

Colorectal cancer screening in Italy: A survey of gastroenterologists' clinical practices

Dear Editor,

Colorectal cancer (CRC) is a major cause of morbidity and mortality and is one of the most common tumors [1]. Because CRC has a common presentation and protracted disease course, it is an optimal candidate for early detection by screening [2–4].

To support the development of CRC screening programs, the American College of Physicians [3] and other medical societies have issued clinical practice recommendations.

In Italy CRC screening program invites people between 50 and 69 years to perform a biannual fecal occult blood test FIT and in individuals with a positive result a colonoscopy is offered. Data about how CRC screening is specifically conducted in Italy is currently lacking. The study of the existing discrepancies is a first necessary step to planning corrective measures to bridge the gap between current clinical practice and recommendations [5]. Therefore, the Scientific Committee of Federazione Italiana Società Malattie Apparato Digerente (FISMAD), a federation of Italian digestive disease associations, conducted a survey on CRC screening activities in Italy.

An anonymous 22-item questionnaire was distributed to all physicians attending the 24th National Congress of Digestive Diseases, held in Rome, Italy, on 21–24 March 2018. The questionnaire collected information on respondents' demographics, occupation, on the number of colonoscopies performed per year (Section A), on CRC screening organization, on the gastroenterologist's practices during screening colonoscopy (section B) and evaluated if and how the guidelines of European Society of Gastrointestinal Endoscopy were followed (section C). Data were collected and associations between variables were tested for significance using the chi-square test, considering as statistically significant a two-sided P -value <0.05 .

71.3% medical specialists answered the survey (65.3% female vs. 34.7% male), all age groups and all four Italian macro-areas were represented (Table 1). Women were significantly younger than men ($p<0.01$) (Fig. 1). Of respondents someone did not answer some questions of section B and C of questionnaire (about 10–14% Section B, about 12–15% Section C) (Table 1).

56.4% of participants worked in community hospitals, followed by university hospitals (29%). Most participants in the survey were gastroenterologist (76.4%) with a long experience and a large number of colonoscopies and screening colonoscopies each year (68.7% performed over 300 colonoscopies/year, 31.2% did more than 200 screening colonoscopies/year).

Among the respondents, most worked in areas where screening was organized on a regional basis (58.6%), followed by local

unit (28.4%) or provincial basis (13.0%). Active surveillance in the majority of cases (71.7%) was not organized by the respondents' institutes.

The study found discrepancies between guidelines and actual clinical practice regarding the conversation with patients before screening colonoscopy: 37.5% of survey respondents always schedule a meeting with patients to explain the procedure and results of screening, 18% only with selected patients while 44% do not meet with patients. The European Society of Gastrointestinal Endoscopy (ESGE) recommends that the screening program include a clear explanation of the procedure, of the preparation required and of discomfort, risks, and benefits [6]. When patients are adequately informed and willing to actively participate in the preparation process, the level of intestinal cleanliness improves, increasing neoplasia detection and cecal intubation rate (CIR) [7].

The effectiveness of different bowel cleansing protocols has not been thoroughly investigated, but some data suggest that administering polyethylene glycol in two smaller doses improves the tolerability of the procedure and quality of the results [7]. In accordance with guidelines [6], the bowel preparation method mostly used for screening was “high-volume, split or same day” (40.0% of respondents) followed by “high-volume, day before” (24.7%) and “low-volume, split or same day” (24.5%).

An important feature of screening colonoscopy is to record the bowel preparation score. This study found that majority of specialists (88.6%) records bowel score and the Boston Bowel Preparation Scale is the most used (80.6%). ESGE guidelines recommend the use of sedation during endoscopy, to lower the level of discomfort that may adversely affect screening uptake and colonoscopy completion rates [6]. Zorzi et al. showed that dedicated colonoscopy session and the use of sedation is useful for higher Adenoma Detection Rate (ADR) and CIR [8]. In our data most respondents (79.1%) perform endoscopy with conscious sedation, in accordance with the recommendations. CIR is a prerequisite for complete visualization of the colorectum and is fundamental to any CRC screening program. 90.2% of survey respondents know and audit their CIR and 60.9% of them achieve intubation in more than 95% of examinations. These data confirm those of Radaelli et al. [9], who reported an 80.7% rate of cecal intubation in their survey.

