Functional IT background and data-based communication can support the CRC screening

The potential of harmonized information policy in effective national implementation of CRC screening

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Disease diagnostics

Screening performance

Screening efficacy & safety

Screening effectiveness

...... follow-up

QA & QC

Compliance

Cancer burden

Functional CRC screening needs robust IT infrastructure for:

1. Optimization
2. Quality evaluation
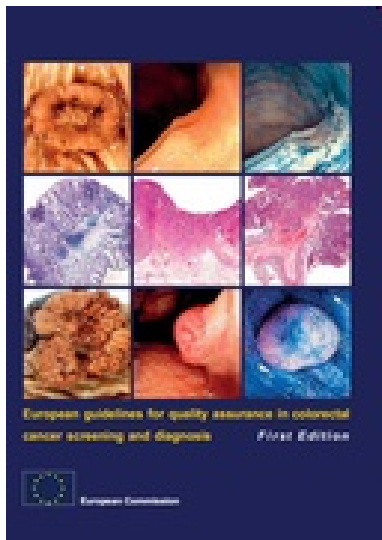3. Cost assessment
4. Communication

Target population

Epidemiology Population risk assessment

European Council Recommendation (2003/878/EC)
The European Parliament Declaration (2010)
European Guidelines (2010)

Population-based CRC screening
- public and democratic
- personalized
- controlled

Comprehensive guidelines must be effectively implemented in real world clinical practice.

Addressed invitation

Coverage monitoring

Participation rate

Interval cancers

Follow-up controls

Compliance rate

Detection rate

Population impact

Here, IT plays very important role !

Europe against Cancer: Optimisation of the Use of Registries for Scientific Excellence in research

http://www.eurocourse.org

WP5: "Interface of cancer registries with cancer screening programmes" A. Anttila, A. Ponti, G. Ronco, S. Lönnberg, N. Malila, A. Chil, J. Fracheboud, S. Törnberg, M. Zakelj, L. Karsa

Performance indicators

Indicator	Numerator	Denominator
Extension by screening programme	N target population within the area with the organised screening programme	N of population in corresponding age groups within the whole country
Invitational coverage	N invited during time frame	N eligible in target population
Coverage by examination	N screened or tested during time frame	N eligible in target population
Compliance to invitation (uptake rate)	Screened	Invited
Rate of inadequate tests	Inadequate	Screened
Rate of test positives	Positive test result	Screened
Referral rate to colonoscopy after positive test	Referred	N with a positive test result
Compliance to colonoscopy	Colonoscopied	Referred
Rate of complete colonoscopies	Complete colonoscopies	Total colonoscopied
Biopsy rate	Biopsy taken	Colonoscopied
Lesion detection rate	N with at least one lesion	Screened
Adenoma detection rate	N with at least one adenoma	Screened
Advanced adenoma detection rate	N with at least one advanced adenoma	Screened

Individual-level data

Var#	Variable name	Format	Length	Values	Description
					ID
01	Personal ID	STR	11		Personal identifier
02	Randomisation date	DATE	10		DD/MM/YYYY
03	Randomisation group	STR	2		
04	Date of birth	DATE	10		DD/MM/YYYY
					INVITATION
05	Municipality name	STR	50		
06	Birth cohort	INT	4	YYYY	
07	Gender	STR	1	F/M	
08	Screening center	STR	50		Name
09	Screening center code	STR	4		Short name - code
10	Invitation date	DATE	10		DD/MM/YYYY
11	Testnumber	INT	12		
12	Repeated test	INT	1	0/1	0 if first in same round, renewals 1
					SCREENING TEST
13	Testnumber	INT	12		unique identifier, link to invitation
14	Date of sample1	DATE	10		DD/MM/YYYY
15	Date of sample2	DATE	10		DD/MM/YYYY
16	Date of sample3	DATE	10		DD/MM/YYYY
17	Date of examination	DATE	10		for endoscopy
18	Date of 1st level examination	DATE	10		DD/MM/YYYY
19	Testresult1A	STR	3	"-", "", +/-, +, ++	
20	Testresult1B	STR	3	"-", "", +/-, +, ++	
21	Testresult2A	STR	3	"-", "", +/-, +, ++	
22	Testresult2B	STR	3	"-", "", +/-, +, ++	
23	Testresult3A	STR	3	"-", "", +/-, +, ++	
24	Testresult3B	STR	3	"-", "", +/-, +, ++	
25	Testresult (FOBT)	STR	3	POS, NEG, REP, or ""	
26	Testresult (endoscopy)	STR	6	INADEQ, INCOMP, POS, NEG	
27	Testresult comment (endoscopy)	STR	100		Details of positive test
28	Date of answering	DATE	10		DD/MM/YYYY

Reality in the CRC screening implementation: 27 EU countries = 27 approaches ?

