



QUALITY IN ENDOSCOPY

ESGE / ESDO SYMPOSIUM

COLONOSCOPY &  
COLONIC NEOPLASMS

Prague, Czech Republic April 17–18, 2015

# Lecture

**Title: Colorectal Cancer Screening – an overview**

Session No. 1 Preparation for Colonoscopy

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# Colorectal cancer (CRC) population threat

alarming incidence and mortality

preventable and curable disease

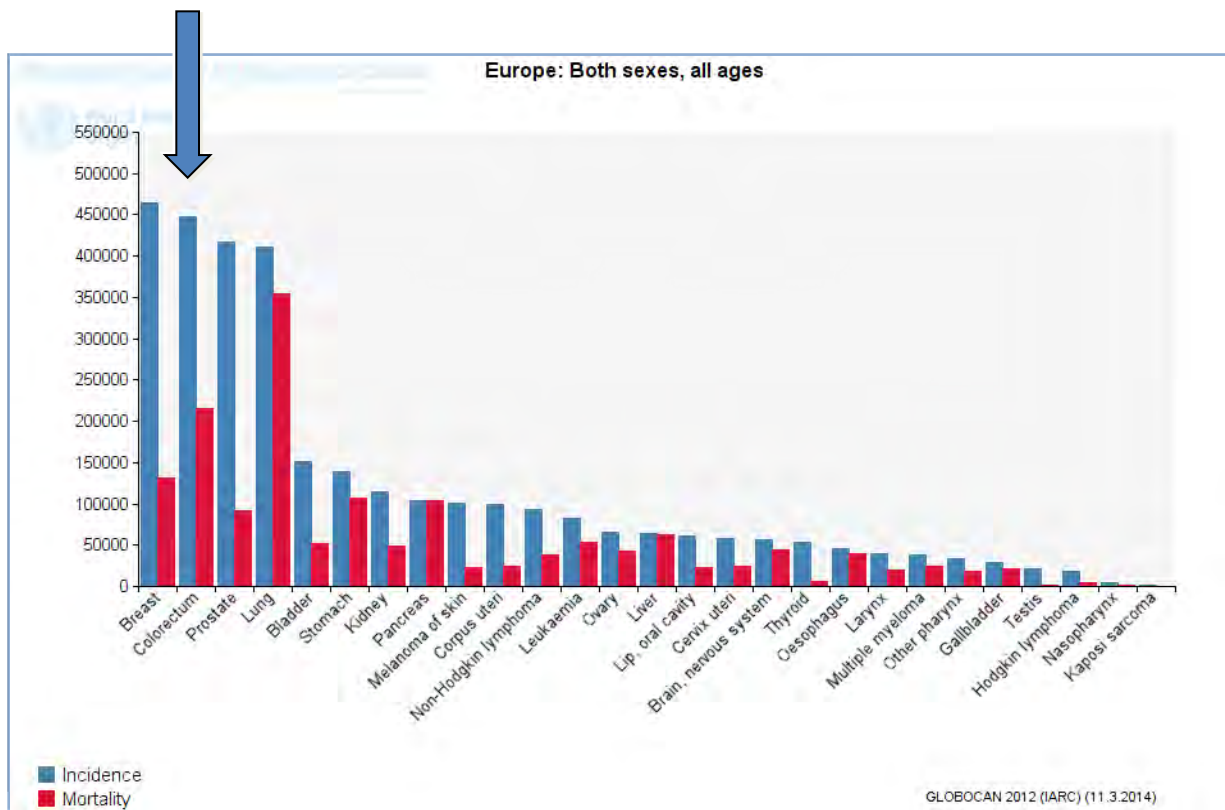
primary prevention

secondary prevention programs

screening

surveillance

# CRC incidence and mortality in Europe (1)



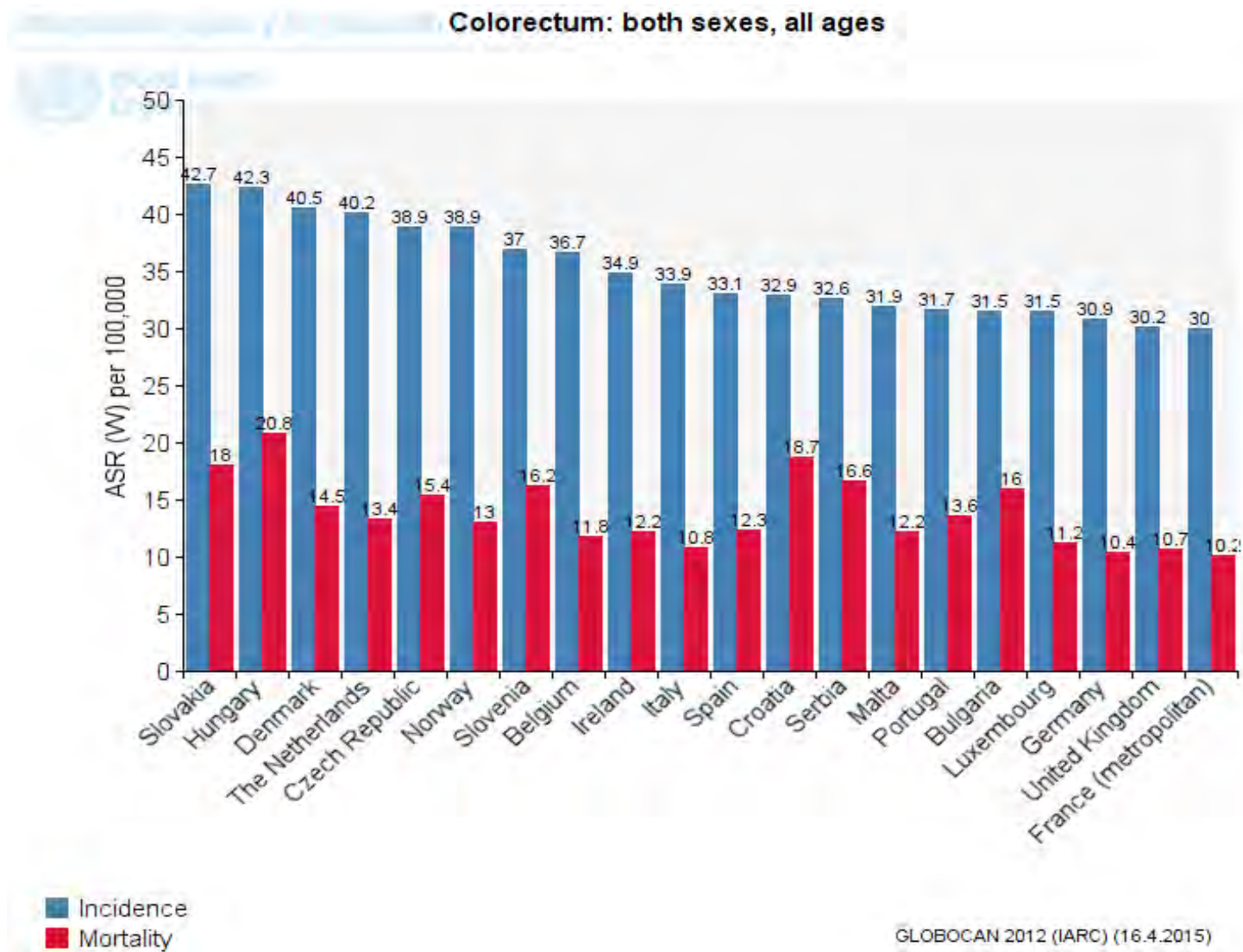
Incidence:  
2nd rank  
breast/prostate

Mortality:  
2nd rank  
lung

Source: GLOBOCAN 2012

Europe 2012	Incidence	Mortality	%
All cancers	3,74 mil	1,93 mil	51.6%
CRC	0,47 mil	0,23 mil	48.9%
%	12.6%	11.9%	