Colonoscopy withdrawal time and ADR are closely related [9]. 39.2% of specialists had no planned session for screening, while the remaining had up to 5 days per week dedicated to screening. For 47.0% of specialists time scheduled for colonoscopy was 30–45 min while shorter or longer times were scheduled for about equal percentages of the others. Planned sessions for screening were longer than unplanned ones: 79.3% of planned session take more than 30 min vs. 64.5% of unplanned sessions (data not shown, $P<0.01$ chi-square test=11.81). As indicated in the ESGE guidelines, the minimum recommended withdrawal time for diagnostic

Table 1
 Characteristics of 523 specialists who answered the survey.

Demographic and occupational characteristic (section A)	n ^a	%
Gender		
Male	339	65.3
Female	180	34.7
Age class, years		
<40	122	23.6
41–50	102	19.7
51–60	157	30.3
>60	137	26.5
Area of residence		
Northwestern Italy	105	20.2
Northeastern Italy	98	18.9
Central Italy	130	25.1
Southern Italy and islands	186	35.8
Institution		
Public hospital	293	56.4
University hospital	151	29.0
Private hospital or other	76	14.6
Specialty		
Gastroenterology/digestive endoscopy	398	76.4
General surgery	42	8.1
Digestive tract surgery	37	7.1
Internal medicine or other	44	8.5
Colonoscopies, n/year		
None	65	12.6
1–300	96	18.6
>300	354	68.7
Screening colonoscopies, n/year		
None	101	19.8
1–100	115	22.6
101–200	134	26.3
>200	159	31.2
Organization of CRC screening (section B)		
Screening organization		
Local unit basis	133	28.4
Provincial basis	61	13.0
Regional basis	274	58.6
No response	55	
Institute is responsible for active surveillance		
Yes	129	28.3
No	327	71.7
No response	67	
Gastroenterologist interview scheduled after positive FIT result		
No, never	204	44.4
Yes, always	172	37.5
Yes, in selected cases	83	18.1
No response	64	
Planned sessions for screening		
No	181	39.2
Yes	281	60.8
<3 days/week	108	23.4
3 days/week	58	12.6
4 days/week	27	5.8
5 days/week	88	19.1
No response	61	
Time for a colonoscopy examination		
<30 min	120	26.6
30–44 min	212	47.0
45–60 min	119	26.4
No response	72	
Type of bowel preparation usually adopted		
High volume, day before	114	24.7
High volume, split or same day	185	40.0
Low volume, day before	34	7.4
Low volume, split or same day	113	24.5
Various types	16	3.5
No response	61	
Use of high-definition instruments for screening		
No	107	23.6
Yes	347	76.4
Minority of cases	87	19.2
Majority of cases	95	20.9
Always	165	36.3

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Table 1 (continued)

Demographic and occupational characteristic (section A)	n ^a	%
No response	69	
Adherence to European quality standards for CRC screening (section C)		
Opinion about participating in an organized screening program		
An opportunity	414	90.8
An overload of work	42	9.2
No response	67	
Sedation use		
Usually not	45	10.2
Deep sedation	47	10.7
Conscious sedation	349	79.1
No response	82	
Cleaning scales used to evaluate the intestinal preparation		
No	51	11.4
Yes	398	88.6
Boston-Bowell preparation scale	362	80.6
Other	36	8.0
No response	74	
Cecal intubation rate known		
No	44	9.8
Yes	403	90.2
<90%	29	6.5
90–95%	102	22.8
>95%	272	60.9
No response	76	
Adenoma detection rate known		
No	208	47.2
Yes	233	52.8
<25%	77	14.7
≥25%	156	35.4
No response	82	
Recommendation for patients with low-risk adenoma detected at screening		
FIT after 5 years	78	17.6
FIT after 3 years	29	6.6
Colonoscopy after 1 year	16	3.6
Colonoscopy after 3 years	124	28.0
Colonoscopy after 5 years	196	44.2
No response	80	
For polypoid lesions greater than 25 mm		
Resection always scheduled	113	25.6
Resection often scheduled	110	24.9
Resection scheduled just in select cases	142	32.2
Lesion removed during colonoscopy		
No response	76	17.2
No response	82	

^a The sums are less than 523 due to missing values; CRC colorectal cancer; FIT fecal immunochemical test.