Colorectal cancer screening in Europe

Zavoral M., Suchanek S., Zavada F., Dusek L., et al., WJG 15(47), 2009

➡ **7 population-based programmes + 3 in pilot implementation**

➡ **7 opportunistic programmes**

➡ **3 pilot trials**

➡ **7 unknown or not started**

Table 6 Colorectal cancer screening programs in 2007

	Program		Test type	Screening interval	Age eligible national population	
	Type	Status		years or times in LT	Age (yr)	Persons (× 1000)
Austria	NonPB	Natw	FOBT	1 or 2	>50	2210
	NonPB	Natw	CS	10	>50	2210
Belgium	No Prog					2880
Bulgaria	NonPB	Natw	FOBT	1	>31	2340
Cyprus	PB	Natw-plan	FOBT	1 in LT	50	10
	PB	Natw-plan	CS	1 in LT	55	10
Czech Republic	NonPB	Natw	FOBT	2	>50	3010
Denmark	No Prog					1540
Estonia	No Prog					370
Finland	PB	Natw-roll ong	FOBT	2	60-69	570
France	PB	Natw-roll ong	FOBT	2	50-74	16600
Germany	NonPB	Natw	FOBT	1 and 2	>50	24500
	NonPB	Natw	CS	10 (2 in LT)	55-74	18800
Greece	NonPB	Natw	FOBT	5	>50	3180
	NonPB	Natw	CS	5	>50	3180
Hungary	PB	Natw-pilot	FOBT	2	50-70	2630
Ireland	No Prog					940
Italy	PB	Natw-roll ong	FOBT	2	50-69 (70-75)	13800
	PB	Reg-roll ong	FS	1 in LT	58 or 60	80
Latvia	NonPB	Natw	FOBT	1	>50	630
Lithuania	No Prog					870
Luxembourg	No Prog					120
Malta	No Prog					120
Netherlands	No Prog					4460
Poland	PB	Natw-roll ong	CS	10	50-65	7500
Portugal	PB	Natw-plan	FOBT	2	50-70	2520
Romania	PB	Natw-plan	FOBT	2	50-74	5800
Slovak Republic	NonPB	Natw	FOBT		>50	1360
	NonPB	Natw-plan	CS	10	>50	1360
Slovenia	PB	Natw-plan	FOBT	2	50-69	490
Spain	PB	Reg-pilot	FOBT	2	50-69	210
Sweden	PB	Reg-plan	FOBT	2	60-69	220
UK	PB	Natw-roll ong	FOBT	2	(50) 60-69 (74)	7600
Dual prog/test						-25630
Subtotal						106490
Excluded pop.						29500
Total						135990

The practical implementation of the CRC screening in Europe is evidently heterogeneous and not well reported, although methodical standards are clearly given.
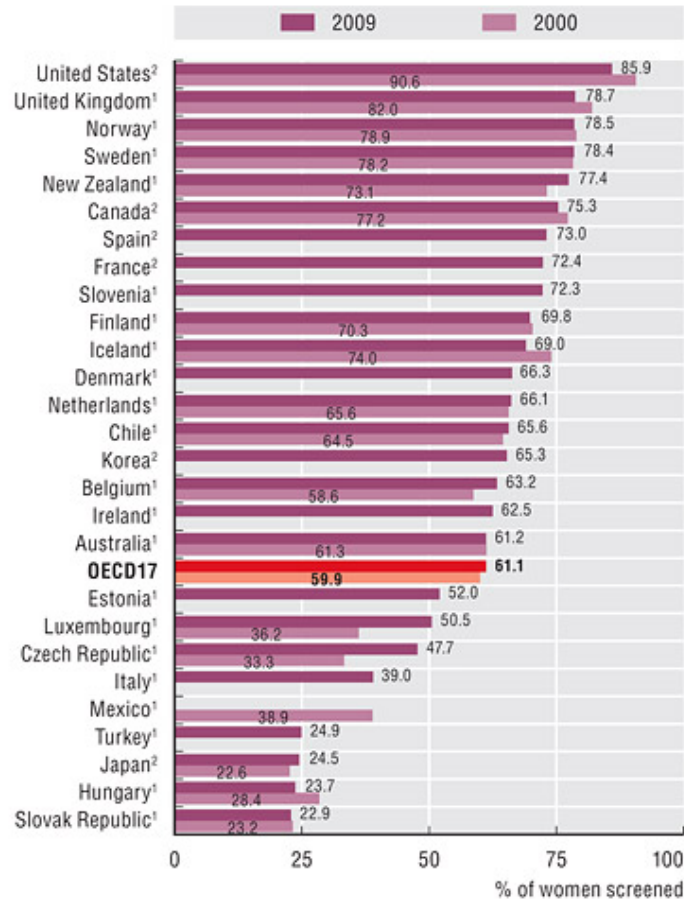**WHAT TO DO ?**

**OECD Health
at a Glance, 2011**

5.8.1 Cervical cancer screening, percentage women screened aged 20-69, 2000 to 2009 (or nearest year)

1. Programme. 2. Survey.
Source: OECD Health Data 2011.
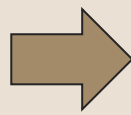StatLink http://dx.doi.org/10.1787/888932525362

5.9.1 Mammography screening, percentage of women aged 50-69 screened, 2000 to 2009 (or nearest year)

1. Programme. 2. Survey.
Source: OECD Health Data 2011.
StatLink http://dx.doi.org/10.1787/888932525419
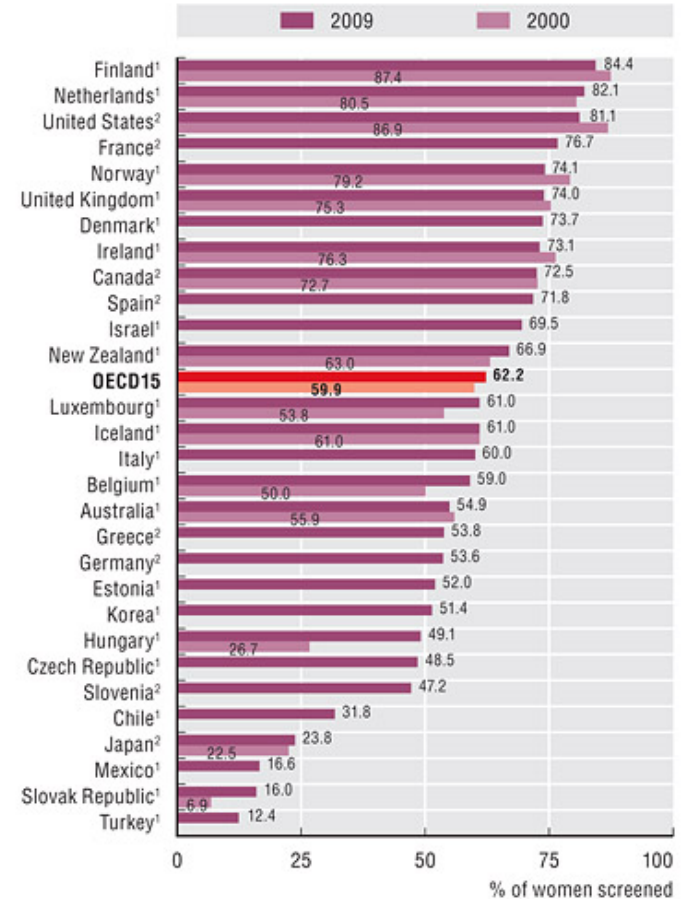
We cannot ...…

