

Quality indicator seminar, Tartu University Hospital , 17 January 2013

Indicator sets; clinical rationale and developments

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the danish
clinical registers

a national quality improvement programme

Clinical rationale

- Why?
- How?
- .. And effects



Clinical rationale; four examples

- Perforated gastric ulcer
- Stroke
- Diabetes
- Schizophrenia



Perforated Gastric Ulcer (general surgery)

Choice of condition

- Judged to be one of the most serious emergency conditions in routine surgical practice
- When choice was made – insufficient information about incidents

Choice of indicators

- The actual indicator set represents a line of revisions where emphasis has moved from surgical technique to perioperative care

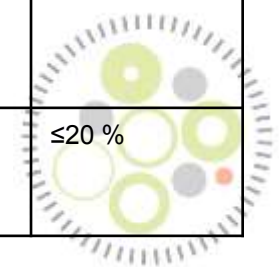
System – and clinical effects

- Despite the low incidents this clinical database remained important in terms of patient safety in surgery. It's remarkable that it appears to be possible to lower the perioperative mortality in this condition. However, the potential for improvement is difficult to implement and sustain.



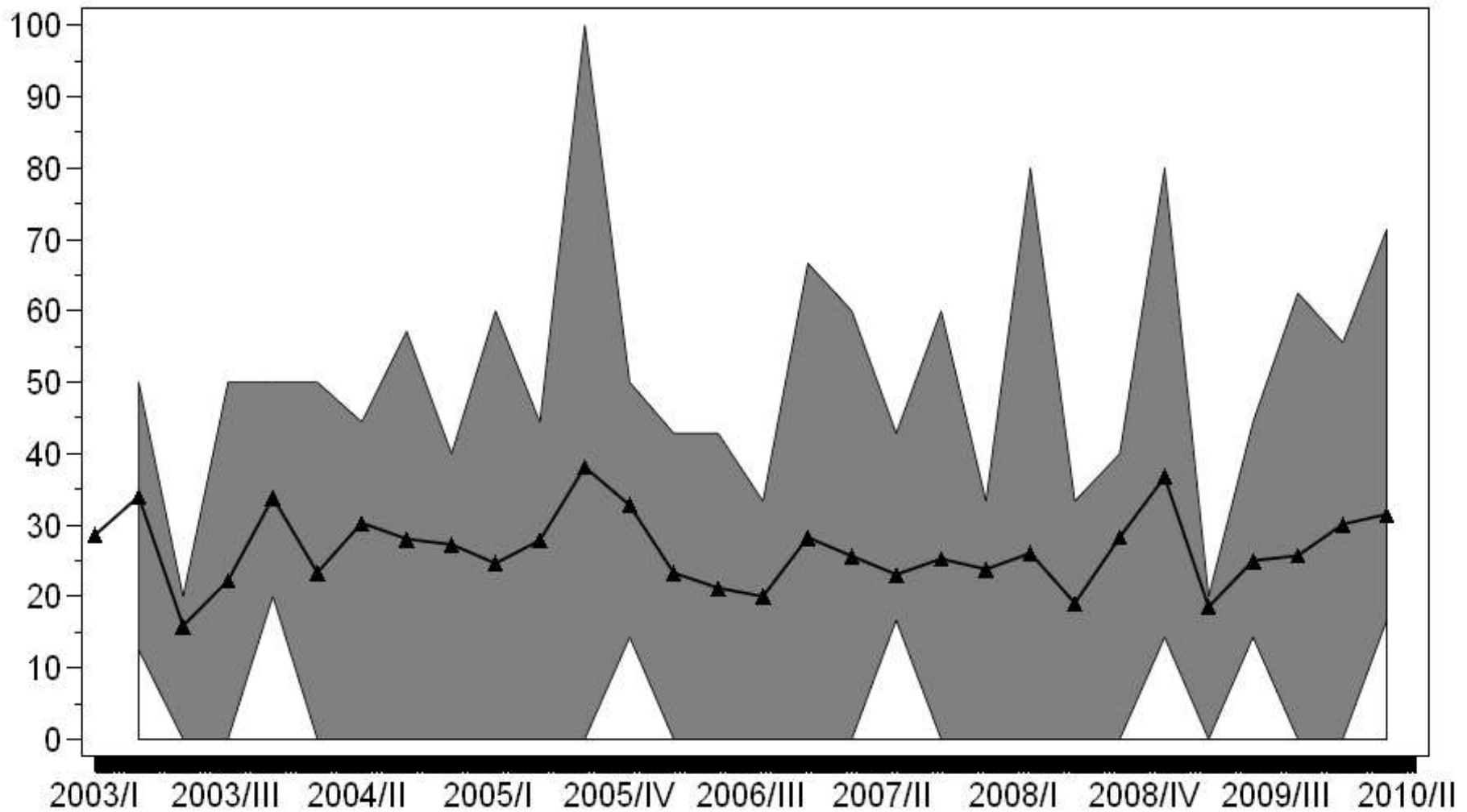
Perforated Gastric Ulcer (general surgery)

