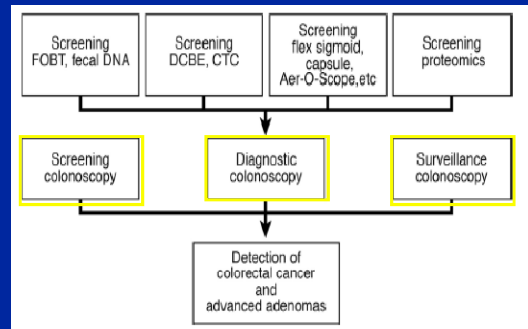


Quality assessment in colonoscopy

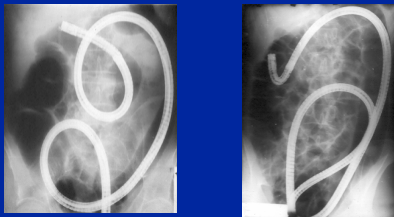
Jaroslaw Regula

Department of Gastroenterology,
Medical Centre for Postgraduate Education,
Institute of Oncology
Warsaw, Poland



Rex D, Eid E, Clin Gastro Hepatol 2008

Colonoscopy is often not perfect



European guidelines for quality assurance in CRC screening. IARC (in press)

Ed. J. Patriack, N Segnan, L. Von Karsa

- **Before** (referral practices, consent, anticoagulants, bowel prep quality)
- **During** (sedation, technique, difficult polyps, safety issues)
- **After** (recovery, post-procedure questionnaire, surveillance recommendations)

Competence levels

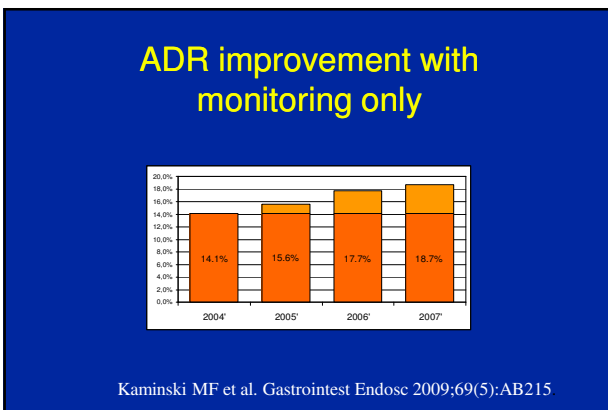
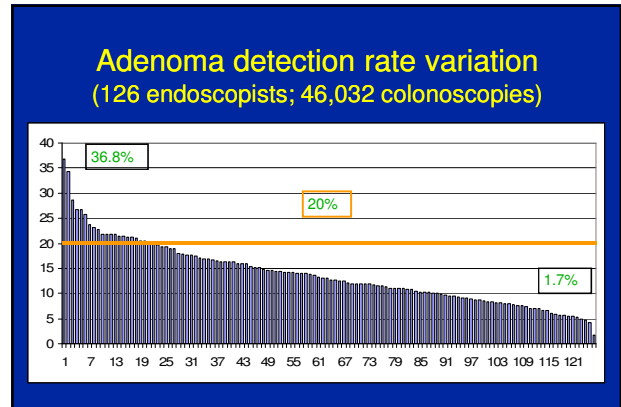
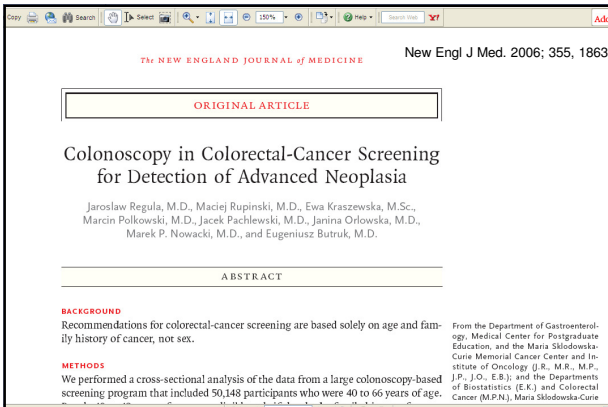
- 0 – taking biopsies; no polypectomy
- 1 – removal of polyps <1cm
- 2 – removal of polyps <2,5cm
- 3 – removal of flat lesions <2cm, large sessile lesions
- 4 – removal of large sessile lesions and other lesions, that can also be treated surgically