      ...… neglect national specifics

        ...… stop evolving screening techniques

We must ...…

    …. facilitate and harmonize the implementation with respect to the following factors:

1. Different health care systems require different ways of implementation of the same methodology
2. Different accessibility of information
3. Different legislation or rules for data handling

Can data-based communication help?

Czech experience as practical example
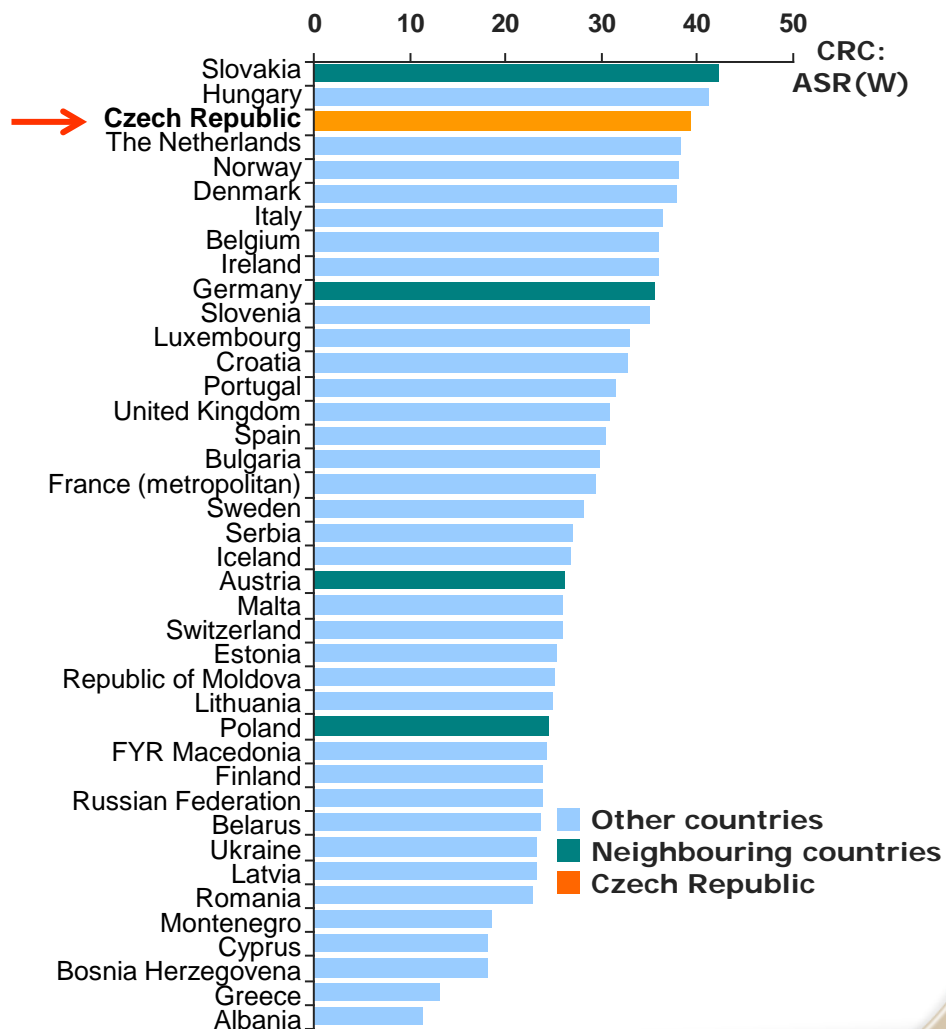
Ferlay J, et al. GLOBOCAN 2008, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 10 [Internet].

SCREENING PROGRAMME(S)

SEPARATED KEY INFORMATION SOURCES

?

Diagnostics

Clinical monitoring

Health care payers
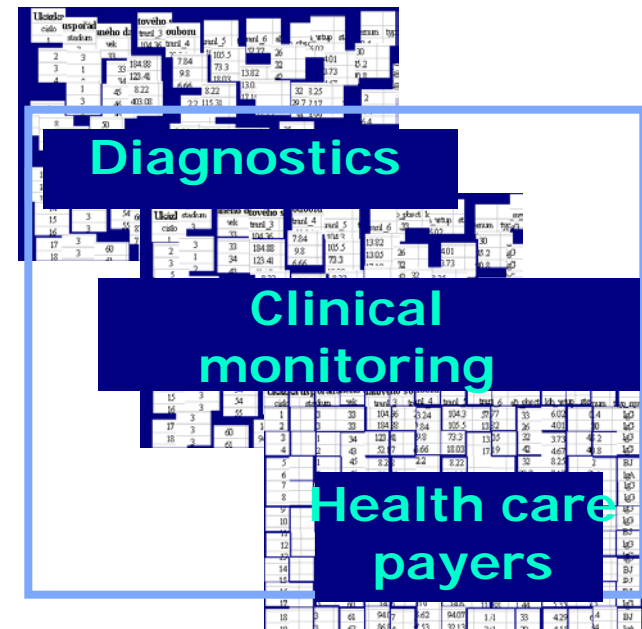
NON-STANDARDIZED INFORMATION SYSTEMS