# CRC incidence and mortality in Europe (2)





# CRC screening trends

Screening methods involvement  
Program organization improvement

# CRC screening trends I

## methods

### Two steps programs:

fecal occult blood tests: gFOBT, FIT

molecular markers (DNA, RNA, proteins)

capsule colonoscopy

### One step programs

computed tomography colonography (CTC)

flexible sigmoidoscopy

colonoscopy

# Guaiaac FOBT

most widely used in the past  
randomized controlled study

15 – 33% mortality reduction

low cost, easy handling and development  
qualitative only, subjective evaluation



*negative*

*positive*

# FIT

sensitivity for colorectal neoplasia

target population compliance

last decade:

switch gFOBT      FIT (Great Britain, Czech Republic, Germany)

new programs starts with FIT (Netherlands, Slovenia)

qualitative: pre-set cut-off

quantitative: adjustable cut-off

cut-off setting:      cut-off      positivity and sensitivity

most common level used: 75 – 100ng/mL



Source: <http://www.oxfordbiosystems.com>  
<http://www.sero.no>

van Rossum LG et al, Gastroenterology 2008  
Hundt S et al, Ann Intern Med 2009  
Rabeneck L et al, Can J Gastroenterol 2012



# Capsule colonoscopy



CRC screening: not widely recommended

Studies: new screening population

Czech study: ongoing, promising results

	Van Gossum, C1	Eliakim, C2	Spada, C2	Czech, C2
<b>Centers</b>	8x Europe	5x Israel	8x Europe	4x, Czech Rep.
<b>Patients No.</b>	320	98	109	236
<b>Average age</b>	58,5	50	60	59
<b>Polyps ≥ 6mm</b>				
sensitivity	64%	89%	84%	77%
specificity	84%	76%	64%	97%
<b>Polyps ≥ 10mm</b>				
sensitivity	60%	88%	88%	88%
specificity	98%	89%	95%	99%
<b>CRC sens./spec.</b>	74%	-	100%	100%

Van Gossum A et al, New Engl J Med 2009  
Eliakim T et al, Endoscopy 2009  
Spada C et al, GIE, 2011  
Czech Colon Capsule Database, 2014

# Flexible sigmoidoscopy

CRC screening      recently promising data on effectiveness

UK Flexible Sigmoidoscopy Trial (year 2010):

randomized study

age 55 – 64; 11 years follow-up

colonoscopy followed in case of:

one adenoma    10mm or tubulovillous or villous

multiple adenomas

mortality 23 – 38%

# CT colonography

CRC screening recommendations differs:

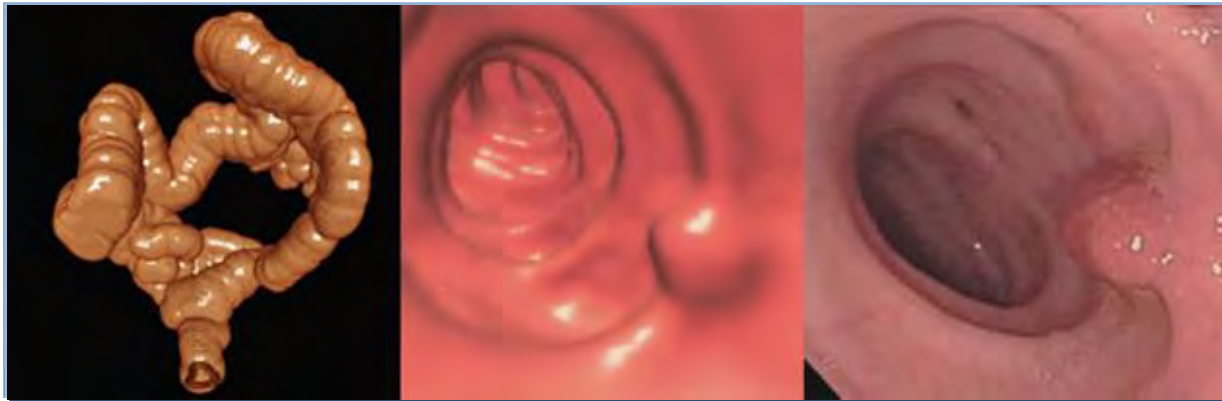
US Multi-Society Task Force on CRC: **YES**

