

Workshop on CRC cancer screening

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Panel discussion: Open questions

The question whether and how to implement a FS screening programme should take into account some methodological and practical aspects which can drive the comparison between different screening strategies and modalities and which can improve the development and the evaluation of organized screening programme for CRC.

The suggested scenario for discussion identifies FS and FIT as effective screening tests to compare in relation with outcomes, cost, workload, pre-existing CRC screening activities, integration and/or combination of FS and FIT.

Dimensions of comparison and/or integration of CRC screening programmes with FIT and/or FS

1. Outcomes by age and length of time :
 - incidence and stage distribution
 - mortality,
 - overall (cumulative) detection rate,
 - interval cases for FIT (cumulative) and FS.....Time: effect of screening in 10-30 years interval for FS and FIT
2. Population perspective: observed cumulative uptake and detection rate of advanced adenomas and cancer in FIT screening and FS screening, from age at FS and before
3. Individual perspective: expected risk of incidence and mortality of CRC at individual level for FIT and FS screening by age and gender.
4. Endoscopy workload: FS workload, cumulative proportion of colonoscopies in FIT and FS screening (including postpolypectomy surveillance ?), overall endoscopy workload
5. cost of FIT per screen detected advanced adenomas and cancer, according to cumulative detection rates at screening, and cost of FS per screen detected lesions

6. Screening strategies in areas with no active organized screening programme

7. Screening strategies in areas with active organized screening programme

- active and high coverage FIT screening programme
- active and low coverage FIT screening programme
- active FS low coverage screening programme
- active FS high coverage screening programme

8. Screening with integration of FS and FIT:

- sequential approach (invite to FS and offer to the FIT to refusers)
- individual choice (FS or FIT)
- combined approach (Five FITs between 50- 58 years and then once only FS)
- combined approach (FS at 58-60 years and FIT every two years up to 70-75 yrs)
- any other combination

9. Which studies, pilot studies and/or monitoring systems

Proposals

- Article on what to compare
- Cost-benefit Analysis of FIT between 50-57 years
- FS at 58 years after 0-4 rounds of FIT
- FIT after 2, 3, 4, 5....years from FS
- FS invitation to FIT screening non participants
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Scenarios

10 birth cohorts of subjects aged 58 years old invited for FS

**A cohort of subjects aged 50 to 69 years of age at entry
invited for FIT screening every two years over
4 screening rounds
5 screening rounds**

.....

**10 birth cohorts of subjects aged 58 years old
invited for FIT every 2 years until age 68
(last test; overall 6 screening rounds)**

Screening population

Projected population by gender and age
based on the Regional Statistical Service (MADE),
using data for people aged 40 to 80 in 2010,
applying ISTAT life tables
for age and gender specific estimates of survival
probabilities

Expected CRC among screening attenders

Estimated from the Turin Population Cancer Registry
age and gender specific rate
based on the 2005-2007 data

Participation rates and distribution of screening histories

FS data derived by the Piedmont screening program

FIT data derived by the analysis of the Aosta Valley programme

Outcome

CRC cases avoided within 17 years from initial screening (33% reduction after 12 yrs, 20% between 13 and 17 years) or within 75 years of age (for people entering screening after age 58)

Prevented fraction

**Estimated based on the results of the
UK Flexiscope and SCORE trials.**

**Assuming that the observed incidence reduction at 12
years among subjects examined with FS could be
attributed to the detection and excision of the prevalent
advanced adenomas (3.6% in the two trials)**

**the average incidence reduction achievable with FIT was
estimated by cumulating over the screening rounds the
FIT DR of advanced adenomas, expressed as a
proportion of the advanced adenomas DR in the FS trials
(i.e. FIT DR in each round/3.6%)**

Cost of screening

FS derived by the analysis performed in the context of
the pilot FS screening in Turin