Indicator domain	Indicator	Type of indicator	Standard
Delay before operation	Proportion of patients operated within 6 hours from admission or time of occurrence of symptoms in already admitted patients.	Process	≥75 %
Prophylactic treatment for peritonitis	Proportion of patients treated preoperatively with prophylactic broadspectrumed antibiotics	Process	≥ 95 %
Re-operation	Proportion of patients with re-operation or percutaneous abscess drainage	Result	≤ 10%
Weight control	Proportion of patients with daily weight information in the first three Postoperative days	Process	≥ 90 %
Fluid record	Proportion of patients a fluid record for the first three postoperative days	Process	≥ 90 %
Postoperative monitoring of vital science	Proportion of patients who have their blood pressure (BP), pulse, temperature, oxygen saturation and level of consciousness tested three times daily in the first three postoperative days	Process	≥90 %
Mortality rate	Proportion of patients who die within 30 days after the first procedure.	Result	≤20 %



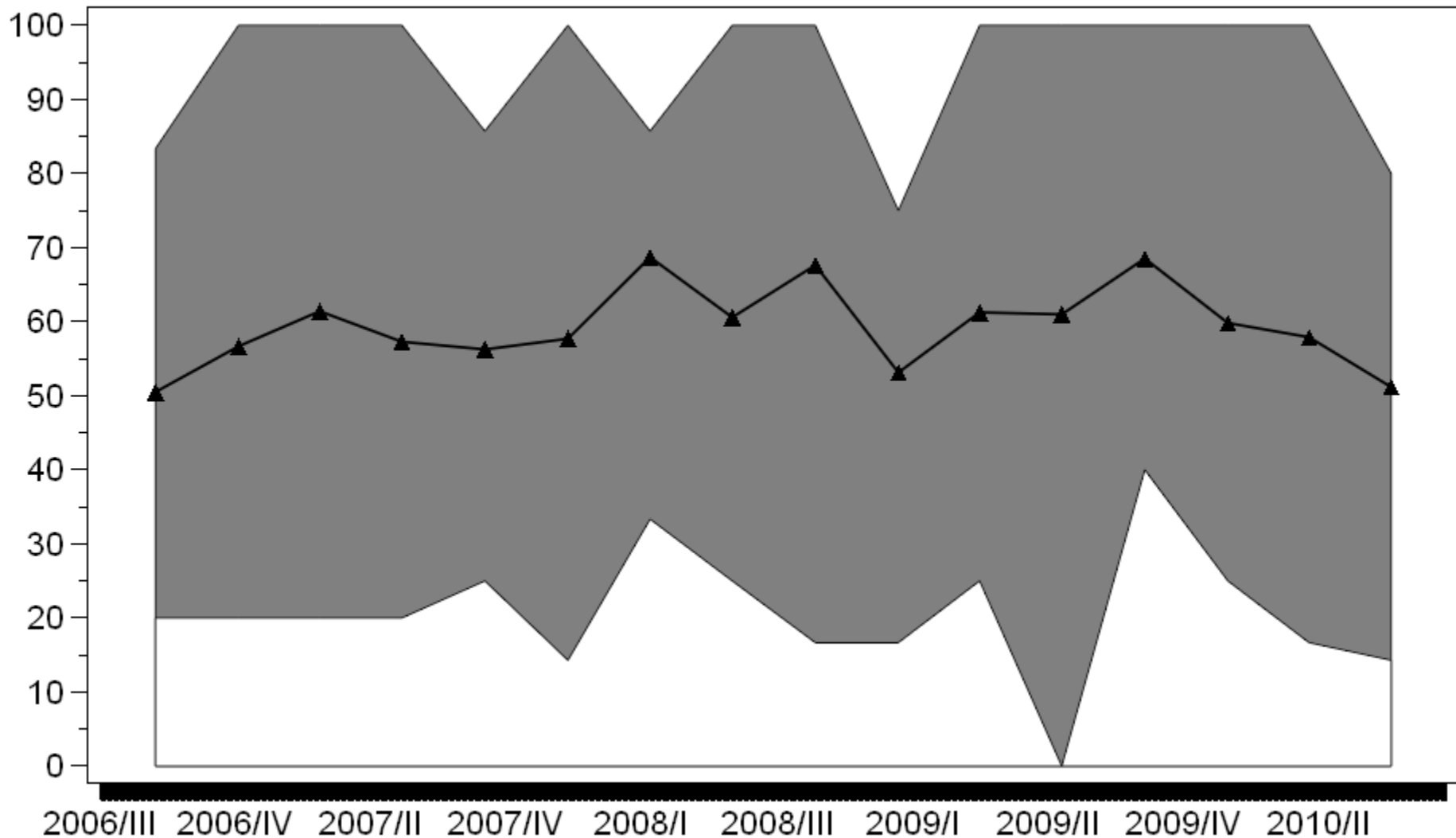
Gastric Ulcer Perforation

30 d postoperative case fatality rates



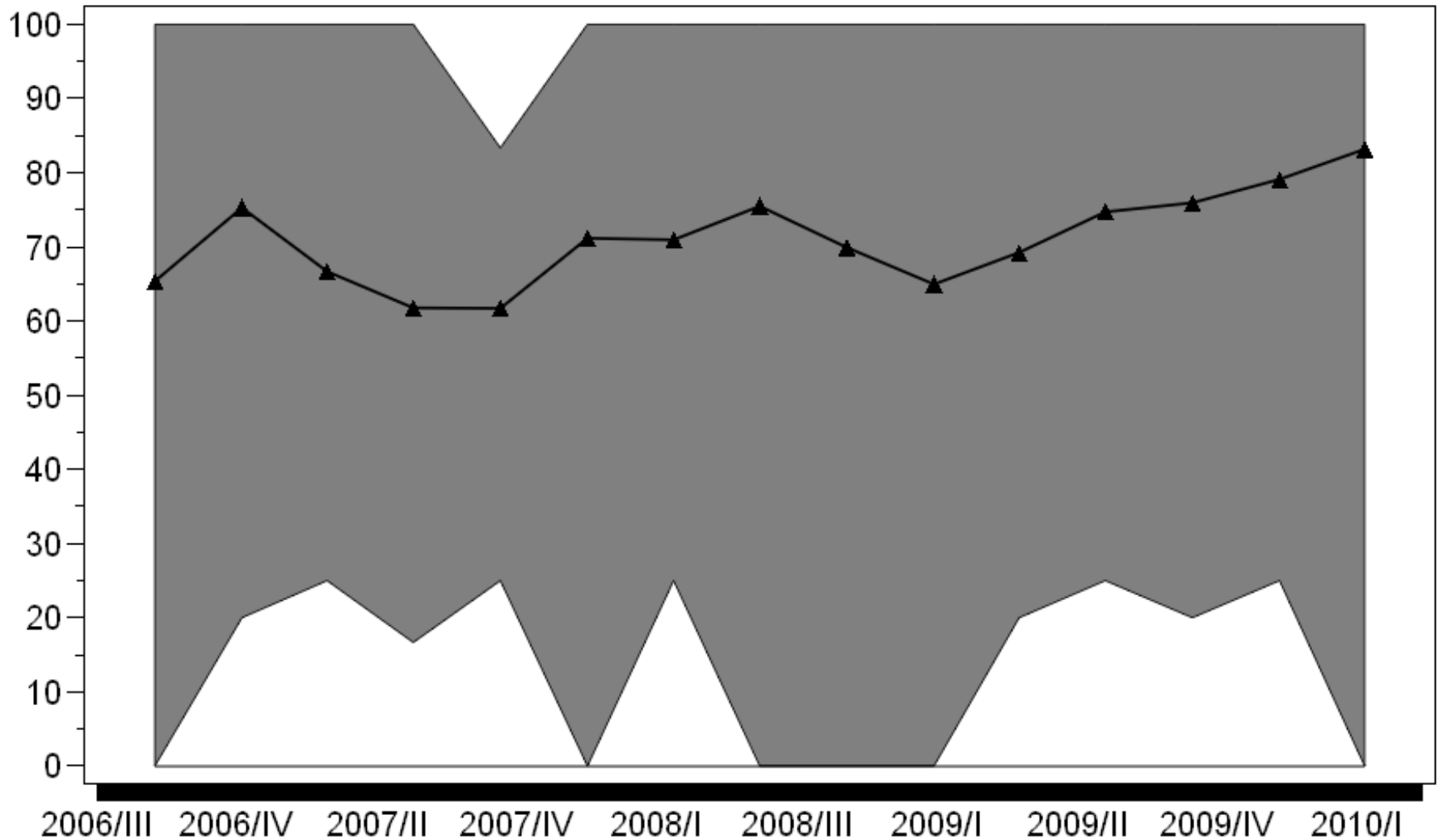
Gastric Ulcer Perforation

Delay: Proportion of patients operated within 6 hours after admission



Gastric Ulcer Perforation

Postoperative surveillance: Proportion of patients receiving full bundle of basic observation the first 72 h. after operation