Solution? 1. Respect the **health care system**

14 regional coordination offices
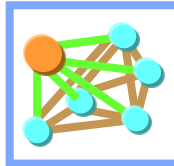
Epidemiology Cancer care

189 health care facilities

Colonoscopy Diagnostics

160 colonoscopy centers

Primary care FOBT

4 400 GPs
1 200 gynaecologists

Equity

QA / QC

REPORTS

Follow-up

Compliance

Feedback control

Cancer registry

ANY DETECTED CANCER

EARLY DETECTED CANCER

Screening registry

Screening registry

Administrative data

Colonoscopy

Advanced adenoma
Polypectomy

Administrative data

FOBT+

Normal result

Participation

Refusal of
follow-up

FOBT-

Screening FOBT

Non-
participation
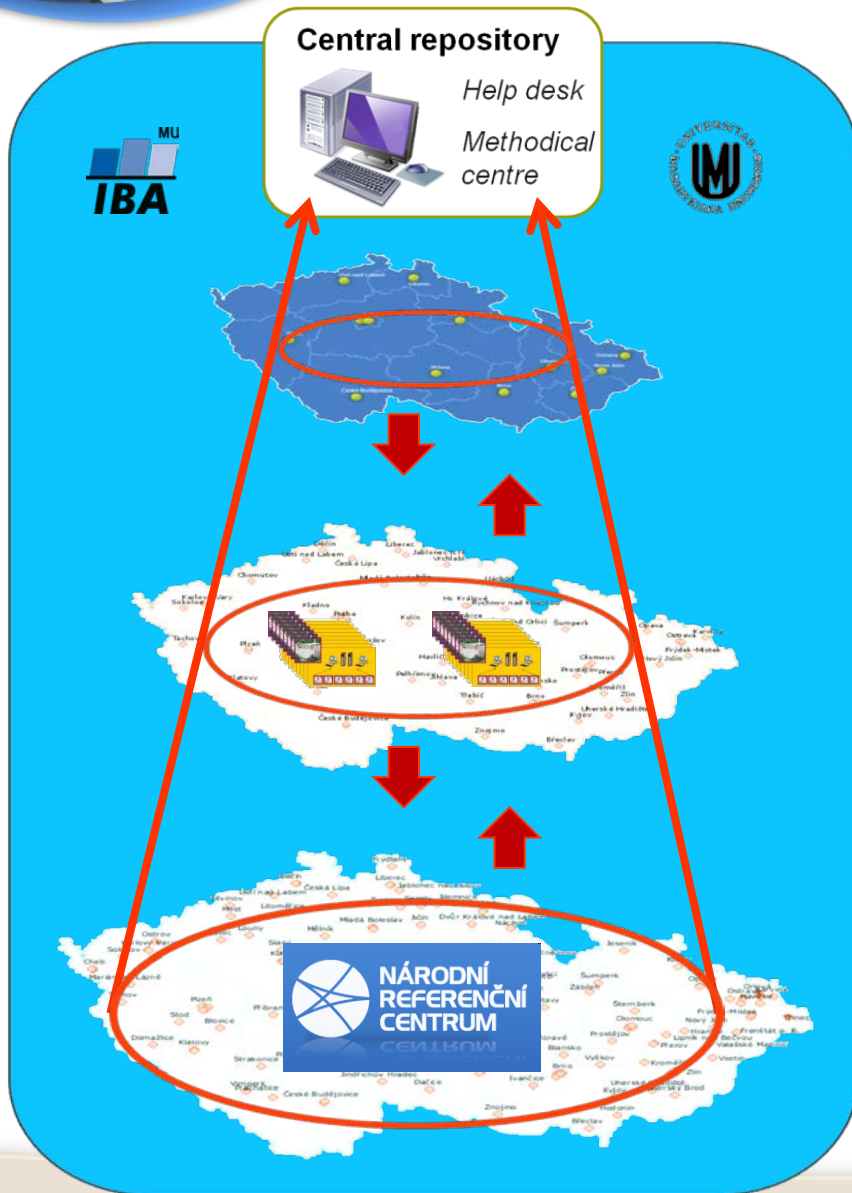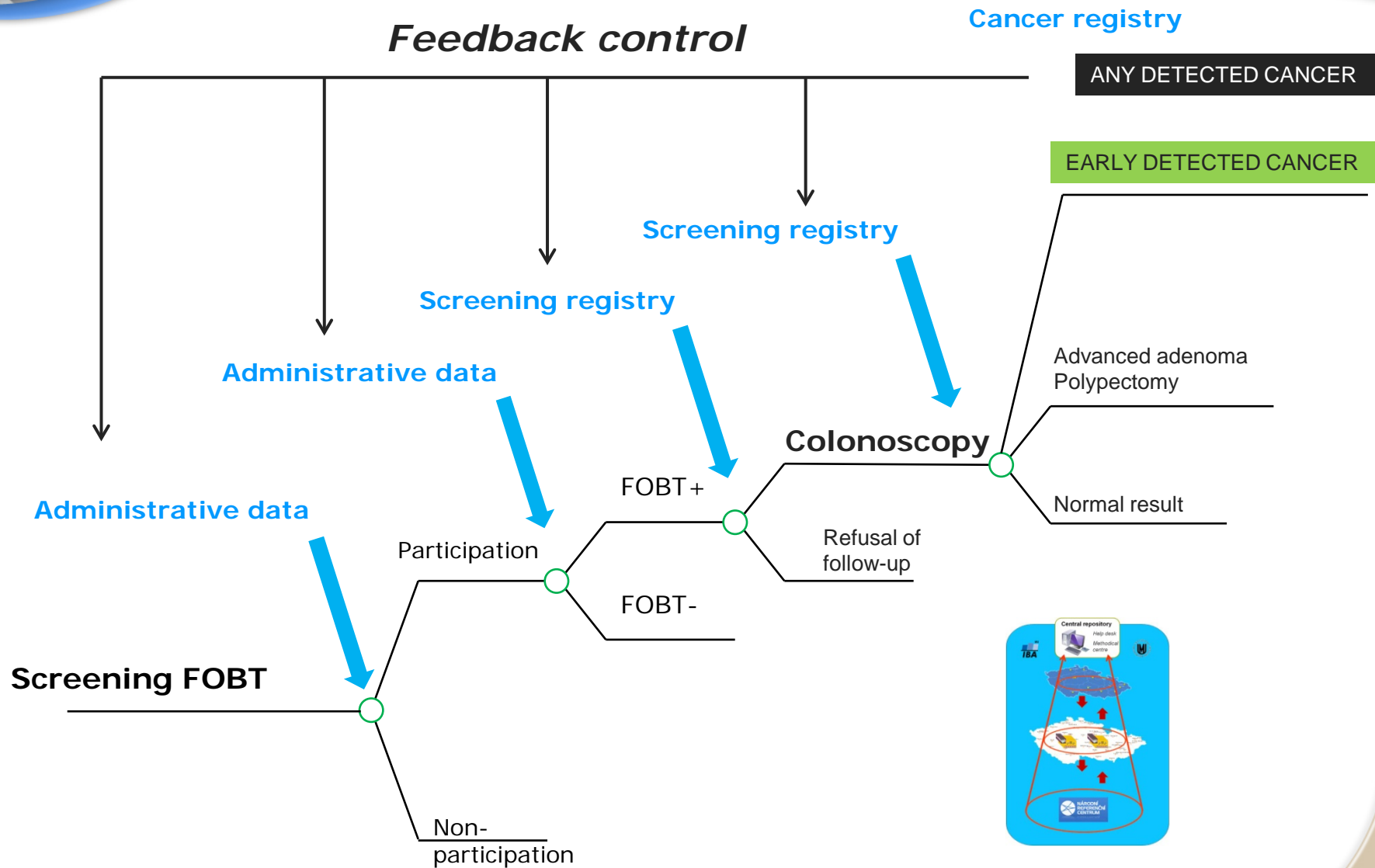
Solution? 3. Data-based **REPORTING**