every 5 years

polyps 6mm colonoscopy

US Preventive Services Task Force: **NO**

Study: adenomas sensitivity 94%, specificity 96%



Source: <https://rpop.iaea.org>

Levin B et al, Gastroenterology 2008  
USPSTF, Ann Intern Med 2008  
Pickhardt PJ et al, New Engl J Med 2003

# Colonoscopy

CRC screening: gold standard, but no randomized trial

extensive international (NordICC) study:

Nordic countries, Netherlands, Poland

once only colonoscopy, 15 years follow up

2:1 randomization (45.600 control group, 22.800 target group)

expected CRC mortality reduction (50% compliance):

50% in case of therapy

25 % in all invited

# CRC screening trends II

## organization: European guidelines

program quality indicators:

### **early performance indicators**

coverage, adenomas, cancers DR

### **long-term impact indicators**

incidence and mortality

early stage cancers

interval cancers

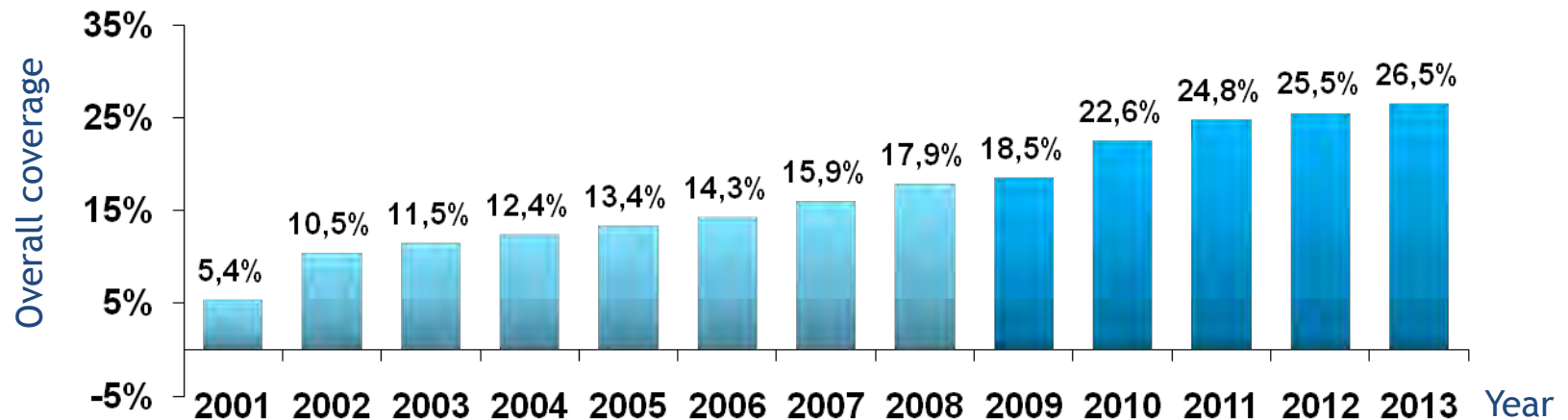
example: Czech National CRC screening program