Optimized perioperative care (Møller, M.H., phd thesis, 2010)

- Evaluation and risk stratification by experienced professionals
- Minimal preoperative delay
- Sepsis-screening
- Early broad-spectrum antibiotics
- Respiratory and circulatory stabilisation in high dependency unit
- Relevant anti-secretory therapy
- Goal-directed fluid and nutritional therapy
- Analgetic treatment – early mobilisation
- Prevention of atelectases and other postoperative complications
- Frequent and sufficient monitoring



Optimized perioperative care (Møller, M.H., phd thesis, 2010)

Involvement and instruction of

- Surgeons
- Anaesthesiologists
- Emergency room nurses
- Anaesthesiology nurses
- Scrub nurses intensive care and recovery room nurses



Intervention trial

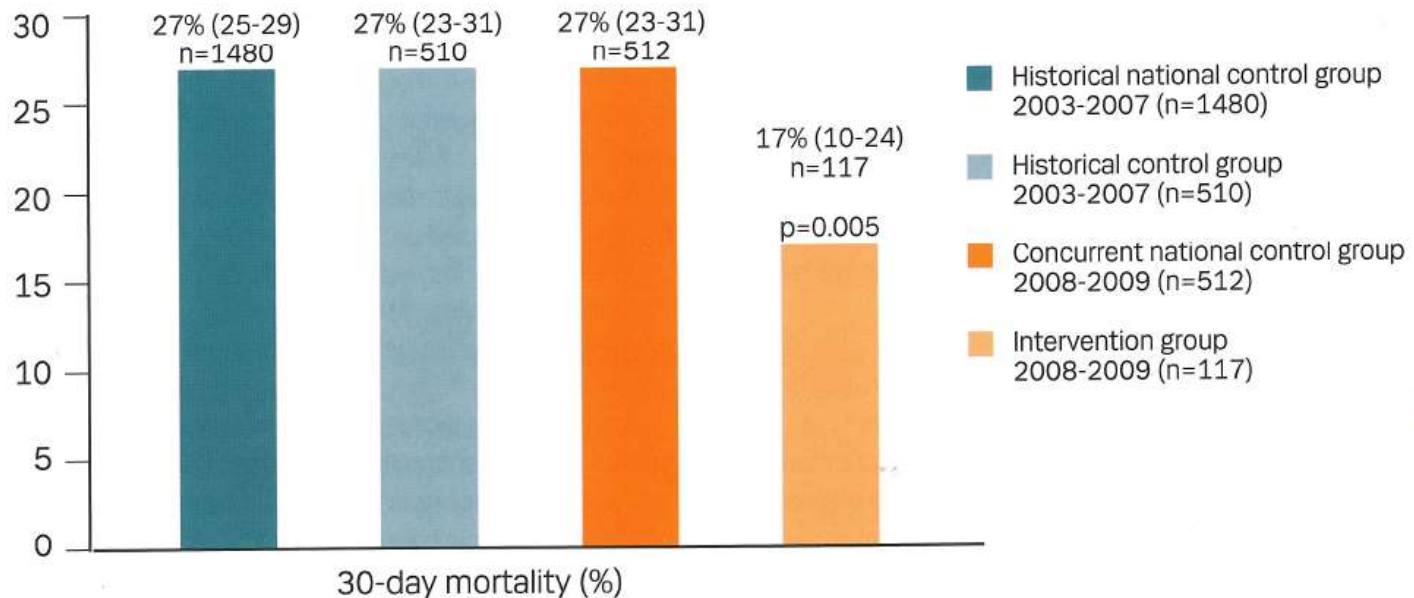


Figure 7.

30-day mortality in the intervention group compared to: ① the concurrent national control group, ② the historical control group, and ③ the historical national control group. Chi²-test, % with 95% CI.

Variation in Hospital Mortality Associated with Inpatient Surgery

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ABSTRACT

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BACKGROUND

Hospital mortality that is associated with inpatient surgery varies widely. Reducing rates of postoperative complications, the current focus of payers and regulators, may be one approach to reducing mortality. However, effective management of complications once they have occurred may be equally important.

METHODS

We studied 84,730 patients who had undergone inpatient general and vascular surgery from 2005 through 2007, using data from the American College of Surgeons National Surgical Quality Improvement Program. We first ranked hospitals according to their risk-adjusted overall rate of death and divided them into five groups. For hospitals in each overall mortality quintile, we then assessed the incidence of overall and major complications and the rate of death among patients with major complications.