Epidemiological trends
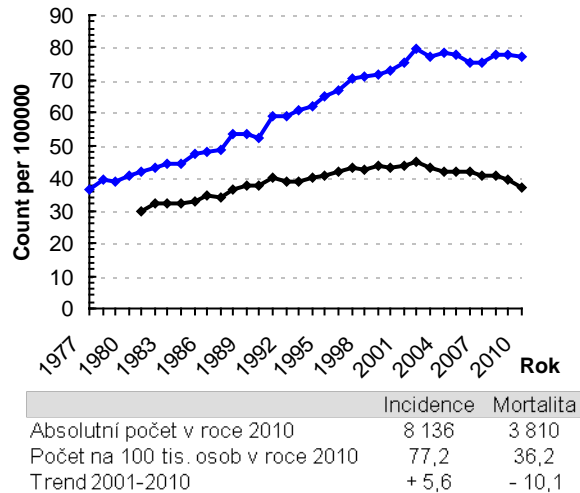
CRC prevalence and burden
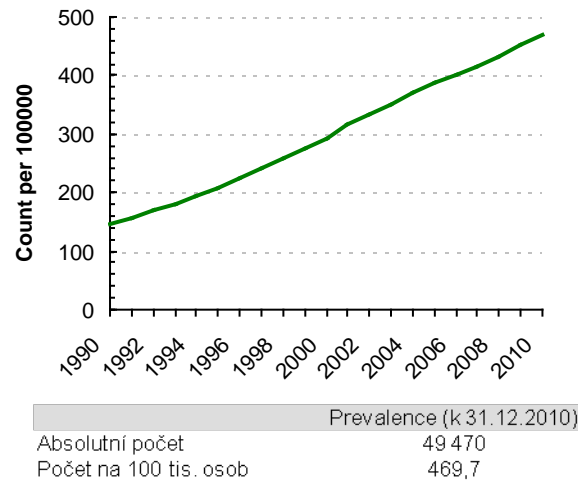
CRC diagnostics: clinical stages
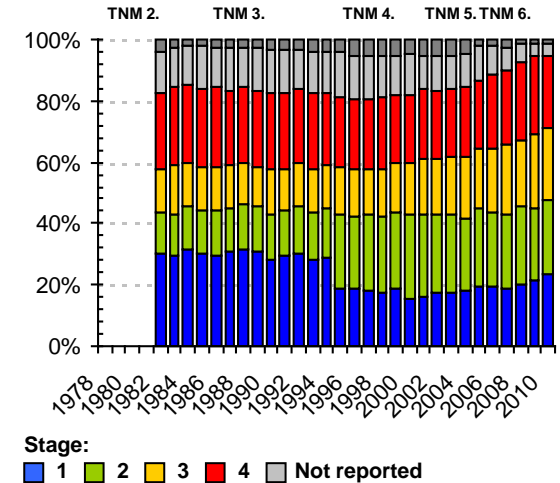
Performance of CRC screening: regional mapping