<http://www.cpo.it/quaderni.htm/quaderno9>

FIT based on the cost analysis performed in the context
of the Florence program

(Grazzini et al, JMS 2008)

Average cost estimated by calculating the proportion of prevalence
and incidence rounds exams in the different scenarios

CRC prevented cases

	FS 58 YRS	4 FIT 50-69 YRS	5FIT 50-69 YRS	6 FIT 58-69 YRS
UPTAKE	% N	% N	% N	% N
30%	10.3%	8.9%	11.0%	9.2%
	349	480	595	312
40%	13,7%	9.9%	12.1%	12.3%
	466	538	654	417
50%	16,5%	10.9%	13.1%	15.4%
	582	595	713	523
65%	22.3%	12.5%	14.7%	20.0%
	757	680	801	681

UPTAKE		FS 58 YEARS n=	FIT 58 - 69 YEARS
30%	NUMBER OF EXAMS (FS / FIT)	34710	305592
	NUMBER OF TC	2950	12550
	TC EQUIVALENT	14520	12550
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,5	979,3
	COST PER PREVENTED CRC	€ 10.935	€ 21.799
40%	NUMBER OF EXAMS (FS / FIT)	46280	328001
	NUMBER OF TC	3934	13550
	TC EQUIVALENT	19361	13550
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,3	786,6
	COST PER PREVENTED CRC	€ 10.935	€ 17.409
50%	NUMBER OF EXAMS (FS / FIT)	57850	350470
	NUMBER OF TC	4917	14555
	TC EQUIVALENT	24200	14560
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,4	670,1
	COST PER PREVENTED CRC	€ 10.935	€ 14.763
65%	NUMBER OF EXAMS (FS / FIT)	75205	384174
	NUMBER OF TC	6392	16064
	TC EQUIVALENT	31460	16070
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,3	546,1
	COST PER PREVENTED CRC	€ 10.935	€ 12.363

UPTAKE		FS 58 YEARS n=	FIT 50-69 YEARS n=		FIT 58 - 69 YEARS
			4 rounds	5 rounds	
30%	NUMBER OF EXAMS (FS / FIT)	34710	395403	511645	305592
	NUMBER OF TC	2950	16749	21488	12550
	TC EQUIVALENT	14520	16749	21488	12550
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,5	823,8	859,9	979,3
	COST PER PREVENTED CRC	€ 10.935	€ 18.516	€ 19.142	€ 21.799
40%	NUMBER OF EXAMS (FS / FIT)	46280	448822	573508	328001
	NUMBER OF TC	3934	19196	24302	13550
	TC EQUIVALENT	19361	19196	24302	13550
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,3	834,2	876,9	786,6
	COST PER PREVENTED CRC	€ 10.935	€ 18.647	€ 19.409	€ 17.409
50%	NUMBER OF EXAMS (FS / FIT)	57850	502241	635370	350470
	NUMBER OF TC	4917	21642	27116	14555
	TC EQUIVALENT	24200	21642	27116	14560
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,4	844,1	891,1	670,1
	COST PER PREVENTED CRC	€ 10.935	€ 18.784	€ 19.631	€ 14.763
65%	NUMBER OF EXAMS (FS / FIT)	75205	582369	728164	384174
	NUMBER OF TC	6392	25312	31337	16064
	TC EQUIVALENT	31460	25312	31337	16070
	NUMBER OF EXAMS NEEDED TO PREVENT ONE CRC	99,3	856,4	909,1	546,1
	COST PER PREVENTED CRC	€ 10.935	€ 18.961	€ 19.916	€ 12.363

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			4 rounds	5 rounds
30%	NUMBER OF EXAMS (FS / FIT)	34710	395403	511645
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Proposte

- Analisi costi benefici FIT 50 -57 anni
- FS a 58 anni dopo 0-4 round di FIT
- FIT dopo FS a 2, 3, 4, 5.... anni da FS
- Invito a FS a non aderenti a FIT
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