European guidelines for quality assurance in colorectal cancer screening. IARC (in press)

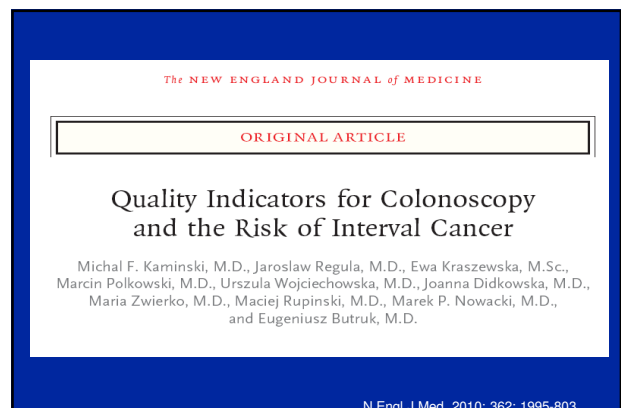
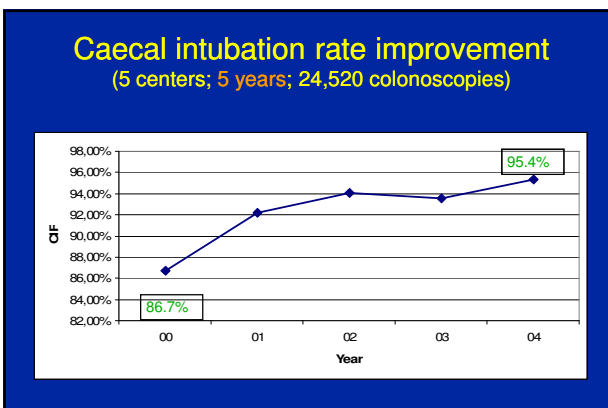
Quality parameters

- caecal intubation rate
- adenoma detection rate (15%F, 25% M)
- bowel prep quality (to see polyps 5 mm)
- photodocumentation of caecum
- mean withdrawal time without polypectomy
- adverse events (24 hours – 30 days)

Lieberman D et al.: Gastrointestinal Endoscopy 2007;65:757

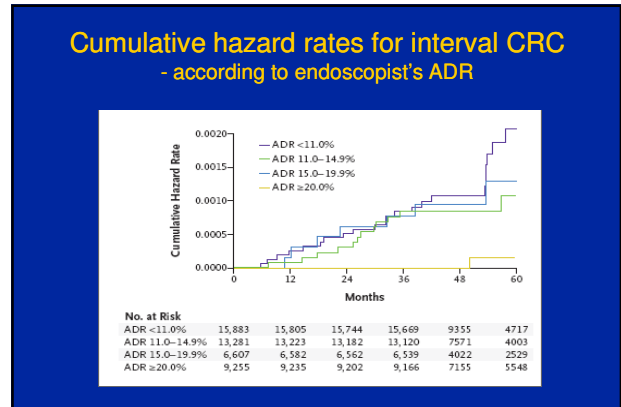


- ### Cecal intubation rate in large studies
- Bowles et al. 04' – UK 76,9%
 - Aslinia et al. 06' – USA 85.1%
 - Shah et al. 07' - Canada 86.9%
 - Regula et al. 06' - Poland 91.1%
- Target**
- > 90% for routine colonoscopies
 - > 95% for screening colonoscopies



Risk factors for interval CRC

Variables in the model*	P value (LR test)	Hazard Ratio [95% CI]	P value
Screenee's age – yr	0.005	1	
40 – 49			
50 – 54		6.5[0.8, 52.8]	0.08
55 – 59		6.4[0.8, 52.8]	0.08
60 – 66		13.4[1.7, 105.7]	0.01
Endoscopist's ADR	0.008	1	
≥ 20%			
15.0-19.9%		10.9[1.4, 87.0]	0.02
11.0-14.9%		10.8[1.4-85.1]	0.02
<11.0%		12.5[1.5-103.4]	0.02