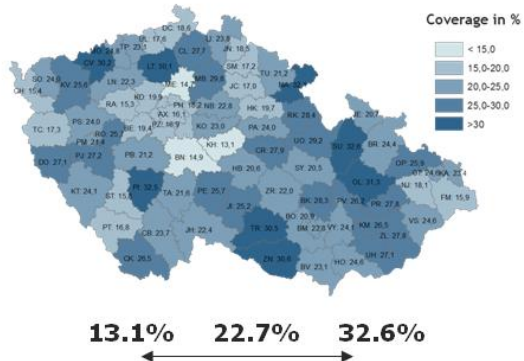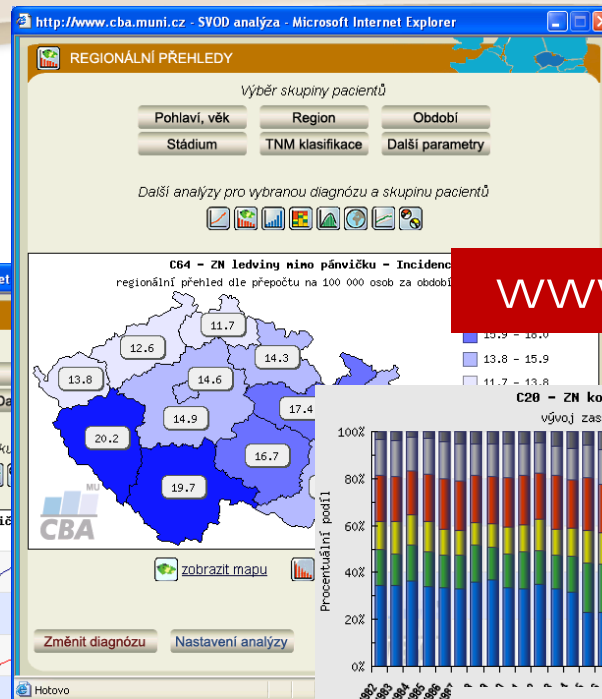
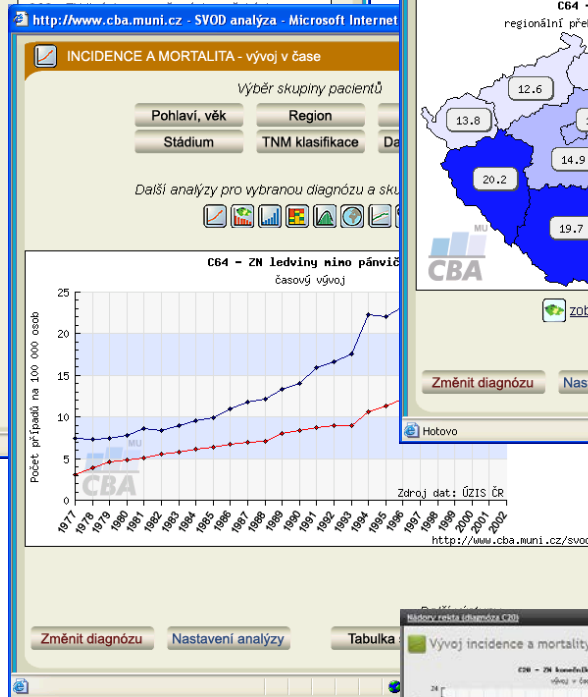**Coverage of CRC screening**
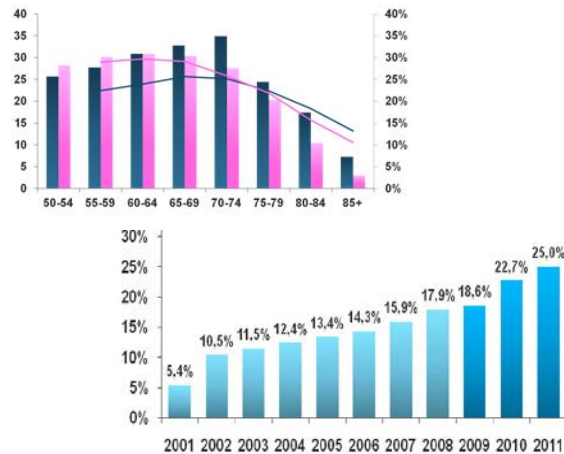
QA / QC in CRC screening
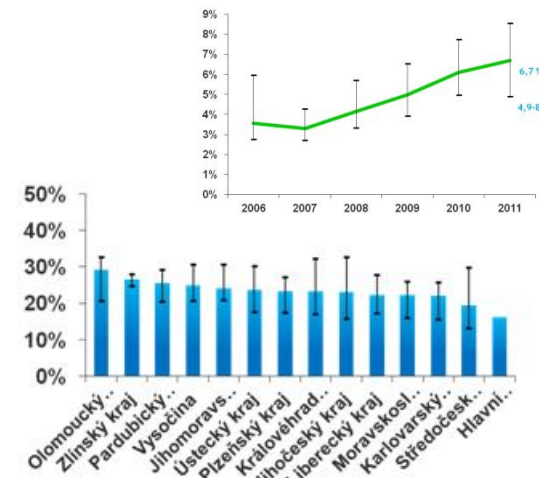
Solution? 4. On-line **accessible information**