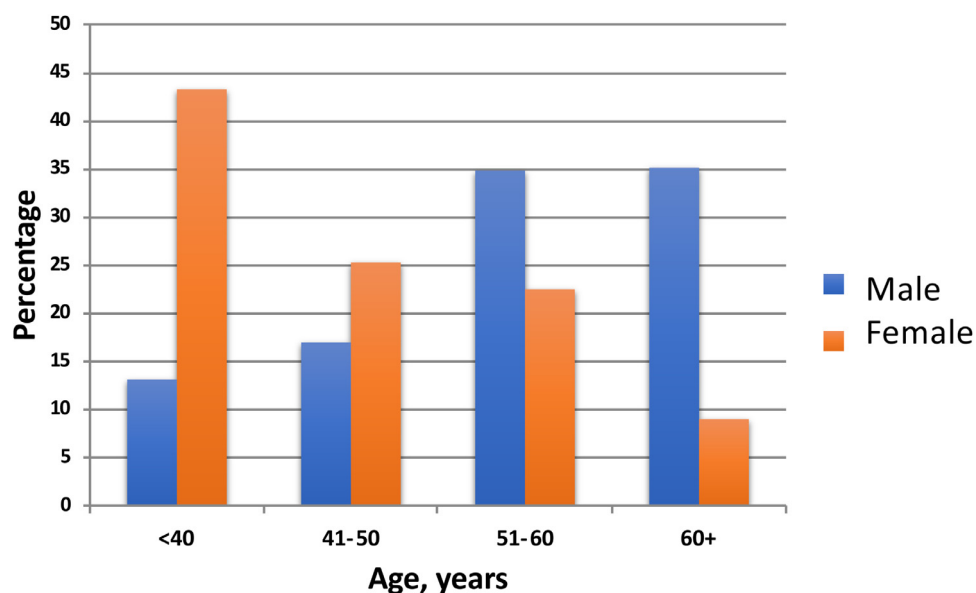


Fig. 1. Age distributions of male and female survey respondents.

Table 2
Characteristics of colorectal cancer screening, by total number of annual colonoscopies.

	Colonoscopies per year		X ²	P
	≤300 n (%)	>300 n (%)		
Screening colonoscopies, n/year				
≤100	137 (86.2)	78 (13.8)		
>100	22 (22.5)	269 (77.5)	180.2	<0.01
Scheduled time for a colonoscopy				
<30 min	48 (41.4)	68 (20.7)		
≥30 min	68 (58.6)	261 (79.3)	19.0	<0.01
Use of high-definition instruments for screening				
No, or in a minority of cases	67 (57.3)	122 (36.9)		
Yes, majority of cases	50 (42.7)	209 (63.1)	14.7	<0.01
Cecal intubation rate				
Not known or <90%	51 (43.6)	21 (6.4)		
≥90%	66 (56.4)	307 (93.6)	87.7	<0.01
Adenoma detection rate				
Not known or <25%	101 (87.7)	182 (56.4)		
≥25%	15 (12.9)	141 (43.7)	35.1	<0.01
Recommendation for patients with low-risk adenoma detected at screening				
FIT after 5 years	17 (14.5)	61 (18.8)		
Other	100 (85.5)	263 (81.2)	1.09	0.29
For polypoid lesions greater than 25 mm				
Resection always or often scheduled	65 (57.5)	157 (48.2)		
Resection scheduled just in select cases, or lesion removed during colonoscopy	48 (42.5)	169 (51.8)	2.9	0.09

FIT fecal immunochemical test.

colonoscopies is 6 min. ESGE recommends recording the number of adenomas and cancers found in all screening examinations. Our data demonstrate that 47.1% of specialists do not know their ADR and among the remaining 52.9%, 35.4% have a rate greater than 25%.

An inappropriate polypectomy technique increases the risk of incomplete polyp removal, which leads to further costs, inconvenience and can contribute to the development of interval CRCs.

When screening reveals a polypoid lesion greater than 25 mm, 50.6% always or often schedule resection for a later date, 32.2% of specialists scheduled resection just in select cases and only 17.2% remove the lesion during colonoscopy.