RESULTS

Rates of death varied widely across hospital quintiles, from 3.5% in very-low-mortality hospitals to 6.9% in very-high-mortality hospitals. Hospitals with either very high mortality or very low mortality had similar rates of overall complications (24.6% and 26.9%, respectively) and of major complications (18.2% and 16.2%, respectively). Rates of individual complications did not vary significantly across hospital mortality quintiles. In contrast, mortality in patients with major complications was almost twice as high in hospitals with very high overall mortality as in those with very low overall mortality (21.4% vs. 12.5%, $P < 0.001$). Differences in rates of death among patients with major complications were also the primary determinant of variation in overall mortality with individual operations.

CONCLUSIONS

In addition to efforts aimed at avoiding complications in the first place, reducing mortality associated with inpatient surgery will require greater attention to the timely recognition and management of complications once they occur.

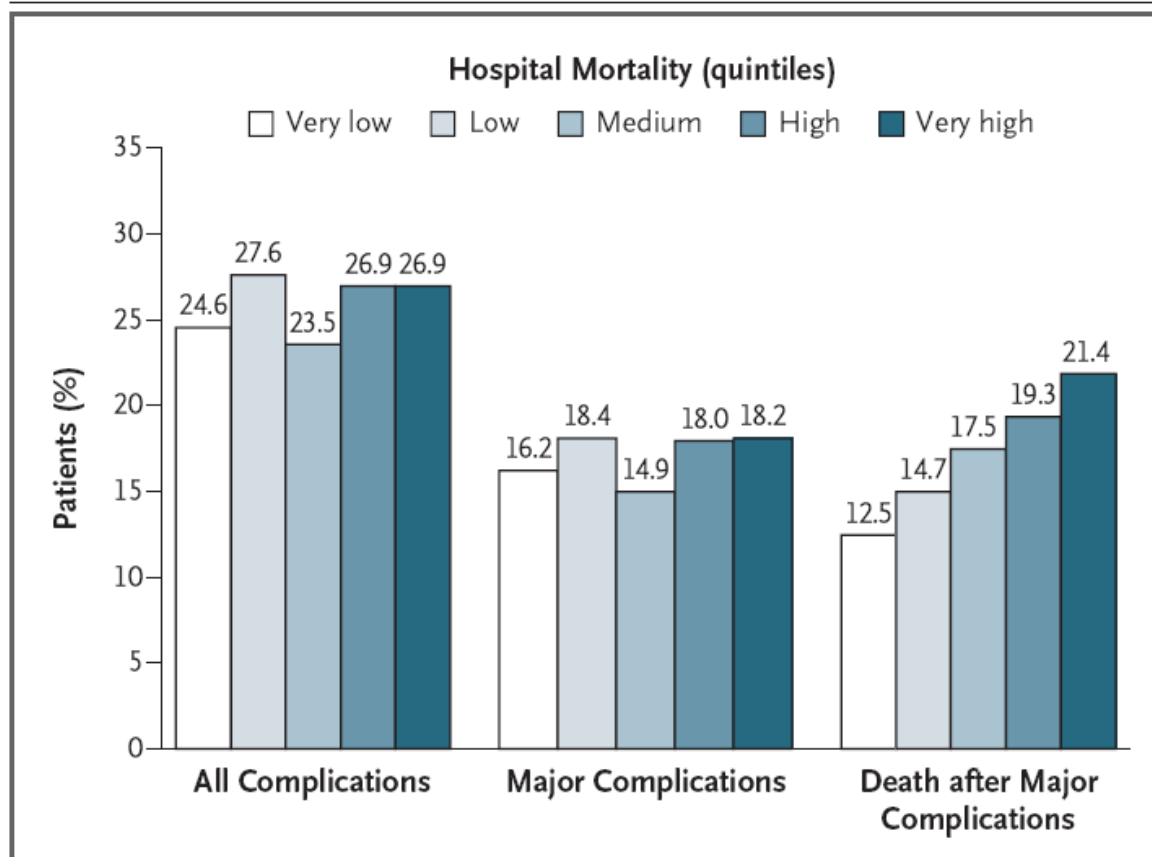


Figure 1. Rates of All Complications, Major Complications, and Death after Major Complications, According to Hospital Quintile of Mortality.

Although rates of all complications and major complications did not vary significantly across hospital mortality quintiles, the rate of death in patients with major complications was almost twice as high in hospitals with very high overall mortality as in those with very low overall mortality (21.4% vs. 12.5%, $P < 0.001$).

Stroke – from internal medicine to neurology to...

