Improvements in quality and safety of surgery on a national scale:

The Dutch example

Michel WJM Wouters
Association of Surgeons in the Netherlands

Jan Maarten van den Berg
Dutch Health care Inspectorate
No disclosures
Association of Surgeons in the Netherlands

Transforming the surgical landscape
Quality policy of the ASN

ASN offers her members quality instruments to empower surgeons:

• to improve surgical care continuously
• to deliver safe and patient-centered surgical care
• to be transparent and accountable
Quality instruments in 2010

- Literature
- Guidelines
- Surgical congresses

Daily practice

Consultation
Introduction of new quality instruments since 2010

- Guideline peri-operative process
- Quality standards
- Quality measurement (clinical audit)
Surgical safety: Evidence into guideline

**Effect of a Comprehensive Surgical Safety System on Patient Outcomes**

Eefje N. de Vries, M.D., Ph.D., Hubert A. Prins, M.D., Ph.D., Rogier M.P.H. Crolla, M.D., Adriaan J. den Oever, M.D.,* George van Andel, M.D., Ph.D., Sven H. van Helden, M.D., Ph.D., Wolfgang S. Schlack, M.D., Ph.D., M. Agnès van Putten, B.Sc., Dirk J. Gouma, M.D., Ph.D., Marcel G.W. Dijkstra, Ph.D., Susanne M. Smorenburg, M.D., Ph.D., and Marja A. Boermeester, M.D., Ph.D., for the SURPASS Collaborative Group†

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**GUIDELINE**

**Peri-operative Pathway**

**INITIATOR:**
- Nederlands Vereniging voor Anesthesiologie (NVvA)
- Nederlands Vereniging voor Anesthesiologisch NCPP (NVvANCPP)
- Nederlands Vereniging voor Anesthesiologische NCPP (NVvANCPP)
- Nederlands Vereniging voor Anesthesiologische NCPP (NVvANCPP)

**PARTIFICIPANTEN EN VERSLAGGEVERS/ORGANISATIES:**
- Nederlandse Vereniging voor Oor- en Neus- (NOvO)
- Nederlandse Vereniging voor Nederlandse Stichting (NVvNCS)
- Nederlandse Vereniging voor Nederlandse Stichting (NVvNCS)
- Nederlandse Vereniging voor Nederlandse Stichting (NVvNCS)

**FINANCERING:**
- ZonMw
Surpass: stop moments

Stop moment:
Check if all steps in preceding process have been taken correctly
Pre-operative stop moments

**A0 Pre-admission**
- What is the indication?
- What is the operative risk?
- Is the risk acceptable?
- Have the right measures been taken?
- Have the right doctors been consulted?
- Do we have patients consent?

Responsible: Anesthesiologist

**B Time out**
- Right patient? Right operation?
- Right side / location? (marked!)
- Allergies?
- Medication?
- Type of anesthesia?
- Complete team? (names!)
- Materials and specifics?

Responsible: Surgeon
Introduction of *new* quality instruments since 2010

- Guideline peri-operative process
- Quality standards
- Quality measurement (clinical audit)
Low-volume high-risk surgery

The New England Journal of Medicine

Special Article

HOSPITAL VOLUME AND SURGICAL MORTALITY IN THE UNITED STATES

Adjusted Mortality (%)

- Colectomy
  - <33: 5.6, 5.5, 5.0, 5.0, 4.5

- Gastrectomy
  - 20.3, 17.8, 16.2, 11.4, 8.4

- Esophagectomy
  - 20.3, 17.8, 16.2, 11.4, 8.4

- Pancreatic resection
  - 16.3, 14.6, 11.0, 7.2, 3.8
Quality standards
Hospital level

Quantitative standards: Minimal procedural volume

Qualitative standards: Infrastructure
Organization of care process
Multidisciplinary team members
Standards for pancreatic cancer resections

- **Infrastructure:** Endoscopy with intervention-ERCP on site
- **Volume:** ≥ 20 pancreatico-duodenectomies / year / location
- **Specialists:** ≥ 2 certified pancreatic surgeons
  ≥ 2 gastro-enterologists experienced in stenting, EUS
  ≥ 2 intervention radiologists
  *plus* weekly meeting multidisciplinary team
- **Audit:** Mandatory participation in Dutch Pancreatic Cancer Audit
Impact of quality standards

Adopted by:
- Health care Inspectorate
- Insurance companies
- Patient organizations