# Target population coverage

European recommendation on population coverage: accepted 45%, recommended 65%

**opportunistic program: 2001 – 2013**

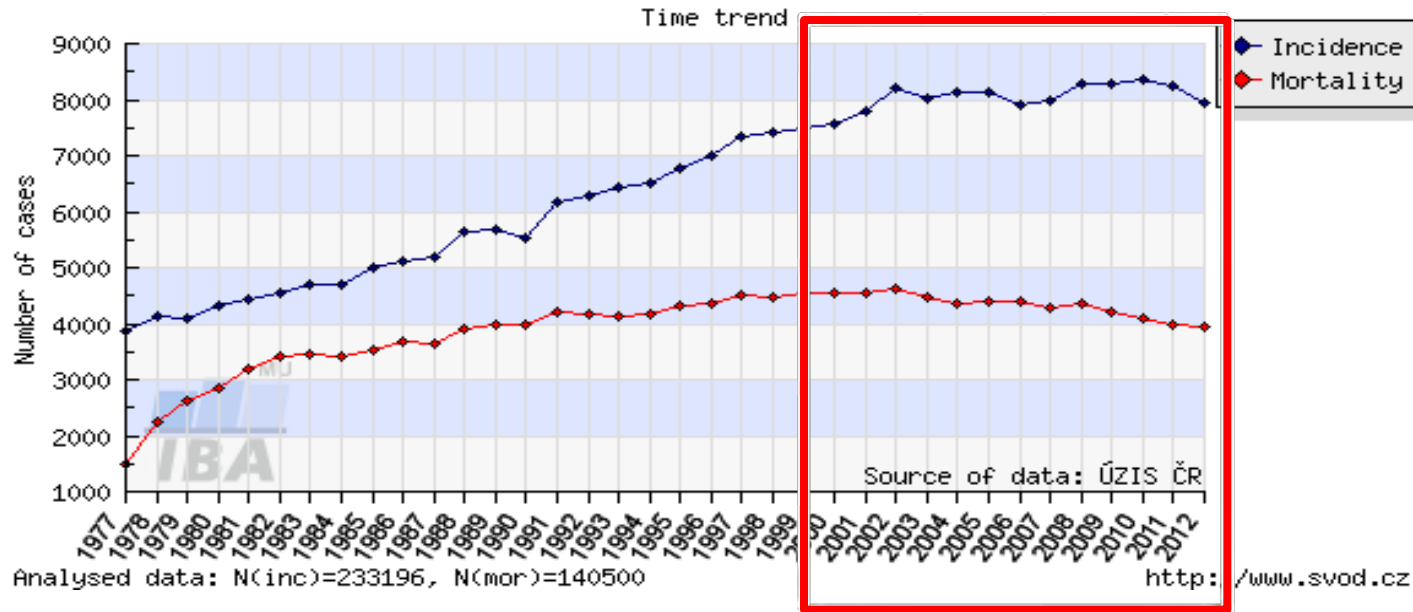


**population-based program: since 2014**

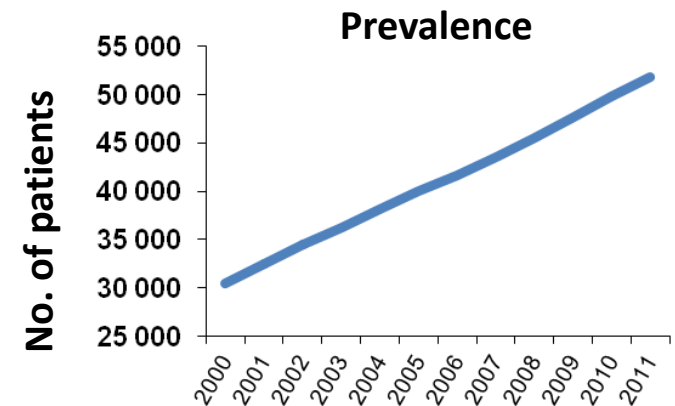
1.5 mil. invitation letters (50% of target population age 50 – 70)      220.000 examinations (14.5%)

# Long-term impact indicators decrease of CRC incidence and mortality

C18-C21 - Malignant neoplasm of colon and...



	2000	2012	Change
Incidence	7,559	7,940	+ 381 (+5.0 %)
Mortality	4,533	3,938	- 595 (-13.1 %)
Prevalence	30,504	51,833	+ 21,329 (69.9 %)



Source: Czech National Cancer Registry

# Conclusion

Trends in colorectal cancer screening are heading towards particular methods involvement and program organization evolution

The CRC mortality reduction can be achieved only by the implementation of population based programs with increase of the target population participation





Thank you for your attention