Choice of condition

- All countries with clinical registries include stroke
- Close interaction with national clinical guidelines
- Definite professional aims for change of the national health care system 10 years ago

Choice of indicators

- Emphasis on early rehabilitation and secondary prophylaxis
- Inclusion of new treatment modalities thrombolysis
- Learning from experience with indicator sets

System – and clinical effects

- Marked change in stroke care in DK; nearly all patients are now admitted to dedicated stroke units, and between 10-20% of the population are treated with thrombolysis



Acute Stroke¹: Indicators and Standards in The Danish National Indicator Project

Indicator domain	Indicator	Type	Standard
Organization of treatment, care and rehabilitation in a stroke unit	1. Proportion of patients who are admitted to a stroke unit no later than the 2 nd day of hospitalization	Process	≥ 90%
Secondary prophylactic medical treatment	2. Proportion of patients with acute ischemic stroke without atrial fibrillation where treatment with antiplatelet inhibitor is initiated no later than the 2 nd day of hospitalization	Process	≥ 95%
	3. Proportion of patients with acute ischemic stroke and atrial fibrillation where treatment with oral anticoagulants is initiated no later than the 14 th day of hospitalization	Process	≥ 95%
Early examination/diagnostics with CT/MRI scan	4. Proportion of patients who undergo a CT/MR scan on the first day of hospitalization	Process	≥ 80%
Assessment by physiotherapist	5. Proportion of patients assessed by a physiotherapist no later than the 2 nd day of hospitalization in order to clarify of the extent and type of rehabilitation and time for initiation of physiotherapy	Process	≥ 90%
Assessment by occupational therapist	6. Proportion of patients assessed by an occupational therapist no later than the 2 nd day of hospitalization in order to clarify of the extent and type of rehabilitation and time for initiation of occupational therapy	Process	≥ 90%
Assessment of nutritional risk	7. Proportion of patients who have an assessment of nutritional risk no later than the 2 nd day of hospitalization	Process	≥ 90%
Early dysphagia screening	8. Proportion of patients assessed by bedside screening in order to determine the extent of aspiration and the severity of swallow dysfunction no later than the first day of hospitalization	Process	≥ 90%
Ultrasound/CT angiography of carotid artery	9. Proportion of patients who undergo an ultrasound/CT-angiography of the carotid arteries no later than the 4 th day of hospitalization	Process	≥ 90%
Mortality	10. Proportion of patients who die within 30 days of admission for acute stroke	Outcome ²	≤15%

¹ Diagnosis and inclusion criteria, and data definitions in relation to the indicators are described in "Datadefinitioner for NIP-stroke, 15. december 2009" (Danish only).

² In comparisons over time or between departments outcome indicators will be adjusted for possible differences in the distribution of a number of prognostic factors

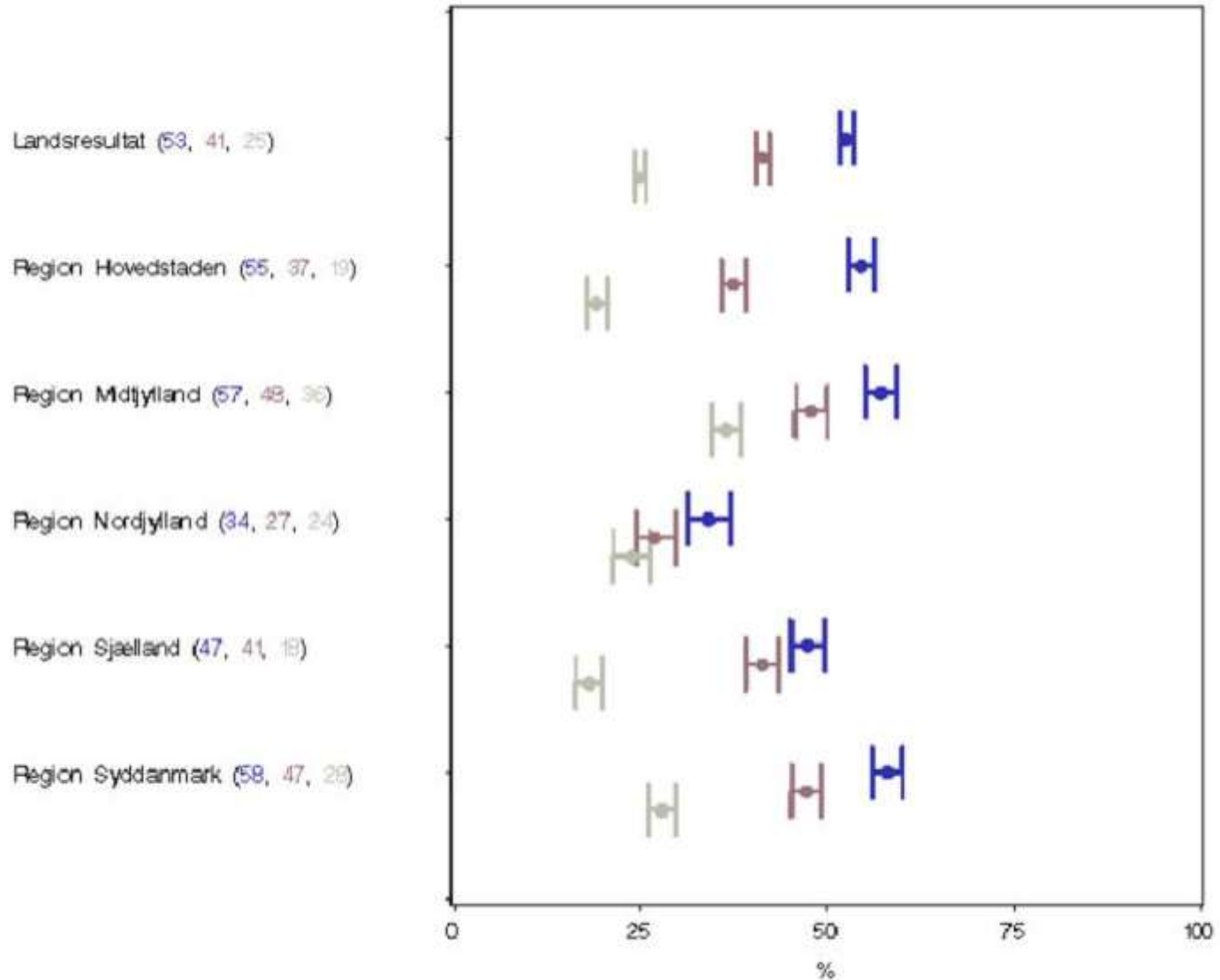
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Early mobilisation of stroke patients	7. Proportion of patient who are mobilised within the first 24 hours after admission	Process	> 80%
Assessment of nutritional risk	8. Proportion of patients who have an assessment of nutritional risk no later than the 2 nd day of hospitalisation	Process	≥ 90%
Early dysphagia screening	9. Proportion of patients assessed by bedside screening in order to determine the extent of aspiration and the severity of swallow dysfunction no later than the first day of hospitalisation	Process	≥ 80%
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.....			