Characteristics of endoscopists - according to adenoma detection rates

Characteristic	<11%	11.0-14.9%	15.0-19.9%	≥20%
Specialty – (%)				
Gastroenterology	27.5%	37.0%	41.2%	53.8%
Internal medicine	30.0%	30.4%	23.5%	23.1%
Surgery	42.5%	32.6%	35.3%	23.1%

Risk of interval cancers

	OR	95% CI
General surgeons	0.95	0.72 – 1.28
Internists	1.11	0.77 – 1.59
Family practice	1.59	1.01 – 2.47
Gastroenterologists	1.0	Reference
<i>Site of CRC*</i>		
Right colon	2.43	1.82 – 3.27
Transverse colon/splenic flexure	2.35	1.54 – 3.53
Left colon	1.23	0.88 – 1.73
Site unspecified	3.59	1.91 – 6.41
Rectum/rectosigmoid colon	1.0	Reference

Singh H et al. Am J Gastroenterol 2010;105:2588

Risk of interval cancer

	Proximal cancers		P value	Distal cancers	
	OR (95% CI)			OR (95% CI)	
% Completeness for endoscopist			.002		
<80%	1.00 (referent)			1.00 (referent)	
80%-84%	1.16 (0.86-1.56)			0.90 (0.65-1.25)	
85%-89%	0.69 (0.51-0.93)			0.65 (0.47-0.89)	
90%-94%	0.66 (0.50-0.87)			0.71 (0.54-0.93)	
95%+	0.72 (0.53-0.97)			0.73 (0.54-0.97)	
Specialty of endoscopist			.006		
Gastroenterologist	1.00 (referent)			1.00 (referent)	
Surgeon	1.23 (0.96-1.57)			0.96 (0.73-1.25)	
Other	1.87 (1.34-2.60)			1.67 (1.13-2.46)	
Setting of colonoscopy			.05		
Academic hospital	1.00 (referent)			1.00 (referent)	
Community hospital	1.11 (0.83-1.50)			0.96 (0.73-1.25)	
Nonhospital	1.88 (1.2-2.92)			1.67 (1.13-2.46)	

Baxter NN et al. Gastroenterology 2011;140:65

Teaching proper technique

endoscopist:	1	2	p
• proximal folds	31,5	19,6	<0,001
• cleaning	33,1	21,9	<0,001
• distention	33,5	24,5	<0,001
• time of viewing	32,4	21,0	<0,001

Rex, 2000

Video-recording improves quality

	Pre-awareness score Mean (s.d.)	Post-awareness score Mean (s.d.)	P value
Overall quality index (1 to 5)	2.9 (0.9)	3.8 (0.7)	<0.0001
Fold examination (1 to 5)	2.5 (1.0)	3.5 (0.8)	<0.0001
Luminal distention (1 to 5)	3.4 (1.0)	4.2 (0.7)	<0.0001
Cleanup (1 to 5)	3.0 (0.8)	3.9 (0.7)	<0.0001
Adequacy of inspection time (1 to 5)	2.6 (1.0)	3.7 (0.8)	<0.0001
Measured inspection time (min)	4.9 (2.2)	7.3 (1.8)	<0.0001

Rex DK et al. Am J Gastroenterol 2010;105:2312

Are new technologies helpful?

- wide-angle colonoscopy
- cap-fitted colonoscopy
- colonoscopes for retroflexion
- third-eye retroscope
- chromoendoscopy
- high definition
- NBI
- autofluorescence

How to improve human performance?

- Showing the problem
- Teaching proper techniques
- Constant monitoring
- Audits
- Elimination of poor performers

Existing national quality control systems

- Norway – Gastronet
- UK – within screening programme
- Poland – within screening programme

Summary

- **Quality** of colonoscopy is a problem !
- Ensuring high quality examination has become the **main task of endoscopic societies**
- Adenoma detection rate (**ADR**) is a **validated** quality indicator
- **Monitoring of quality** in each endoscopic unit should be required