Hospitals performing surgery:
Gastric cancer surgery

- Before 2010 almost all hospitals performing gastric cancer resections
- No hospital > 20 resections / year
- In 2011 and 2012 introduction volume standard: 10 > 20 / year
- Concentration from 76 into 23 hospitals
- Centralization accompanied by nation-wide audit (DUCA)
- Drop in postoperative mortality and morbidity:
  - Mortality: 2011 8.5 % 2014 4.5 %
  - Severe complications: 2011 20 % 2014 17 %
Introduction of *new* quality instruments since 2010

- Guideline peri-operative process
- Quality standards
- **Quality measurement** (clinical audit)
Clinical auditing

‘The systematic critical analysis of the quality of medical care, including the procedures used for diagnosis and treatment, and the resulting outcome for the patient, carried out by those personally engaged in the activity concerned’

Ernest Amory Codman, 1910
Dutch Surgical Colorectal Audit

- Started 2009
- All 91 hospitals participate
- Webbased data-entry
- Population-based: 98% coverage, >70,000 pts
- Evaluating entire surgical care path
- Fast feedback-loop: online benchmark

MyDSCA

- Adjustment for casemix and chance variation
- Interpretation by scientific committee
- Annual DICA report and conference
Clinical auditing
Improvement mechanisms

• **Performance monitoring**
  
  *performance information; nation-wide and on hospital level*

• **Mirror information**
  
  *actionable case-mix adjusted information on where to focus quality improvement initiatives*

• **Best Practices**
  
  *identification and transfer of ‘clinical excellence’*

• **Outcomes research**
  
  *learn from variation in outcomes and mechanisms that lead to it*
Webbased data-entry
### Process and outcome measures

**Patients**
- 3000 patient/year
- 85% resection
- 15% irresectable

**Quality indicators DSCA**
- % full visualization of colon
- % fully staged
- % preoperative MRI
- % discusses in MDT

**Indicator results DSCA**
- 88% fully staged
- 89% MRI
- 88% MDT

**Diagnosis**
- colonoscopy, colography on indication
- tumor biopsy
- tumor marker CEA
- MRI/CT pelvis
- endoscopic ultrasound on indication
- CT thorax or X thorax
- CT abdomen or ultrasound liver
- multidisciplinary meeting (MDT)

**Neo-adjuvant treatment**
- short-course pre-operative radiotherapy
- long-course pre-operative radiotherapy
- pre-operative chemoradiation

**Surgery**
- intake/informed consent surgeon
- consultation anesthesiologist
- consultation stoma-nurse
- other consultations (e.g. cardiologist)
- open or laparoscopic resection
- Low Anterior Resection, APER or Hartmann
- colostomy; end- or defunctioning

**Pathology**
- histology, grade
- radicality (R0)
- Circumferential Resection Margin
- lymph node examination

**Postoperative recovery**
- fast track recovery program
- length of stay
- adverse events
- re-interventions
- mortality

**Discriminative**

#### Severe complications

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<th>Hospital volume</th>
<th>Discriminative</th>
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<tr>
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www.clinicalaudit.nl
Funnelploot voor de verschillen tussen ziekenhuizen in percentage patiënten waarbij een gecompliceerd beloop* na resectie vanwege een primair niet-kleincellig longcarcinoom is opgetreden (bereken over 2 jaren).

*In percentage patiënten met een gecompliceerd beloop na resectie vanwege een primair niet-kleincellig longcarcinoom.
Effect on guideline adherence

Quality indicator:
Percentage of rectal cancer patients discussed in pre-operative MDT 2009 - 2012
Quality reports to ASN
‘Outliers’

Severe complications vs. Hospital volume

www.clinicalaudit.nl
Audit peer expert group

• Board ASN reviews audit-results of surgical teams
• ASN contacts the ‘outliers’
• Expert-group visits the ‘outlier’ institutes
• Experts use **structured checklist** on quality aspects
• Expert-recommendations to surgical team/hospital board
• Monitoring improvement with the audit
Laparoscopic resections

Irradical resections

Severe complications

Postoperative mortality

> 25% RR

> 50% RR

> 50% RR

> 50% RR

www.clinicalaudit.nl
Conclusions

• ASN combines quality instruments to empower surgeons to improve their care

• Use of instruments by members, hospitals, health care inspectorate, payers leads to:
  • Concentration of complex surgical treatments
  • Guideline adherence and improved care process
  • Audit cycle
  • Marked improvements in patient outcome
The results
Guideline compliance
Preventable deaths

1735 per year 2004
1960 per year 2008
935 per year 2012
30 day mortality post op

25% reduction in 3 years
Lessons learned

1) Make alliances
2) Set ambitious national goals
3) Use reinforcing projects
   • Guideline: standardize, process!
   • Clear minimum standards, structure
   • Data based audits, outcome