Indicator domain	Indicator	Type	Standard
Delay of carotid endarterectomy in stroke patients with symptomatic stenosis of the carotid arteries	11. Proportion of patients who are operated with less than 14 days delay	Process	≥ 90%
Delay from first symptoms to admission in stroke units	12. Proportion of patients admitted within 3 - 4,5 hours after initial symptoms	Process	≥ 30%
Minimal delay in thrombolysis	13. Proportion of thrombolysed stroke patients where treatment initiated within one hour after admission	Process	≥ 50%
Access to trombolytic treatment of ischaemic stroke	14. Proportion of patients with acute ischaemic stroke treated with trombolysis	Process	≥ 10%
Mortality acute stroke	15. Proportion of patients who die within 30 days of admission for acute stroke.	Outcome	≤ 15%
Mortality acute ischaemic stroke	16. Proportion of patients who die within 30 days of admission for acute ischaemic stroke	Outcome	≤ 12%
Mortality acute haemorrhagic stroke	17. Proportion of patients who die within 30 days of admission for acute haemorrhagic stroke	Outcome	≤ 40%



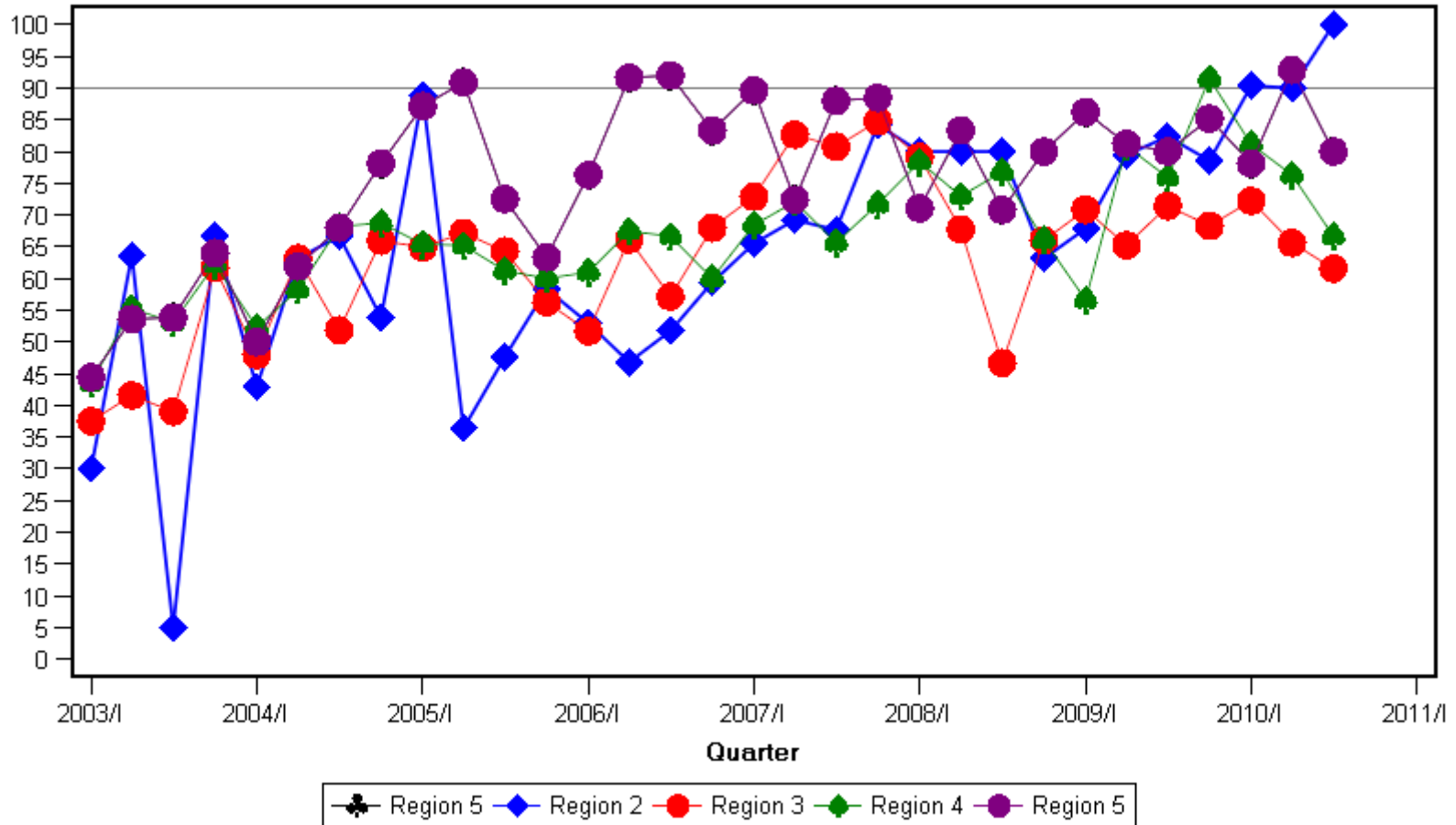
Proportion of patients who receive the stroke bundle (9 indicators)

[01.01.11 –31.12.11, 01.01.10 –31.12.10, 01.01.09 –31.12.09]



- Improvement and variation on indicator level: Secondary prophylaxis – stroke with A-Fibrillation

Percentage of patients treated with oral anticoagulants within 14 days - regional results



Diabetes from hospital outpatients to GP-clinics

Choice of condition

- All countries with clinical registries include stroke
- Close interaction with national clinical guidelines
- Definite professional aims for change of the national health care system 10 years ago
- First attempt to create a registry for both primary and hospital sector
- How to cope with a prevalent population of more than 200'000 patients

Choice of indicators