www.svod.cz

www.kolorektum.cz
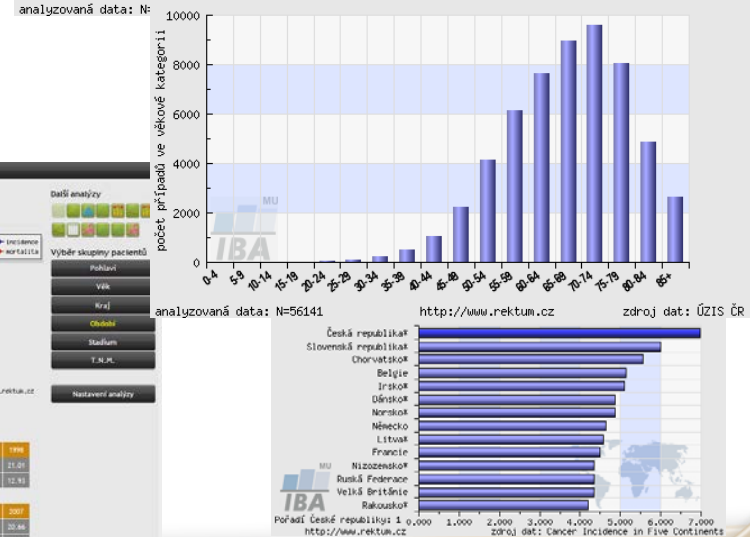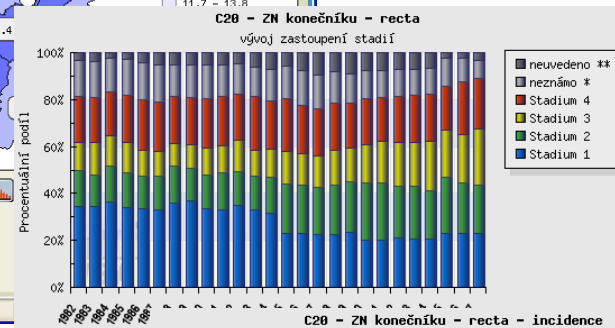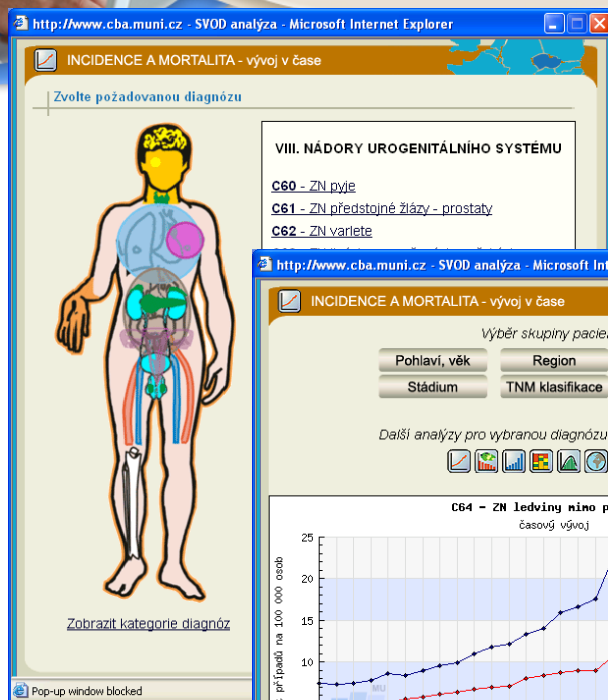
www.rektum.cz
www.mefanet.cz

Can data-based knowledge enhance coverage?

YES !

Czech colorectal cancer screening - coverage
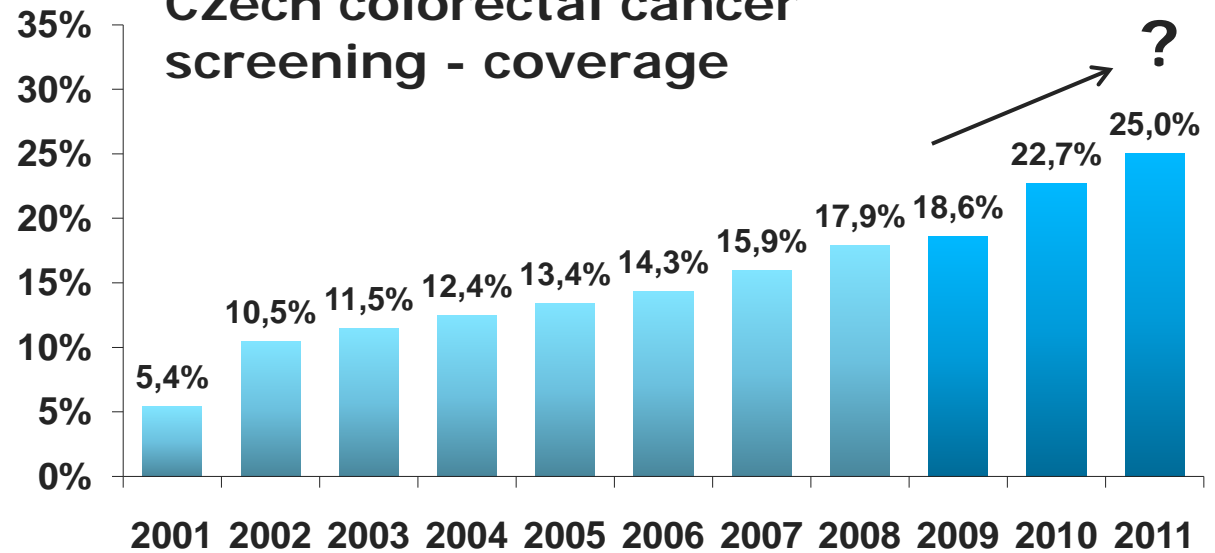
| Year	Coverage
2001	5,4%
2002	10,5%
2003	11,5%
2004	12,4%
2005	13,4%
2006	14,3%
2007	15,9%
2008	17,9%
2009	18,6%
2010	22,7%
2011	25,0%