In case of patients with a low-risk adenoma detected at screening, 44.2% of respondents usually recommend colonoscopy after 5 years, 28.0% recommend colonoscopy after 3 years, 17.6% recommend FIT after 5 years, 6.6% recommend FIT after 3 years, and finally 3.6% recommend colonoscopy after 1 year.

Moreover, a deeper analysis of the distribution of selected variables stratified by the number of colonoscopies per year was performed (Table 2). Most specialists who perform more than 300 colonoscopies annually also do more than 100 screening colonoscopies annually (77.5% vs. 22.5% for those performing ≤300 colonoscopies, $P<0.01$). Furthermore, screening colonoscopy sessions more frequently last 30 min or longer (79.3% vs. 58.6%, $P<0.01$), and they are more likely to use high-definition instruments (63.1% vs. 42.7%, $p<0.01$), have a CIR ≥90% (93.6% vs. 56.4%, $P<0.01$), and have an ADR ≥25% (43.7% vs. 12.9%, $P<0.01$). Regarding the specialists' behavior when screening reveals a low-risk adenoma or large polypoid lesion, there was no significant difference between those reporting more or less than 300 colonoscopies per year.

A similar analysis was done by considering strata of specialists performing more or less than 100 screening colonoscopies per year, yielding similar results (data not shown). No statistically significant associations emerged with regard to the other investigated variables.

Of interest, almost all the survey participants (90.8%) stated that participating in a screening program would be an opportunity for improving the detection of early stage CRCs and precancerous le-

sions in asymptomatic people with no history of cancer or precancerous lesions. This is an important point for decreasing CRC morbidity and mortality. Data show that there are still ample room for preparation, sedation and appropriateness improvement and an educational project for improving colorectal cancer screening quality is necessary.

Conflict of interest

The author declares no conflict of interest.

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Appendix: 2018 FISIMAD Scientific Committee

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References

- [1] AIOM "I numeri del cancro in Italia" 2019 <https://www.aiom.it/i-numeri-del-cancro-in-italia/>
- [2] Al-Hajeili M, Abdulwassi HK, Alshadadi F, et al. Assessing knowledge on preventive colorectal cancer screening in Saudi Arabia: a cross-sectional study. *J Family Med Prim Care* 2019;8(10):3140–6 Oct 31.
- [3] Qaseem A, Crandall CJ, Mustafa RA, et al. Clinical Guidelines Committee of the American College of Physicians. Screening for colorectal cancer in asymptomatic average-risk adults: a guidance statement from the American College of Physicians. *Ann Intern Med* 2019;171(9):643–54 Nov 5.
- [4] Zorzi M, Gennaro N, Capodaglio G, et al. Colorectal cancer screening: the surgery rates they are a-changing. A nationwide study on surgical resections in Italy. *Dig Liver Dis*. 2019;51(2):304–9 Feb.
- [5] Rondonotti E, Spada C, Pennazio M, et al. Adherence to European Society of Gastrointestinal Endoscopy recommendations of endoscopists performing small bowel capsule endoscopy in Italy. *Dig Liver Dis* 2019;51(6):818–23 Jun.
- [6] Rembacken B, Hassan C, Riemann JF, et al. Quality in screening colonoscopy: position statement of the European Society of Gastrointestinal Endoscopy (ESGE). *Endoscopy* 2012;44(10):957–68 Oct.
- [7] Spada C, Cannizzaro R, Bianco MA, et al. Preparation for colonoscopy: recommendations by an expert panel in Italy. *Dig Liver Dis* 2018;50(11):1124–32 Nov.
- [8] Zorzi M, Senore C, Da Re F, et al. Quality of colonoscopy in an organised colorectal cancer screening programme with immunochemical faecal occult blood test: the EQUiPE study (Evaluating Quality Indicators of the Performance of Endoscopy). *Gut* 2015;64(9):1389–96 Sep.
- [9] Radaelli F, Meucci G, Minoli G. Italian Association of Hospital Gastroenterologists (AIGO). Colonoscopy practice in Italy: a prospective survey on behalf of the Italian Association of Hospital Gastroenterologists. *Dig Liver Dis* 2008;40(11):897–904 Nov.

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