- Development from traditional diabetes indicators to an experiment with “conditioned” indicator

System – and clinical effects

- First attempt to harvest data from central and peripheral registries for laboratory, medicine, drug therapy and patient information



Indicators and standards, 1. version 2009

Indicator	Type	Standard	Time reference
Proportion of diabetics who have their HbA1C measured	Process	≥ 95%	At least once a Year
Distribution of the measured values for HbA1C	Result	No threshold value has been determined	The most recent values
Proportion of diabetics who have their blood pressure measured	Process	≥ 95%	At least once a year
Distribution of the measured values of systolic blood pressure	Result	No threshold value has been determined	The most recent values
Distribution of the measured values of diastolic blood pressure	Result	No threshold value has been determined	The most recent values
Proportion of diabetics for whom lipid status is checked	Process	≥ 90%	At least every second year
Distribution of the measured values of the total cholesterol	Result	No threshold value has been determined	The most recent values
Proportion of diabetics who are examined for albuminuria	Process	≥ 95%	At least every second year
Proportion of diabetics who have an eye examination	Process	≥ 90%	At least every second year
Proportion of diabetics who have an eye examination	Process	≥ 95%	At least every four years
Proportion of diabetics who have their feet examined	Process	≥ 95%	At least every second year

Additional indicators - conditional indicators

- Proportion of patients with type 2 diabetes and HbA1C \geq 7% without antidiabetic treatment
- Proportion of diabetic patients with hypertension and no antihypertensive treatment
- Proportion of hypercholesterolemic diabetics without statin treatment
- Proportion of diabetics with albuminuria without ACE inhibitor treatment



Thank you for your attention

