychiatry / neurology unit into two separate departments for psychiatry and neurology
- This also involved a market analysis: demand for a new dedicated neurology was seen for the region
- The new department of neurology with a new chairman and was established and started working in 2005

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HELIOS hospital Aue: stroke – results !

Mortality decreases immediately after interventions

Year	Mortality Rate (%)
2000	21.7%
2001	24.7%
2002	20.1%
2003	19.1%
2004	13.0%
2005	7.4%
2006	7.0%
2007	7.1%

Case numbers increase after a (short) latency period

Year	Number of Patients
2000	300
2001	350
2002	300
2003	250
2004	250
2005	300
2006	350
2007	400

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Long term method (QSR)

- In a joint project with the largest German insurance (AOK) HELIOS has developed outcome indicators based on insurance data
- These cover all events of a patient (all admissions, outpatient treatments, death etc.)
- Thus long term indicators can be measured

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AOK QSR: HELIOS Klinik Buch, heart failure

- Risk adjusted heart failure mortality in Berlin-Buch is not only better in the beginning, but the better survival rate can still be observed after 1 year

Heart failure mortality at discharge, after 30-days, 90-days, 1 year Germany in blue (+/- 95% conf. interval) HELIOS Berlin Buch in red

Anteil Verstorbene in %

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Necessity of follow-ups on quality measurement

Failure with exchange or removal within one year after knee replacement (AOK hospital cases 2003)*

- Almost half of the clinics show no re-admissions with failures
- 1-year failure rate > 10% for 1 in 20 clinics
- (More) reliable indicators of outcome quality due to follow-up monitoring

* Only clinics with at least 10 AOK cases; 2003 still without specification of a side

The Federal Association of AOK BU Health

Conclusion H

- Outcome can be managed
- That needs:
 - Outcome indicators
 - Defined outcome goals
 - dedication of management (to improve outcome)
 - Peer Reviews (Audits) for improving all processes
- Achievements are even better than those known from many new medications
- i.e. if used appropriately this is a highly efficient method for improving outcome

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VALUE IN HEALTH CARE

Health Affairs, Web Exclusive, 27 January 2009

Measuring, Monitoring, And Managing Quality In Germany's Hospitals

Germany has made progress in measuring quality in hospitals and is extending its effort into its statutory health insurance system.

by Reinhard Busse, Ulrike Nimptsch, and Thomas Mansky

ABSTRACT: In German hospitals, quality measurement, monitoring, and management have undergone considerable development. This includes an array of mandatory measures, including a nationwide benchmarking exercise based on 194 indicators. Because of better and deeper coding of diagnoses, procedures, and demographic information since the introduction of the diagnosis-related group (DRG) system, two further "generations" of instruments have been developed: quality measurement performed at the provider level

Example 2: restructuring the cardiology in Gotha H

- High mortality leads to peer review and structural talks in 2002 / 2003
- One of three internal med. depts. is explicitly assigned as cardiology (with new chairman)
- Mortality falls from 20% to 6.9%, significantly under federal average
- Case numbers (and revenues) increase afterwards

Year	Case numbers
2000	200
2001	250
2002	280
2003	300
2004	350
2005	400
2006	450
2007	500

Year	% inpatient mortality
2000	20%
2001	18%
2002	15%
2003	12%
2004	10%
2005	8%
2006	7%
2007	6.9%

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