?
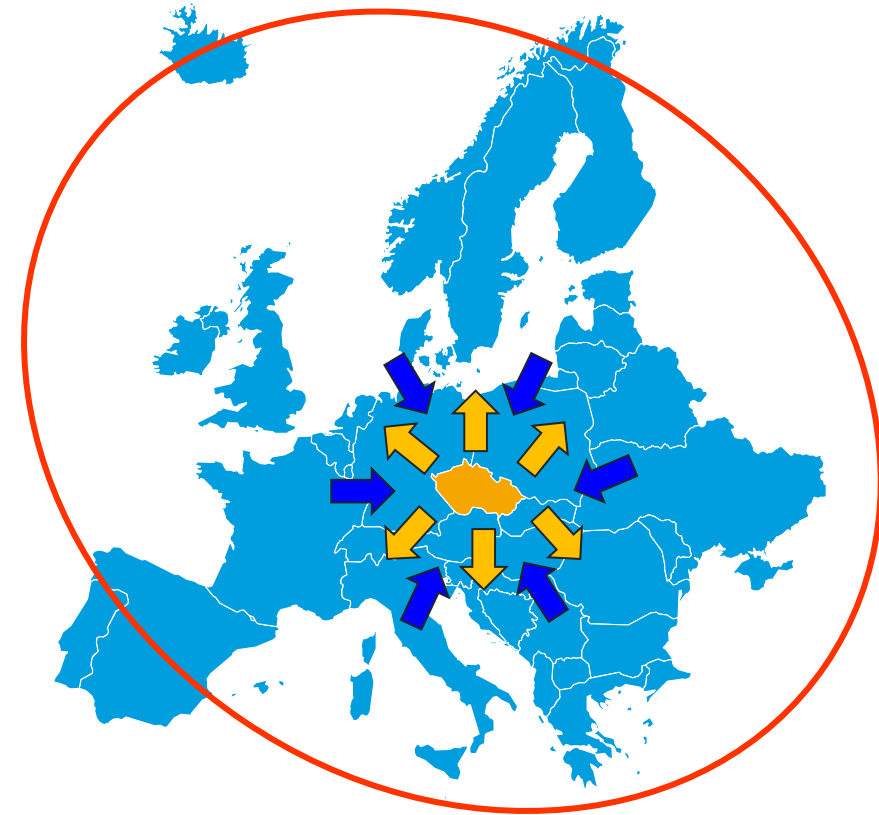
Effective collaboration supporting practical implementation and evaluation of the CRC screening would be highly appreciated

We need to standardize (harmonize):

1. E-data capture systems
2. Integration tools for heterogeneous data
3. Data mining tools
4. Standard national and European reporting
5. Employment of population cancer registries
6. Legislative support for merging of different data sources
7. IT guidelines for addressed invitation to screening
8. Communication guidelines
9. (E) - learning approaches

Excellent example: European cancer observatory - http://eco.iarc.fr
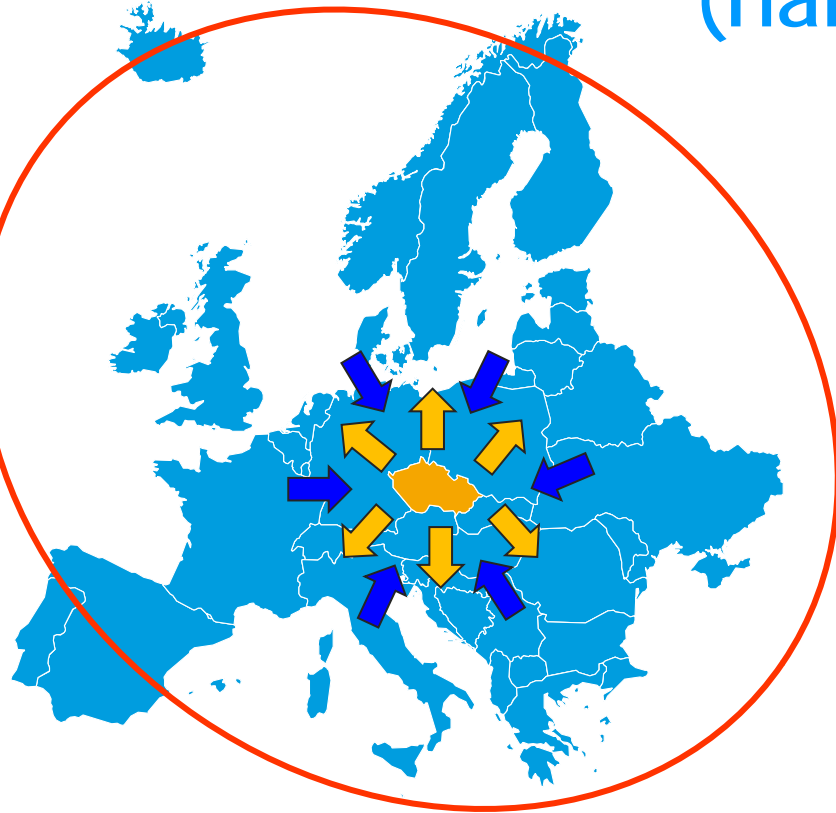
II. EUROPEAN COLORECTAL CANCER DAYS:
BRNO 2013 – PREVENTION AND SCREENING
April 26–27, 2013, Brno, Czech Republic

Under the patronage of
Mr. Tonio Borg, Member of the European Commission
Mr. Pavel Poc, Member of the European Parliament
Mr. Leoš Heger, Minister of Health of the Czech Republic
Mr. Jan Žaloudík, Member of the Senate of the Parliament of the Czech Republic
Mr. Jiří Běhounek, Vice-president of the Association of Regions of the Czech Republic
Mr. Roman Onderka, Mayor of the City of Brno

„CRC prevention in the era of guidelines"

Thank you very much for your attention